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Populism and Impatience

Abstract

We develop a model where highly impatient voters are more likely than others to be subject to institutional frictions in the form of binding borrowing constraints. As impatient, borrowing-constrained voters cannot move long-term policy gains to the present, they turn to short-sighted, typically populist agendas, to politically obtain what the credit market denies them, namely relief from a short-term sacrifice. Empirical analyses based on German and British data show that there is indeed an association between impatience and the likelihood of preferring a populist party which remains substantial even after controlling for life outcomes, as well as across a number of sensitivity analyses. A comparison between populist parties within the German data reveals that impatience is associated with right-wing populism, but not left-wing populism. The results also confirm that the relationship between impatience and the likelihood of preferring a populist party is indeed attributed to voters who are likely borrowing-constrained. We conclude that institutional frictions can lead voters to support short-sighted policy agendas.

Keywords: Time-preference, impatience, populism, borrowing constraint.

JEL Classification: D15, D72, D91, F15, F68, H53

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1. Introduction

Populism has flourished over the last few decades in many nations across the world. From the economist's point of view, this is puzzling in light of the often detrimental economic impact of policies populist parties push for. Recently, Funke et al. (2023) have confirmed that the economic costs of populist ruling are indeed high. Based on a study of more than 50 populist governments between 1900 and 2020, they conclude that, after 15 years, GDP per capita is 10 percent lower compared to plausible nonpopulist counterfactuals. This gives rise to the question why voters favor political movements that likely harm their long-term economic prospects. In this paper, we argue that impatient voters facing credit market frictions may be particularly attracted to a short-termist policy agenda. It is in their self-interest to vote for populist parties that promise to prevent forward-looking policies associated with short-term sacrifices.

Impatient voters might have invested less in their skills and are thus oftentimes more likely to lose from structural changes, which makes them prone to support protectionist policies advocated by populist parties. In addition, the intertemporal payoff structure may matter to them: as impatient voters are more likely to be borrowing-constrained than other voters, *ceteris paribus*, they are also more likely to prefer policies paying off at present rather than in the future.

To develop this argument, we present a model in which voters face an intertemporal choice of accepting or rejecting a forward-looking reform. Impatience is reflected in the individual's rate of time preference (utility discount rate). Each individual's assessment of the welfare consequences of the forward-looking reform depends on their educational attainment, income, and other characteristics, as well as on the person's ability to adjust their savings to an income shock associated with the reform, modeled as a decrease in current incomes and an increase in future incomes. If the future benefits were lower than the short-term cost in present value terms, the individual would, of course, reject the forward-looking reform. Crucially, however, even if the individual gains in terms of lifetime income, impatience can drive them towards a binding borrowing constraint which, in turn, makes them less likely to support the reform in question. This is so regardless of whether highly impatient voters have time-consistent preferences or a time-inconsistent preference for immediate gratification, which means the argument applies broadly. The intuition is that credit-constrained voters cannot privately smooth consumption because no lender will let them move future reform gains to the present. Being denied by the credit market, these voters rationally back policy offers promising preventing the reform to avoid the loss of current income. By the same substitutive logic, we show that measures of up-

front redistribution are a political way of garnering support for a forward-looking reform, as up-front redistribution serves to relax the borrowing constraints. Ultimately, our model implies that varying institutional constraints can cause self-interested voters to differ in their support for short-sighted versus long-term oriented policies.

We use rich sources of survey data for two countries, Germany and the United Kingdom, to explore the validity of our theoretical findings across two political systems and for different ways of measuring the key variables of political preferences and time preferences. In doing so, we focus on the incentives facing individual voters. Both datasets allow us to control for stable traits (e.g., openness), thus reducing the bias from oftentimes omitted variables. Furthermore, we control for life outcomes to isolate the direct effect of impatience in populist political preferences from indirect effects via income and education. We find that impatience correlates positively with a preference for populist parties, as well as with the support of populist views, which cannot be explained solely by indirect effects via educational attainment and income. The analysis of Germany moreover implies that impatience is related with right-wing populism, not left-wing populism. Our findings also confirm the prediction that the relationship between impatience and the likelihood of preferring a populist party is indeed attributable to those who are borrowing-constrained.

In Section 2, we provide a brief literature review on populist voting behavior and its determinants as well as a characterization of populist parties in Germany and the UK. Section 3 develops a theoretical model that elaborates on the effect of impatience on the individual's assessment of the costs and benefits of a forward-looking reform. Data and empirical methodology are presented in Section 4, while Sections 5 and 6 document the empirical results. Section 7 presents a number of sensitivity tests, and Section 8 summarizes and concludes.

2. Background

2.1 Related public choice theory

By integrating the role of impatience into a model of political choice, our paper contributes to a broader literature on constrained voting behavior and transactional voting. Building on behavioral economics modeling of exponential and hyperbolic discounting (Laibson 1997; O'Donoghue and Rabin 1999), we explore the roles of time-consistent and time-inconsistent impatience in political choice, thus considering different empirically relevant types of individual time discounting (e.g., Hey and Lotito 2009). In the process, our work extends previous public choice theory, such as Nordhaus (1975), who considers myopic preferences of

boundedly rational voters with a decaying memory of past events. He shows that if otherwise rational voters base their expectations of future policy outcomes on retrospective assessments of previous policies, then this may lead to choices disfavoring future generations. Our model is also linked to literature focusing on fully rational voters facing some constraint when forming expectations such as high informational costs related to future policy outcomes (Downs 1957) or to hidden cost of governmental policies, which according to Buchanan (1967) may explain fiscal illusion. We extend this research by showing that binding borrowing constraints can lead self-interested voters to prefer myopic policy agendas.

Ultimately, our work is an example of voters exchanging support for parties against individual utility gains. It thus follows the public choice tradition of characterizing politics as a place where people trade mutually beneficial agreements (Buchanan and Tullock 1962). Where the credit market is unable to allow impatient voters to shift future gains to the present, these voters turn to populist parties promising relief from the short-term cost of reforms. We also show that a government interested in the reform could make a transfer up-front in order to receive the support of these voters.

A study closely related to ours is therefore Bisin et al. (2015), who develop a theoretical model on the relationship between time-inconsistent preferences, borrowing constraints, and voting behavior, albeit with a focus on topics other than populism. In their model, constrained agents also turn to the political system to realize immediate income gains. The article shows that agents who are forced by a paternalistic government to accumulate illiquid savings have an incentive to vote for higher government spending to at least partially circumvent their constraint. We contribute to this research area in primarily two ways: first, by providing empirical evidence suggesting that impatience may lead to party choices favoring short-sightedness and, second, by showing that the mechanism through which this choice operates is a binding borrowing constraint driven by impatience rather than present-bias per se.

2.2 Populism and empirical contribution

Populist movements across the world are very heterogenous when it comes to political stances, yet they have at least one common theme: they consider society to be separated into two distinct antagonistic groups, the ‘pure people’ and a ‘corrupt elite’ (e.g., Mudde 2004; Mudde and Kaltwasser 2017). Populists argue that the corrupt elites favor policies facilitating social and economic change – notably globalization – benefitting the elites at the expense of the pure people. While left-wing populist parties reject globalization as an elite-driven instrument that

fosters inequality (Rodrik 2018), their right-wing counterparts frame international trade and migration as threats to national sovereignty and cultural homogeneity (Colantone and Stanig 2019).

Globalization constitutes a particularly striking example of a policy where the adjustment costs appear immediately, while the benefits materialize later on (e.g., Trefler 2004; Lamp 2019). By opposing globalization, populists promise their voters protection against the often inevitable adjustment costs, while neglecting long-run gains. As Guiso et al. (2019, p. 98) note, the anti-elitist narrative helps right-wing populists in particular to dismiss objections from anyone “who talks about future costs or relatively complex solutions”.¹

In our study, we shift the focus of this line of argument from the supply side of politics to the demand side. Specifically, we explore which types of voters are more or less prone to vote for short-sighted policies, foregoing positive income effects in the longer term. Populism is characterized as a response of the political system to a demand for short-termism. When impatience in conjunction with credit market failure restricts voters from smoothing their consumption, they choose immediate relief over future gains. An entrepreneurial politician has an incentive to supply a short-termist policy targeting this demand from constrained voters.

There is already a large literature on the factors driving the demand for populist policies (for surveys see Berman 2021; Guriev and Papaioannou 2022). Again, one focus has been on globalization. Naturally, those voters who expect to lose from globalization vote against it.² For instance, Autor et al. (2014) show that low-skilled workers in the US suffer due to the rising import competition from China. In Europe, migration and increasing trade exposure, in combination with trade shocks at the regional level, have contributed significantly to the growing support for primarily right-wing populist parties (Colantone and Stanig 2018a, 2019; Bergh and Kärnä 2021). In the British decision to leave the EU, the local intensity of immigration from predominantly Eastern Europe as well as large regional import shocks in the past increased the local ‘Vote Leave’ share (Nikolka and Poutvaara 2016; Colantone and Stanig 2018b). Other examples of demand factors behind populist policies are eroding trust in democratic institutions (e.g., Algan et al. 2017; Dal Bó et al. 2023; Silva 2024), economic uncertainty (Gozgor 2022; Guiso et al. 2024), life-dissatisfaction (Nowakowski 2021), and inequality-aversion (Antràs et al. 2017).

¹ Globalization is only one example of policy associated with short-term sacrifices and future benefits. Climate policy is also associated with short-term costs (mitigation, adaptation) for the benefit of better long-term outcomes, and is also typically opposed by right-wing populists (e.g., Huber et al. 2021).

² This means, of course, that some of those who eventually benefit from globalization may opt against such policies if initially expecting to lose (Fernandez and Rodrik 1991; Jain and Mukand 2003).

Closely related to our work, several studies examine the role of stable individual traits in populist voting (e.g., Gerber et al. 2010; Ehrlich and Maestas 2010; Vecchione et al. 2011; Garretsen et al. 2018). We extend this literature by introducing a novel driver of populist political preferences, namely impatience, to help explain support for populists opposing forward-looking policies such as globalization. Impatient people discount future well-being relatively strongly and invest less in their skills than patient people. Consequently, they end up less educated and with lower income, *ceteris paribus* (Golsteyn et al. 2014; Potrafke 2019), and are thus more likely to lose *overall* from structural changes due to a large initial adjustment cost. More importantly, even where long-run gains outweigh short-term adjustment costs, we show that impatience may lead voters to support populist parties that emphasize immediate gratification over long-term gain.

2.3 Populist parties in Germany and the UK

The empirical part of our contribution to the literature relies on data from Germany and the UK. Germany is characterized by a plural multi-party system, with proportional representation in the federal parliament (Bundestag), meaning that often coalition governments need to be formed. Traditionally, the Christian Democrats (center-right) and the Social Democrats (center-left) have dominated German politics, with less major roles played by the liberal ‘Free Democrats’ and the Greens.

Until more recently there have only been regionally and temporarily successful populist movements in Germany. On the left side of the political spectrum, the major exception is *Die Linke* (‘The Left’), which resulted from a merger of the successor of the former socialist monopoly party of the GDR and a West German left-wing populist movement. It is often seen as a left-wing populist party due to its anti-establishment and anti-globalization stances, desire to radically change the economic system, and opposition to NATO membership (e.g., Hartmann et al. 2022).

To the right of the political spectrum, we consider the *Nationaldemokratische Partei Deutschlands* (NPD, National Democratic Party of Germany) and the *Alternative für Deutschland* (AfD, Alternative for Germany) as populist parties. The NPD has been the most stable extreme right-wing movement in Germany for a long time. In the 2013 general election, however, the newly founded AfD secured 4.7% and became the main home for far-right voters (2017: 12.6%). Admittedly, it is disputable whether the AfD was already a populist party back in 2013, or just “approached the 2013 German federal election with extensive populist appeals”

(Franzmann 2016, p. 458).³ Until the next general election, in 2017, the party moved further to the right, and has since been identified clearly as Germany's response to the rise of right-wing populism (Arzheimer and Berning 2019). In particular, its anti-migration and eurosceptic stances, as well as position on climate change, render voting for the AfD a potential test of the role of impatience in preferences for myopic policies.

While the UK also has a multi-party system, due to the majoritarian electoral system ('First-Past-the-Post'), governments are formed almost always by single parties, traditionally either the Conservatives (center-right) or Labour (center-left). Notable other parties which enter parliament as they at least secure the most votes in some constituencies include the Scottish National Party and the Liberal Democrats. Populist ideas are promoted across traditional parties, as the majoritarian electoral system favors parties with a large political spectrum rather than political parties with a narrow policy agenda. Indeed, there is a high propensity to 'main-stream populism' being noted for Labour (e.g., Mudde 2004), as well as Conservative and Liberal Democrat politicians (e.g., Bale 2013).

On the other hand, even in the UK, some parties are clearly seen as more populist than others. Traditionally, the British National Party (BNP) has represented the far right. Moreover, the UK Independence Party (UKIP), and its various successors, is closely linked with Brexit, arguably one of the most influential populist policy projects (Becker et al. 2017). UKIP's clear stance against European integration makes a preference for this party a potential outcome of impatience in line with our theoretical argument below. Taken together with its other political positions, it is seen as a right-wing populist party. When analyzing the UK, we therefore shed light on the role of impatience in both populist attitudes about the government and institutions as well as stated preferences for UKIP and the BNP.

3. Theoretical outline

We apply a stylized model of intertemporal choice to show how impatient voters trade political support for utility gains, and how this leads to different voting choices dependent on whether they are credit-constrained or not. Voters are assumed to compare two different resource allocations. One is the outcome of a forward-looking reform (R), leading to higher income in the long run accompanied by a short-run sacrifice, modeled such that current income declines and future income increases. The alternative (N) means that the status quo is kept (i.e., the

³ In a clear attempt to distinguish the new movement from the political elite, it was named 'alternative' whereas other parties were referred to as 'old parties' (Bebnowski 2016; Decker 2016). Voters expressing strong anti-immigration motives ensured the party's success in the 2013 election (Schmitt-Beck 2014; Berbuir et al. 2016).

reform is not implemented). While we focus on voting rather than policy supply, a comprehensive free-trade agreement as well as international treaties to reduce CO₂ emissions may serve as examples of such a reform.

3.1. A model of intertemporal choice

We consider a single generation in which individuals live for three periods. The individuals are assumed to differ in terms of personal characteristics, endowments, and impatience. To explore the role of different types of time preferences, impatience can reflect either exponential discounting, present-biased preferences, or a mixture of the two.⁴ An individual's preferences are given by the following utility function for the remaining lifetime (for all i):

$$U^i = u(c_t^i; \mathbf{P}^i) + \beta^i \left[u(c_{t+1}^i; \mathbf{P}^i) \Theta^i + u(c_{t+2}^i; \mathbf{P}^i) (\Theta^i)^2 \right], \quad (1)$$

where c_{t+j}^i denotes individual i 's consumption in period $t+j$, $\mathbf{P}^i$ is a vector of fixed individual characteristics, and $\Theta^i = 1 / (1 + \theta^i)$ represents an exponential discount factor with discount rate θ^i . The individual is characterized by time-consistent preferences if $\beta^i = 1$, and by a time-inconsistent preference for immediate gratification if $\beta^i < 1$. The instantaneous utility function, $u(\cdot)$, is increasing in consumption and strictly concave.

Individuals work in the first two periods and are retired in the third. The period-specific budget constraints are

$$b^i + w_t^i - s_t^i = c_t^i, \quad (2a)$$

$$w_{t+1}^i + s_t^i(1+r) - s_{t+1}^i = c_{t+1}^i, \quad (2b)$$

$$s_{t+1}^i(1+r) = c_{t+2}^i, \quad (2c)$$

where $b^i \geq 0$ represents an exogenous initial endowment, r denotes the interest rate, and w_{t+j}^i denotes individual income in period $t+j$.⁵ We assume that impatience has impacted past decisions that may influence how a forward-looking reform contributes to an individual's well-being. For instance, the level of education chosen before starting to work affects income over the whole working life, that is, $w_t^i = w_t(e^i, \mathbf{P}^i)$ and $w_{t+1}^i = w_{t+1}(e^i, \mathbf{P}^i)$ for all i , where e^i denotes education. Conditional on this level of education, each individual chooses savings in the first and second periods, s_t^i and s_{t+1}^i , to maximize (1) subject to (2a) – (2c). For further use, we

⁴ We need at least three periods to model quasi-hyperbolic discounting, which exemplifies our time-inconsistent preference for immediate gratification.

⁵ The interest rate is assumed to be time-invariant for notational convenience only.

impose a borrowing constraint on the young agent, such that savings cannot be negative in t , $s_t^i \geq 0$, while abstracting from any similar constraint on s_{t+1}^i by assuming that it never binds, since the individual must save when middle-aged to be able to consume when old.

Let us now briefly describe individual behavior starting with the savings choice in period $t+1$. Under a time-inconsistent preference for immediate gratification, that is, if $\beta^i < 1$, utility function (1) is no longer relevant when the agent arrives at period $t+1$. Instead, the agent realizes that their preferences have changed and would now choose s_{t+1}^i conditional on the savings decided on in the first period, s_t^i , to maximize $u(c_{t+1}^i; \mathbf{P}^i) + \beta^i u(c_{t+2}^i; \mathbf{P}^i) \Theta^i$ subject to equations (2b) and (2c). The solution to this problem can be written as a reaction function, showing how savings in period $t+1$ depend on savings in period t and on various fixed characteristics:

$$s_{t+1}^i = s_{t+1}^i(s_t^i, e^i, \mathbf{P}^i, \Theta^i, \beta^i, r). \quad (3)$$

In particular, note that $\partial s_{t+1}^i / \partial s_t^i > 0$. More resources in period $t+1$ lead to increased savings, *ceteris paribus*. If characterized by a time-inconsistent preference for immediate gratification, we assume that the young agent is sophisticated in the sense of realizing that their self-control problem will prevail in the future. Therefore, when young in period t , the agent chooses savings, s_t^i , to maximize utility function (1) subject to the budget constraints (2a) – (2c) and the reaction function (3). The first-order condition becomes

$$-u'(c_t^i) + \beta^i u'(c_{t+1}^i) \Theta^i (1+r) + \beta^i (1-\beta^i) u'(c_{t+2}^i) (\Theta^i)^2 (1+r) \frac{\partial s_{t+1}^i}{\partial s_t^i} \leq 0 \quad (=0 \text{ if } s_t^i > 0), \quad (4)$$

where $u'(\cdot)$ denotes marginal utility of consumption. To shorten the notation, the vector $\mathbf{P}^i$ has been suppressed. If the borrowing constraint binds, (4) becomes a strict inequality implying that the agent is unable to allocate their lifetime income optimally over the life-cycle. First-order condition (4) will play a key role in the agent's assessment of a forward-looking reform.

The forward-looking reform (R) is associated with an income shock to each individual voter, where w_t^i decreases, which may be due to adjustments costs, and w_{t+1}^i increases exogenously. The welfare consequences of the forward-looking reform are typically heterogeneous across individuals. For instance, people with higher education may find it easier to adapt and may also benefit more in a longer time-perspective (e.g., Autor et al. 2014; Autor et al. 2020). If so, they are for this reason more likely than people with lower education to vote for the reform, *ceteris paribus*. Impatience might thus affect the likelihood to opt for the forward-looking reform

through education and wages (indirect effect). In addition, there may be a direct effect of impatience when the individual compares the value of the forward-looking reform (R) with the value of the status quo (N). The value functions become

$$U_R^i = u(c_{t,R}^i) + \beta^i (u(c_{t+1,R}^i)\Theta^i + u(c_{t+2,R}^i)(\Theta^i)^2), \quad (5)$$

$$U_N^i = u(c_{t,N}^i) + \beta^i (u(c_{t+1,N}^i)\Theta^i + u(c_{t+2,N}^i)(\Theta^i)^2), \quad (6)$$

for all i . We can then define the net benefit of R relative to N to individual i as $\Delta U^i = U_R^i - U_N^i$ for all i . In general, the direct effect of impatience on ΔU^i , as measured by a decrease in either β^i or Θ^i , is ambiguous and depends on the consumption path over the life-cycle in the two regimes. If $c_{t+1,R}^i \geq c_{t+1,N}^i$ and $c_{t+2,R}^i \geq c_{t+2,N}^i$, and by treating e^i as exogenous, a straightforward application of the Envelope Theorem gives that ΔU^i decreases if agent i becomes more impatient, that is, $-\partial \Delta U^i / \partial \Theta^i \leq 0$ and $-\partial \Delta U^i / \partial \beta^i \leq 0$. A scenario where consumption increases in the second and third periods could be a consequence of either increased lifetime income or the inability to move future income to the present.

3.2 The critical role of the ability to borrow

Clearly, individuals losing lifetime income in present value terms would reject R regardless of their time preference. But what about the individuals whose lifetime income increases in present value terms? Even they would not necessarily vote in favor of the reform, had they the option to do so. Individuals who are very impatient in the sense that β and/or Θ are sufficiently low may not be able to fully transfer future gains to the present. For them the borrowing constraint might become binding as a result of the reform, or may have been binding already in the status quo regime, leading the individual to prefer N over R . As impatient individuals are the ones more likely to face a binding borrowing constraint, *ceteris paribus*, they are also the more likely to experience a loss in lifetime utility. This mechanism applies regardless of whether individuals have time-inconsistent preferences.

To illustrate this argument, consider a hypothetical income change in the R -regime designed to relax the borrowing constraint, such that a small amount of resources is exogenously shifted from period $t+1$ to period t . Specifically, the individual receives a small additional income τ in period t in exchange for an income reduction of $\tau(1+r)$ in period $t+1$. For a borrowing-constrained individual, the welfare effect is given by

$$\frac{\partial U_R^i}{\partial \tau} = u'(c_t^i) - \beta^i u'(c_{t+1}^i) \Theta^i (1+r) - \beta^i (1 - \beta^i) u'(c_{t+2}^i) (\Theta^i)^2 (1+r) \frac{\partial s_{t+1}^i}{\partial s_t^i} > 0. \quad (7)$$

Inequality (7), which is the mirror image of (4), shows that a marginal relaxation of the borrowing constraint would make the R -regime more attractive to the voter, *ceteris paribus*. By continuing this reallocation until the borrowing constraint no longer binds, the individual would start favoring R over N . Conversely, a reallocation of resources from t to $t+1$ would tighten the borrowing constraints such that fewer voters prefer the R -regime in the end. Note finally that the right-hand side of (7) would be zero if the individual is not borrowing-constrained. This individual would thus be in favor of R as long as it leads to higher lifetime income than the status quo.

The findings presented above have several implications. Voters who are less impatient (β and/or Θ are sufficiently high) may vote for the reform as they are not borrowing-constrained. In fact, even highly impatient voters may choose the reform for reasons not considered explicitly here if they are not borrowing-constrained (e.g., due to a high level of wealth). This suggests that there will be a demand for both short-sighted and far-sighted policies, and thus different political offers to meet these co-existing demands. It is also consistent with the observation (discussed in Section 2.2) that myopic policies (rejecting the reform) are typically observed for populist parties. By comparison, non-populist parties appear to run on a more long-term oriented policy agenda.

Our findings also offer a straightforward policy implication for governments garnering support for a long-term structural reform. The policy parameter τ in (7) can be interpreted as a redistributive measure that reallocates the future gains of the reform towards the present, which contributes to a relaxation of the individual borrowing constraint. By doing so, the government makes the R -regime more attractive for impatient voters who were initially borrowing-constrained, buying in their support.⁶

3.3 Implications for the empirical analyses

According to our theoretical model, all else equal, an impatient voter is more likely to be borrowing-constrained and, for this reason, more likely to reject a forward-looking reform associated with a short-term sacrifice. This creates a demand for short-sighted policies that populist political entrepreneurs appear to be willing to meet, as described in Section 2.2. This central hypothesis derived from our theoretical model will be tested in the following empirical

⁶ Note that the reallocation of resources exemplified in (7) does not violate the government's budget constraint.

analysis, which estimates the individual probability of preferring a populist party relative to other parties in the UK and Germany dependent on voters' levels of impatience. In the process, savings data will enable us to shed light on the role of the borrowing constraint, and how it interacts with impatience in explaining populist voting. Moreover, the results of our theoretical model suggest that the impatient and borrowing-constrained individual is sufficiently young to potentially benefit from the reform in the longer term. If they were old, they might not reap these benefits at all, so a combination of being impatient and borrowing-constrained would not matter to them. We therefore place special emphasis on interactions between impatience, savings, and age in our empirical analysis.

4. Empirical methods

4.1 Data

For the analysis of voting in Germany, we make use of data from the Socio-Economic Panel (SOEP) study (SOEP 2020). The household panel survey has been carried out annually since 1984, with over 20,000 people participating in the core study each year. Our analyses focus on the SOEP waves of 2013 and 2018 as they comprise data on people's self-assessed patience, on a scale from zero (very impatient) to ten (very patient): *'Are you generally an impatient person, or someone who always shows great patience?'* We reverse and standardize this scale to obtain an easily interpretable measure of impatience. It performs well in predicting an experimentally elicited time preference, the internal rate of discounting, and can thus be seen as a valid measure of an individual's impatience (Vischer et al. 2013).

The 2014 SOEP survey elicited party choice in the 2013 general election (*Bundestagswahl*) which we can match at the individual level to the 2013 data on impatience and other information, thanks to the panel structure of the dataset. The item reads *'In the last Bundestag election on September 22, 2013, which party did you vote for?'*. Subjects could indicate for which of the eight highest ranked parties they had voted, whether they had voted for a different party, had not been eligible to vote, or had not gone to the polls. The last two groups are not considered in the main analysis. As described in further detail in Table 1, we consider a vote for either the *Nationaldemokratische Partei Deutschlands* (NPD, National Democratic Party of Germany) or the *Alternative für Deutschland* (AfD, Alternative for Germany) as a right-wing populist vote and a vote for *Die Linke* ('The Left') as a left-wing populist vote. Other parties are deemed non-populist, accordingly (see, also, Section 2.3). A few people ticked the boxes of two parties and are excluded from the sample. We obtain 11,007 individual observations after

taking care of missing values (e.g., respondents who did not take part in both 2013 and 2014). We repeat the analysis for the 2018 wave of the SOEP survey, where patience and voting in the 2017 general election are measured simultaneously. The sample size here is 14,151.

Table 1: Party categorization populist/non-populist

Data	Right-wing populist/extremist	Left-wing populist/extremist	Non-populist	Checks
Germany (2013/2017)	Alternative for Germany (AfD) Ultra-Nationalists (NPD)	The Left (Die Linke)	Christian Democrats (Union) Social Democrats (SPD) Liberals (FDP) Greens	Separate analysis right wing populism/ left- wing populism Multinomial model (each party as outcom
United Kingdom (2013- 2015)	UK Independence Party (UKIP) British Nationalist Party (BNP)	-	Conservatives; Labour; Greens; LibDems; Plaid Cymru; Scottish National Party	Multinomial model with focus on Englanc (no regional parties Wales/Scotland) Populist statements (2014-2016)

Once population weights are applied, the SOEP is a representative dataset with respect to major socio-demographic characteristics. Yet it does not correctly mirror the election results. A smaller fraction of people in our weighted sample indicated they had voted for the AfD or NPD (3.7%) compared to the actual combined percentage of votes (6.0%) in 2013. The same holds true for the 2017 election (9.5% vs 13.0%). Votes for Die Linke are less underrepresented (7.5% versus 8.6% in 2013, 8.9% versus 9.2% in 2017). These differences may reflect a greater unwillingness to participate in surveys in populist voters relative to non-populist voters. Moreover, social desirability might lead to the underreporting of votes for extreme parties (e.g., Funk 2016). One possibility is that these respondents report not to have voted instead, an issue we address in the sensitivity check in Section 7.3 on a general level. The other possibility is that social desirability makes populist voters dishonestly report to have voted for non-populist parties, and if this is related to impatience as well, it might cause some bias in our estimates. This limitation is addressed to some extent in Section 7.4.

To examine populism in Britain, we use UK Household Longitudinal Survey data (UKHLS 2019). The panel survey was started with a first wave of interviews in 2009, 2010, and 2011 covering over 40,000 participants. For our research, the fifth UKHLS wave (2013-2015) is of particular interest, as it includes a measure of time preference, the 10-item version of the Delayed Gratification Inventory (Hoerger et al. 2011). The ten items cover five subdomains, namely food (items 1, 2), physical pleasures (3, 4), social interactions (5, 6), money (7, 8), and achievement (9, 10). Starred items are reverse coded:

1. *I would have a hard time sticking with a special, healthy diet.*
2. *I have always tried to eat healthy because it pays off in the long run.**
3. *I have given up physical pleasure or comfort to reach my goals.**
4. *When faced with a physically demanding chore, I always tried to put off doing it.*
5. *I try to consider how my actions will affect other people in the long-term.**
6. *I do not consider how my behavior affects other people.*
7. *I try to spend my money wisely.**
8. *I cannot be trusted with money.*
9. *I cannot motivate myself to accomplish long-term goals.*
10. *I have always felt like my hard work would pay off in the end.**

People rate each item on an eleven-point scale from 0 (strongly disagree) to 10 (strongly agree). To obtain one joint DGI-10 factor for preferring immediate gratification (impatience), we reverse the starred items and run a principal component factor analysis. The third item does not load on the joint factor and is removed, all other factors load sufficiently (for large samples, 0.3 or more). The average inter-item correlation is 0.16, Cronbach's alpha is 0.62, and McDonald's omega is 0.63. These alpha/omega values are in a grey area where the internal consistency of the measure is neither fully accepted (at least 0.7) nor rejected (< 0.5). It is for two reasons that we consider our measure acceptable. First, the requirement of a high threshold is particularly useful in small sample studies where uncertainty around the true alpha/omega is high. Our sample is large, however. Second, our method forces a broad concept into a single measure. The DGI-10 deliberately explores delayed gratification across five subdimensions relating to different areas of life, which inevitably reduces measured internal consistency.

The internal consistency of our measure of impatience as well as other validity concerns can be ultimately addressed by using alternative measures of the same concept. While there is no scientific consensus on measuring time preference (Cohen et al. 2020), we employ behavioral measures of impatience (smoking, unhealthy eating) used in previous studies (DellaVigna and Paserman 2005; Borghans and Golsteyn 2006; Khwaja et al. 2007; Ikeda et al. 2010). These checks may be found in Section 7.1.

UKHLS respondents are regularly asked '*Generally speaking do you think of yourself as a supporter of any one political party?*' If they answer affirmatively, they are requested to state which party that is. They can choose the Conservatives, Labour, the Liberal Democrats, the Green Party, the UK Independence Party (UKIP), and the British National Party (BNP). Respondents in Scotland, Wales and Northern Ireland can also select one of the regional parties. If respondents answer the question on party support in the negative, they are asked '*Do you think of yourself as a little closer to one political party than to the others?*', and, if yes, which

party that is. If they say no again, they are asked ‘*If there were to be a general election tomorrow, which political party do you think you would be most likely to support?*’ Besides choosing from the above-mentioned list of parties, people can also answer ‘none’ here. The different ways of measuring political preference in the German and the UK data allow us to rule out that measurement timing (retrospective versus simultaneous) matters for our findings. We assign people their party preference irrespective of the stage at which they indicate that preference. If they prefer either UKIP or the BNP, we consider them populist voters. As detailed in Table 1, preferences for other parties are categorized as non-populist. The main sample has 18,022 observations, 10.5% of which indicate a right-wing populist preference.

Following work by Fetzer (2019), we additionally examine impatience in relation to broader measures of populist attitudes, as measured in wave 6 (2014-2016), and matched to time preference in wave 5. Specifically, we consider the following statements as indicators of a populist preference: ‘Public officials don’t care’ and ‘I don’t have a say in what government does’ which could be seen as anti-elitist views. Our binary outcome variable splits the five-point scale into ‘strongly agree’ *versus* ‘agree’, ‘neither agree nor disagree’, ‘disagree’, ‘strongly disagree’. Moreover, we use an item on the ‘satisfaction with the way democracy works in this country’. The four-point scale of satisfaction with democracy is split into two groups, very dissatisfied *versus* dissatisfied, satisfied, very satisfied.⁷

4.2 Empirical model

To test the theoretical model, our estimations explain a preference for populist parties relative to other parties dependent on people’s level of impatience. In the process, we aim to isolate the effect of impatience from other potential determinants of a populist preference. An individual’s time preference is partially rooted in their genes. As twin studies show, about one quarter to one third of the variation in impatience is of a genetic nature (Cronqvist and Siegel 2015; Hübler 2018). Impatience is also possibly affected by childhood experience, as there is a substantial correlation between the impatience of parents and children (e.g., Brenøe and Epper 2022; Chowdhury et al. 2022). As a result, apart from small temporary fluctuations, impatience is largely stable over the life course (Meier and Sprenger 2015; Preuss 2021). Unlike impatience, party choice may change substantially within individuals over time. There is a genetic influence on political participation and also intergenerational transmission of political attitudes, but twin

⁷ We split these statements into binary variables to align the analysis with that of the binary UKIP/BNP party preference using a probit estimation. Median splits of the distribution of these items yield the same results, as does using ordered probit.

studies do not consistently reveal a link between genetics and party choice in an actual election (e.g., Hatemi et al. 2007; Fowler et al. 2008; Verhulst et al. 2012).

We thus aim to reduce the variation in impatience to origins that are unrelated to voting for a specific party. Hence, we will identify an impact of impatience on populist voting if all factors simultaneously affecting impatience and populist voting are controlled for. Our results need to be interpreted with caution, as we do not exogenously vary respondent's impatience and observe their political preferences afterwards. To address this issue to some extent, we report Oster bounds alongside our main findings (Section 5), and later also perform an instrumental variable analysis (Section 7.2).

Our latent variable model explains the probability of a populist party preference by voter i 's self-assessed impatience (I_i) and the voter's other observed characteristics. As a direct implication of the theoretical model (see Section 3.3), the effect of impatience is expected to be positive. Vector $\mathbf{P}_i$ represents stable characteristics that need to be controlled for from the beginning to identify the total effect of impatience on populist voting. Vector $\mathbf{X}_i$ covers life outcomes such as education and income, which we include in a second step to isolate the direct effect of impatience on populist voting from indirect effects. Using pop to denote a populist political preference, the latent variable model is given as follows:

$$P(pop_i = 1 | I_i, \mathbf{P}_i, \mathbf{X}_i) = P(\gamma I_i + \mathbf{P}_i' \boldsymbol{\sigma} + \mathbf{X}_i' \boldsymbol{\rho} + \varepsilon_i > 0 | I_i, \mathbf{P}_i, \mathbf{X}_i), \quad (10)$$

where ε_i represents individual error terms, which are assumed to be normally distributed (probit model). All qualitative results presented below also hold for a logit model. The estimations are performed using the maximum likelihood method.

We control for a variety of characteristics and traits, usually assumed stable or inalterable, such as gender, age, and age squared (see also Arzheimer and Carter 2006). To address the role of ethnicity and national identity (e.g., Stoetzer et al. 2017), we include a variable 'immigrant', indicating that the respective person was not born in the respective country. A valuable feature of both datasets is the inclusion of the five-factor personality traits. Subjects are presented with fifteen highly similar statements on individual characteristics that are used to create the five personality traits openness to experience, neuroticism, conscientiousness, agreeableness and extraversion (for a detailed account, see Tables A1/A4 (SOEP/UKHLS) in the Electronic Supplementary Material (ESM (III))).⁸ We build two binary variables for each trait, representing

⁸ The five-factor traits are part of UKHLS wave 3, meaning we can assign respondents' their wave 3 traits in later years. In the process, we assume stability over at least two years' time and lose observations not observed across

a relatively high disposition (top quarter of the trait's distribution) and a relatively low disposition (bottom quarter).⁹

Similar data on traits and attitudes can only be obtained for at least one of the two datasets at a significant loss of observations. This is mostly because the data has to be extrapolated from other survey waves over long periods of time, meaning selective panel attrition could become a problem. We therefore consider these attitudes in the sensitivity checks only, and based on smaller samples: risk aversion, locus of control (Germany only), generalized trust (for details (see ESM (I.1) and Table A7 in ESM (III))).

Macro characteristics such as the local crime rate, exposure to trade shocks, and the local inflow of immigrants might also affect the individual propensity of populist voter preference.¹⁰ We therefore add NUTS2 region fixed effects based on the place of living. Note that we merge NUTS2 regions with neighboring regions if single regions lack observations. Also, the different NUTS2 regions that form London are considered as one.

A number of individual characteristics might reflect 'life outcomes' that give rise to an indirect impact of impatience on populist voting. They are therefore controlled for to isolate the direct effect of impatience on populist preference established in our theoretical model (Section 3). We consider educational attainment, where we expect the more patient to be more likely to complete a secondary degree and enter academic education after a secondary degree. Based on subsamples, we are able to consider experience/education-based measures of cognitive ability on top of our education controls (see ESM (I.1) and Table A7 in ESM (III))). We control for the equivalent income (using the new OECD equivalence scale) of a person and home ownership as a proxy of household wealth.

People's marital status, family status (children, people in need of care in household), and employment status are also considered (paid employment as reference category, self-employment, unemployment, retirement, being in education, and other reasons for not being employed). In the SOEP data, we can additionally rely on information about overall lifetime unemployment, measured in years, to control for past employment disruptions. This is different from the UKHLS, where we calculate the number of unemployment spells over the last three

relevant waves. The same issue arises to a slightly lesser extent with the German data, where the five-factor personality traits are elicited in 2013 and 2017.

⁹ Our results would not change qualitatively if we used a simple absolute score of each personality trait. We also present a check for the German data below based on smaller samples allowing us to include the locus of control in the estimation as an additional personality trait (ESM (I.1) and Table A7 in ESM (III))).

¹⁰ According to Amengay and Stockemer (2019), there is little consensus on the influence of most 'macro' variables on the populist vote share. For instance, the evidence on local immigration shares (or, inflows) on populist party support is mixed (Halla et al. 2017; Dustmann et al. 2019; Dinas et al. 2019; Edo et al. 2019; Steinmayr 2021; Vertier and Viskanic 2023).

years (measured at the time of the interview). We also have to control for health in different ways. The SOEP provides us with the number of overnight stays in hospital during the previous year. In the UKHLS data, we use whether people report a long-term health problem.

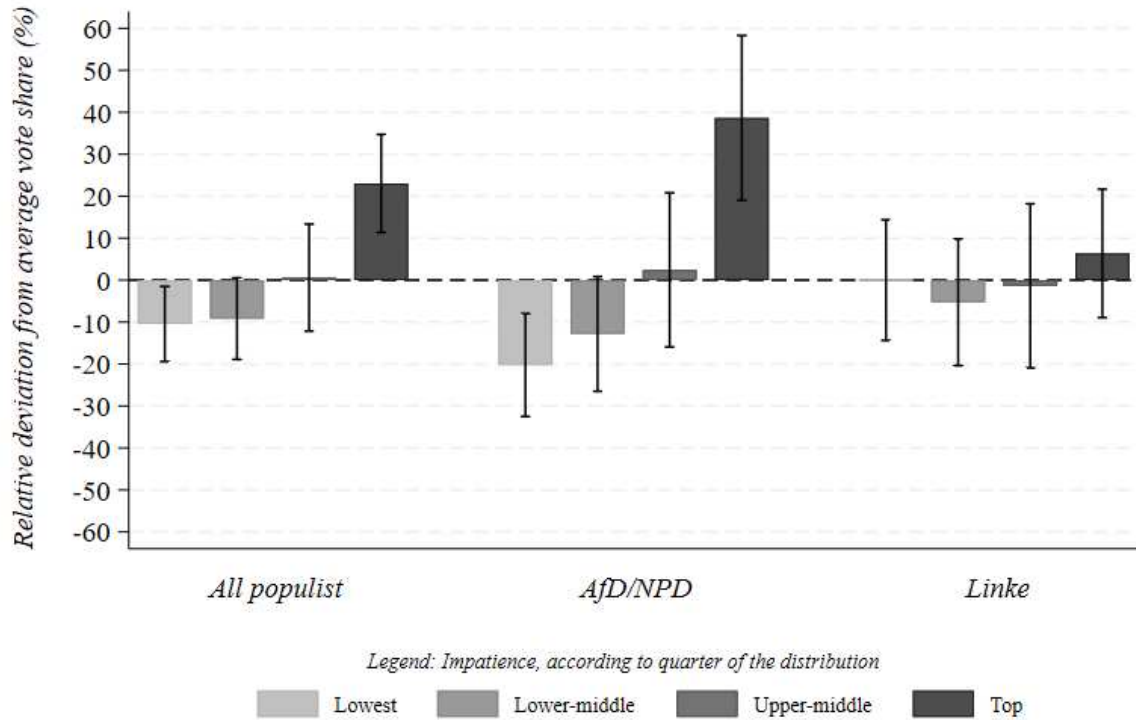
For the subgroup of employed people, we are able to additionally consider job type (irregular: < 15 hours; part-time: 15-35 hours; full-time), leadership tasks (SOEP: job autonomy; UKHLS: management position), gross hourly wage, sector of industry, job tenure (in the German data only), and company size. Tables A2 and A5 in the ESM (III) provide summary statistics for a number of socio-demographic characteristics and traits.

5. Results for Germany

5.1 Main findings

A descriptive analysis of impatience and populist voting in the German data reveals a strong relationship. For example, in the 2017 election, the share of populist voters in the top quarter of the impatience distribution is 22.5%, thus considerably exceeding the average populist vote share of 18.3%, and the share in the bottom quarter of 16.4% (2013: 12.4% vs 11.2% vs 10.1%). Figure 1 illustrates this and other differences between quarters of the impatience distribution, each relative to the average populist vote share to aid comparability between left-wing and right-wing populism (see Figure A1 in the ESM (II) for the 2013 election). That is, the 4.2 percentage points differences between the top quarter of the impatience distribution and the average share of populist voters translates into a 23% relative difference. Overall, the figure shows that the average populist vote share increases with the degree of impatience, a pattern clearly driven by votes for right-wing populist parties (AfD/NPD). Their vote share is 13.1% and thus 38.7% above average (9.4%) in the top quarter of the impatience distribution. The bottom quarter of the impatience distribution is 20.2% less likely to vote right-wing populist than the average voter. The same pattern does not emerge in the case of left-wing populist Die Linke, where impatience seems to be unrelated to the vote share.

Figure 1: Impatience and populist voting in the German 2017 general election



Source: SOEP wave 35.

Note: The figure shows the relative difference (%) in the probability to vote for the respective parties compared to the average probability dependent on the quarter of the distribution of impatience. The average probabilities are 0.183 all populist, 0.095 AfD/NPD, and 0.089 Linke. All calculations consider population weights. Whiskers denote 95% confidence intervals. Figure A1 in the ESM (II) reproduces Figure 1 for the 2013 election.

Table 2 presents our main analysis of German data, testing the prediction obtained from the theoretical model that impatient voters are more likely to vote populist (Section 3), conditional on stable traits, macro characteristics and life outcomes. Impatient voters show a higher probability to vote for populist parties in the 2013 election. The marginal effect in standard deviations (at means) is 1.5 pp (percentage points) when no controls are considered (1st column). This seems to be substantial given that the average probability is only 11.2%. Once personality, age, gender, migrant background, region-fixed effects, as well as life outcomes are considered, the marginal effect decreases to 0.9 pp (2nd column). This is our preferred specification for the *direct effect* of impatience, as conceivable indirect effects via education or income are accounted for.

Interestingly, when we include the covariates stepwise (not reported in the table), the change in the coefficient of impatience is mainly due to the inclusion of stable traits. Controlling for the socio-demographic characteristics does not reduce the marginal effect of impatience further. The same holds true for the analysis of the smaller subsample of employed voters which allows

us to consider additional covariates, such as the sector of industry and the hourly wage (3rd column).

A similar picture emerges for the 2018 SOEP wave, where 18.3% of voters indicated to have voted for AfD, NPD or Die Linke in the 2017 election. Without controls, the marginal effect of an increase of impatience by one standard deviation is 2.5 pp. Including covariates reduces the magnitude of this effect to 1.9 pp (Column 5) as well as 1.4 pp in a subsample of employees where job characteristics are additionally controlled for (Column 6). Again, this is mostly the result of including stable traits, less so life outcomes. Overall, our results for two general German elections indicate that a relatively high level of impatience increases the likelihood of voting for a populist party, supporting the conclusions from the theoretical model. Importantly, indirect channels, such as via education, income, or job characteristics play a minor role. It would seem that impatience influences populist voting in Germany mainly through the direct channel.

Covariate effects are displayed in Table A3 in the ESM (III). For instance, female gender and equivalent income reduce the probability of casting a populist vote. These findings may also be used to gauge the effect size of impatience. For the 2013 general election, we find the magnitude of the direct effect of impatience to be about a third of the income effect (2.8 pp), both measured in standard deviations. The 2017 data even indicates a seven times stronger role for income (12.5 pp) than for impatience. While impatience matters, it is by far not the only determinant of populist voting.

Table 2: Probit estimation of populist voting in the 2013 and 2017 elections (summary)

	Panel A. 2013 general election			Panel B. 2017 general election		
Dep. var.: Prob(populist vote)	(1) No controls	(2) Covariates	(3) Employed	(4) No controls	(5) Covariates	(6) Employed
Impatience	0.077*** (0.024)	0.060** (0.025)	0.076** (0.034)	0.093*** (0.019)	0.081*** (0.021)	0.057** (0.028)
Marginal effect, at means	0.015*** (0.004)	0.009** (0.004)	0.012** (0.005)	0.025*** (0.005)	0.019*** (0.005)	0.014** (0.007)
Stable characteristics		Yes	Yes		Yes	Yes
Region fixed effects		Yes	Yes		Yes	Yes
Life outcomes		Yes	Yes		Yes	Yes
Job characteristics			Yes			Yes
Observations	11,007	11,007	5,821	14,151	14,151	8,471

Source: SOEP waves 30, 31 / 34, 35.

Note: The table displays population-weighted probit estimates of impatience on the likelihood to vote for the AfD, NPD or Die Linke in the 2013/2017 general elections, including marginal effects (at means). The mean probabilities are 0.112 and 0.183, respectively. Stable characteristics include personality traits, gender, age, age², migrant background. Region-fixed effects are measured at the NUTS2 level. Life outcomes include marital status, education, income, home ownership, overnight stay in hospital last year, children/care recipients in household, employment status, and lifetime unemployment experience. Job characteristics are job autonomy, sector of industry, gross hourly wage, tenure, company size, part-time employment, and irregular employment. Complete results can be found in the ESM (III), Table A3. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Next, we examine the risk of omitted variable bias. We use the method put forward by Oster (2019), which relies on the notion that changes of the coefficient of interest when observable control variables are added to the empirical model are indicative of the risk of confounding from unobserved variables. In the process, we explore two risks at once. Firstly, if there were crucial unobserved confounders, impatience would influence populist voting neither directly nor indirectly, in spite of our results. Secondly, unobserved life outcomes influenced by impatience could explain why the residual effect measured in Columns 2 and 3 of Table 2 is, in fact, falsely interpreted as a direct effect.

Based on the observable change of the coefficient of impatience when including the full set of control variables instead of no control variables, we calculate Oster's (2019) δ to ascertain by how much unobservable variables would need to bias the direct effect of impatience if its true value were 0. The higher δ the less likely that unobserved confounding fully explains the coefficient of interest. Oster's (2019) recommended benchmark is a δ of 1, indicating that the selection on unobservables needs to be at least as strong as the selection on observables to bias results towards zero.

For the purpose of this test, we need to employ an OLS regression. It yields fairly similar results to those from the probit model. For instance, the OLS effect of impatience in the 2013

setting is a 1.0 pp increase ($p < 0.01$) of the probability to vote for populist parties in a model including all covariates. In the analysis of the 2017 election data, the OLS regression indicates a direct effect of impatience of 2.0 pp ($p < 0.01$). Under Oster's recommended assumption that $R_{max} = 1.3 \times R^2$,¹¹ we obtain values for δ of 4.0 for the 2013 analysis (employed sample: 13.5) and 6.5 for the 2017 analysis (employed sample: 4.8), which are values clearly above the benchmark of 1. Overall, we conclude that selection on unobservables is unlikely to explain our qualitative results that, first, impatience appears to foster populist voting and, second, that this influence reflects a direct effect, which life outcomes cannot explain.

5.2 Right-wing populism versus left-wing populism

Given the absence of a significant nationwide left-wing populist party in the United Kingdom, it will be useful to focus on right-wing populism separately from left-wing populism going forward. The German data allow us to shed light on the question whether impatience is specifically related with right-wing populism, left-wing populism, or both. To this end, we re-estimate equation (10) for right-wing populist votes (AfD and NPD) and left-wing populist votes (Die Linke) separately. The corresponding estimates are displayed in Table 3.

It becomes clear that impatience is related with right-wing populism, but not left-wing populism in Germany. At first glance impatience attracts a smaller effect in both cases compared to Table 2, however this is because the overall probabilities of votes for either form of populism are smaller than the combined probability. In relative terms, the coefficient of impatience of 0.6 pp on right-wing populist voting in 2013 (3.7% in total) is twice as large as its coefficient of 0.9 pp on the combined probability of populist votes (11.1% in total) in Table 2, Column 2. On the contrary, the relationship between impatience and left-wing populist voting seems negligible. As further tests show (not displayed in the table), this finding is independent of the control variables included in the probit model. The results for the employed sample and the 2017 election draw a similar picture.

This left-wing-right-wing difference aligns well with our theoretical model. Die Linke advocates further European integration, climate action, and open borders for migrants, all of which impose short-term adjustment costs. In these areas, Die Linke offers nothing to solve the impatient individuals' intertemporal reallocation problem. In fact, Die Linke makes it 'worse' by demanding further short-term sacrifices, which are even less attractive for a borrowing-constrained voter. According to our model, voters are not buying populism as identity or

¹¹ R_{max} refers to the R-squared in a hypothetical regression that contains all relevant covariates.

grievance; they are buying a more favorable payoff structure for themselves, and they decline the populism that does not deliver it.

The marginal effect of impatience on right-wing populist voting in 2013 is of similar magnitude as that of income, further underscoring the importance of impatience for right-wing populist voting. Income plays a considerably more important role than impatience in 2017, however. Estimates of Oster bounds indicate deltas significantly larger than 1 for the coefficients of impatience in 2013 ($\delta = 4.6$) and 2017 ($\delta = 6.2$), implying that these coefficients are unlikely reflective of confounders or indirect effects.

Table 3: Right-wing and left-wing populism in the 2013 and 2017 elections (summary)

	2013 general election				2017 general election			
<i>Dep. var.: Prob(populist vote)</i>	AfD/NPD		Linke		AfD/NPD		Linke	
	Full sample	Employed sample	Full sample	Employed sample	Full sample	Employed sample	Full sample	Employed sample
Impatience	0.106*** (0.035)	0.091** (0.044)	0.020 (0.029)	0.040 (0.040)	0.124*** (0.027)	0.073** (0.033)	0.008 (0.024)	0.023 (0.032)
<i>Marginal effect, at means</i>	0.006*** (0.002)	0.006** (0.003)	0.002 (0.003)	0.004 (0.004)	0.015*** (0.003)	0.010** (0.004)	0.001 (0.003)	0.003 (0.004)
Stable characteristics	yes	yes	yes	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Life outcomes	yes	yes	yes	yes	yes	yes	yes	yes
Job characteristics		yes		yes		yes		yes
Unconditional probability	0.037	0.043	0.075	0.068	0.094	0.106	0.089	0.087
Observations	11,007	5,821	11,007	5,821	14,151	8,471	14,151	8,471

Source: SOEP waves 30, 31 / 34, 35.

Note: The table displays population-weighted probit estimates of impatience on the likelihood to vote for the AfD, NPD (right-wing) or Die Linke (left-wing) in the 2013/2017 general elections, including marginal effects (at means). Control variables correspond to Table 2, Columns (2), (5).

A difficulty in comparing the results between Tables 2 and 3 is the change in the reference groups: For the outcome of right-wing populism, left-wing populist votes are deemed non-populist, and *vice versa*, whereas before only non-populist votes were part of the reference category. However, the results do not change if we exclude the respective other group of populists from the analyses of left-wing/right-wing populism. Note that populist ideas may also, and to a varying degree, appeal to voters of other parties in the reference group. To more generally address the issues arising from the heterogeneous voter composition in the reference group, a multinomial logit model can be employed, where voting for each party is specified as a separate outcome. This allows us to compare the effect of impatience on the probability of a right-wing populist vote, as the new reference status, with the effects of impatience on the

probabilities of voting for the whole range of other parties. The same set of covariates is considered.

The results are displayed in Table 4. All relative risk ratios are below one, indicating that impatience is more strongly associated with the probability of voting for a right-wing populist party than of voting for any other party. For instance, based on data of the 2013 election and the full sample, the relative risk ratio of 0.784 for the Union (2013 election) implies that a one-standard-deviation increase in impatience reduces the probability of voting for the Union relative to AfD/NPD by 21.6%. With very few exceptions, the relative risk ratios are statistically significant. As further tests reveal, the differences between the effects of impatience on the relative probabilities of voting between non-right-wing-populist parties are small and, mostly statistically insignificant. Among other things, this implies again that impatience does not foster left-wing populist voting significantly more than non-populist voting. In light of these results, and to ensure consistency with the analysis of British data, we focus on right-wing populism in Germany in what follows.¹²

¹² Data on voting behavior in 2013 and 2017 of the same people allow us to examine swing voting between the two elections in light of the European refugee crisis (2015-2016). We find that the most impatient voters either voted right-wing populist in both elections, or switched from non-populist to populist (see ESM (I.2)).

Table 4: Multinomial results for Germany

<i>Relative risk ratios (ref.: AfD/NPD votes)</i>	Union	Social Democrats	Die Linke	Greens	Liberals (FDP)	Other parties
2013 election, full sample						
Impatience	0.784*** (0.065)	0.780*** (0.065)	0.816** (0.080)	0.786*** (0.073)	0.725*** (0.089)	0.849 (0.091)
Covariates	yes	yes	yes	yes	yes	yes
Observations	11,007	11,007	11,007	11,007	11,007	11,007
2013 election, employed						
Impatience	0.811** (0.084)	0.800** (0.083)	0.896 (0.115)	0.851 (0.099)	0.762* (0.118)	0.898 (0.125)
Covariates	yes	yes	yes	yes	yes	yes
Observations	5,821	5,821	5,821	5,821	5,821	5,821
2017 election, full sample						
Impatience	0.805*** (0.046)	0.763*** (0.044)	0.821*** (0.055)	0.770*** (0.052)	0.880* (0.058)	0.684*** (0.057)
Covariates	yes	yes	yes	yes	yes	yes
Observations	14,151	14,151	14,151	14,151	14,151	14,151
2017 election, employed						
Impatience	0.866** (0.062)	0.811*** (0.060)	0.909 (0.080)	0.862* (0.073)	0.984 (0.081)	0.766** (0.081)
Covariates	yes	yes	yes	yes	yes	yes
Observations	8,471	8,471	8,471	8,471	8,471	8,471

Source: SOEP waves 30, 31 / 34, 35.

Note: The table displays relative ratios of the probability of voting for the AfD or the NPD and of the probability of voting for the party mentioned in the column header. They are based on population-weighted estimates of a multinomial logistic regression. Covariates correspond to Table 2 and include job characteristics for the employed sample. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5.3. Assessing the role of the ability to borrow

Our empirical analyses show that impatient voters are more likely to vote populist, in line with the theoretical model. As explained in Section 3, impatient people are more likely to be borrowing-constrained and thus less able than others to trade future gains against current losses, which makes them receptive to the short-termism of populist politics. One implication here is that, in predicting such a populist political preference, impatience and being a saver should interact with each other: people who save are expected to be more accepting of short-term losses as they can reduce present savings to maintain consumption over time, if these short-term losses are accompanied by future gains. This yields the prediction of a negative interaction effect of

saving and impatience. What is more, we expect this interaction to matter for young individuals in particular, as the ability to reap the benefits of forward-looking reforms decreases with age, implying a negative three-way interaction effect of impatience, saving, and being young.

To test these implications, we use SOEP data on respondents' savings behavior (at the cost of some missing observations). They are asked whether they save some money in the following way: *'Does your household usually have a certain amount of money left at the end of the month that you can put aside or into a savings account?'*. If respondents answer affirmatively, we consider them as savers, otherwise we consider them as potentially borrowing-constrained.¹³ This information is interacted with impatience and age, in extensions of the empirical model of equation (10). The outcome variable reflects right-wing populist voting only (as compared to any other vote), in accordance with our analysis of the UK data later on. As Table 5, Columns 1 (2013) and 4 (2017), show, adding a separate binary variable indicating whether a person is able to save is significantly negatively related to the probability of voting for a right-wing populist party, supporting a direct implication of our theoretical model. What is more, Columns 2 and 6 highlight that an interaction variable of saving and impatience attracts a negative coefficient. This means that impatience predicts right-wing populist voting in particular if the person does not save.

We additionally consider a three-way interaction effect of saving, impatience, and being at most 50 years old. It is significantly negative in the 2013 election data (Column 3 of Table 5), implying that impatience interacts with the borrowing constraint especially in relatively young individuals. The interaction effect of impatience and saving in the same specification disappears. Put differently, we would not expect the borrowing constraint to interact with impatience in older individuals (> 50 years). The negative three-way interaction is also found for lower cut-off ages (40, 45) for being young/old, see Figure A2 in the ESM (II). Higher cut-off ages produce negative three-way interaction effects, too, however these are statistically insignificant. What is more, the negative three-way interaction effect does not replicate in the 2017 data (Column 6 of Table 5).

¹³ It is important to note that our indicator of a borrowing constraint is fairly coarse; however, the data are limited in providing alternative measures of the ability to borrow. At the same time, the inclusion of the savings variable follows logically from our theoretical model. People who are able to save can to some extent adjust to the short-term cost associated with a forward-looking reform by saving less, while reaping the long-term gains of the reform in the future.

Table 5: Interaction effects of impatience, saving, and age (Germany)

	2013 general election			2017 general election		
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.: Prob(Preference for AfD/NPD)	+ Saver	+ Interaction impatience / saver	+ Interactions with young age	+ Saver	+ Interaction impatience / saver	+ Interactions with young age
Impatience	0.006*** (0.002)	0.012*** (0.003)	0.008 (0.005)	0.015*** (0.003)	0.026*** (0.006)	0.024*** (0.008)
Saver	-0.009** (0.004)	-0.008* (0.004)	-0.005 (0.006)	-0.031*** (0.007)	-0.028*** (0.007)	-0.018** (0.009)
Young age (≤ 50 years)	0.000 (0.006)	0.000 (0.006)	0.003 (0.008)	-0.005 (0.009)	-0.006 (0.009)	0.010 (0.013)
Impatience $\times$ Saver		-0.010** (0.004)	-0.001 (0.006)		-0.018*** (0.006)	-0.020** (0.009)
Impatience $\times$ Young age			0.010 (0.007)			0.003 (0.010)
Young age $\times$ Saver			-0.005 (0.008)			-0.025* (0.013)
Impatience $\times$ Saver $\times$ Young age			-0.017** (0.008)			0.008 (0.013)
Covariates	yes	yes	yes	yes	yes	yes
Observations	10,978	10,978	10,978	14,109	14,109	14,109

Source: SOEP waves 30, 31 / 34, 35.

Note: Based on population-weighted probit estimates of the likelihood to vote for the AfD or NPD in the 2013/2017 general elections, the table displays marginal effects (at means) of impatience, young age (≤ 50 years) and being a saver, as well as interactions between the three variables. Except for age which is dichotomized here, the covariates correspond to Table 2, Columns (2) and (5).

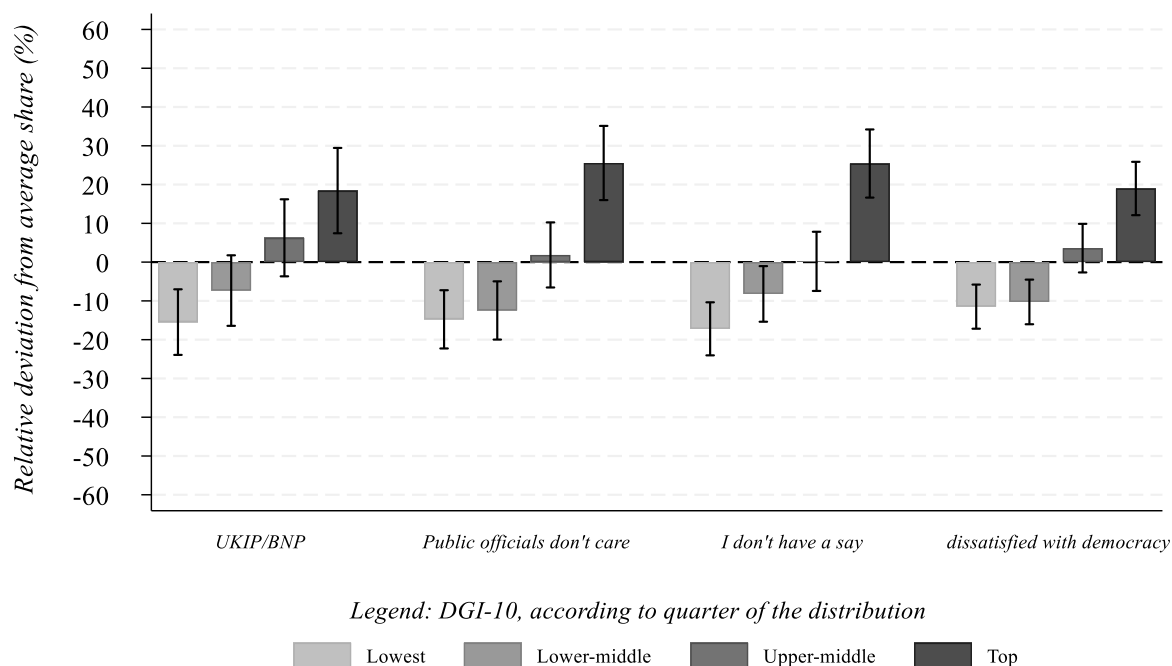
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

6 Results for the United Kingdom

6.1 Main findings

In our analysis of UK data, we focus on stated political preferences for UKIP and the BNP. In addition, to shed light on the relationship between impatience and populism in Britain more broadly, we investigate populist attitudes in line with Fetzer (2019), including whether people strongly agree with anti-elite statements such as ‘public officials don’t care’ and ‘I don’t have a say in what the government does’, as well as high dissatisfaction with democracy. Figure 2 displays how every quarter of the impatience distribution deviates from the average share of people, indicating any of these four populist sentiments relative to the average share. In each case, a similar picture emerges to that seen for right-wing populism in Germany: the top quarter of the impatience distribution displays significantly higher shares of populist attitude than the average survey respondent, while the bottom quarter shows significantly lower shares. The following regression analyses allow us to examine whether this positive relationship between impatience and populism holds once covariates are considered.

Figure 2: Impatience and populism in the UK



Source: UKHLS waves 3, 5 and 6.

Note: The figure shows the relative difference (%) in the probability to indicate a preference for UKIP/BNP or express the considered views compared to the average probability dependent on the quarter of the distribution of impatience. The average probabilities are 0.104 UKIP/BNP, 0.116 strongly agree that 'public officials don't care', 0.133 strongly agree that they 'don't have a say in what government does', and 0.197 are very 'dissatisfied with democracy' in the UK. All calculations consider population weights. Whiskers denote 95% confidence intervals.

Table 6 highlights the main findings of our analysis of UKHLS data based on our empirical model (equation (10)). It turns out that preferring immediate to delayed gratification (high DGI-10) correlates positively with a political preference for either UKIP or BNP. The marginal effect of one standard deviation above the mean is 1.3 pp if no controls are considered (1st column). Adding covariates changes this finding markedly (2nd columns). The direct effect of impatience estimated in this way is only one third as large as the total effect. Additional analyses (not reported in the table) reveal that including life outcomes, especially the education controls, yield this change. In this respect, the results for the UK differ from those for Germany.

The direct effect in the UK data turns out to be stronger in the subsample of employed voters (3rd column), however, despite the fact that employment-related characteristics are additionally controlled for. The marginal effect of DGI-10 is 1.0 pp. This difference in the effect of DGI-10 between the whole sample and the employed sample is related to the age groups included in the samples. Naturally, the employed sample hardly includes any individuals beyond retirement age. Excluding everyone older than 65 years from the whole sample leads to results highly similar to the ones in Column 5, whether or not non-employed people are included in this

younger sample. For older age groups, being impatient is not related to a right-wing populist preference, at least when it comes to the direct effect. As indicated above, a plausible explanation is that the tradeoffs implied by forward-looking reforms are less relevant for older individuals than for their younger counterparts. This is discussed further below. What is more, we find that populist attitudes (Columns 4-6) continue to be significantly correlated with impatience even when covariates are considered. Overall, while a little less robust than in the German case, the results for the UK are largely supportive of the theoretical model.

Table 6: Probit estimation of populist attitudes in the UK (summary)

	Current party preference: UKIP/BNP			Strongly agrees with 'Public officials don't care'	Strongly agrees with 'I don't have a say in what government does'	Very dissatisfied with democracy
	(1)	(2)	(3)	(4)	(5)	(6)
	No covariates	Covariates	Employed	Covariates	Covariates	Covariates
DGI-10	0.071*** (0.014)	0.029* (0.017)	0.081*** (0.025)	0.039*** (0.014)	0.052*** (0.014)	0.030** (0.013)
<i>Marginal effect, at means</i>	0.013*** (0.003)	0.004* (0.002)	0.010*** (0.003)	0.007*** (0.003)	0.010*** (0.003)	0.008** (0.003)
Stable characteristics		yes	yes	yes	yes	yes
Region fixed effects		yes	yes	yes	yes	yes
Life outcomes		yes	yes	yes	yes	yes
Job characteristics			yes			
Observations	18,122	18,122	9,725	21,440	21,583	20,651

Source: UKHLS waves 3, 5 and 6.

Note: The table displays population-weighted probit estimates of the populist attitudes displayed in the column headers, including marginal effects (at means). The average probabilities are 0.104 UKIP/BNP, 0.116 strongly agree that 'public officials don't care', 0.133 strongly agree that they 'don't have a say in what government does', and 0.197 are very 'dissatisfied with democracy' in the UK. Stable characteristics include personality traits, gender, age, age², migrant background. Region-fixed effects are measured at the NUTS2 level. Life outcomes include marital status, education, income, home ownership, long-term health problem, children/care recipients in household, employment status, and unemployment experience over the past three years. Job characteristics are job autonomy, sector of industry, gross hourly wage, company size, part-time employment, and irregular employment. Complete results can be found in the ESM (III), Table A6.

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

Similar to the analysis of German data, covariate coefficients show expected signs. For example, female gender and migrant background reduce the probability of a UKIP/BNP preference and strong agreement with most anti-elitist views markedly (Table A6 in the ESM (III)). Educational attainment and income also attract negative effects. Reassuringly, the covariate effects are relatively consistent between the analysis of UKIP/BNP and the anti-elitist statements, implying that they measure a similar underlying concept, presumably populism. The effect sizes of the standardized equivalent income (2.3 pp) is larger than that of the DGI-10 score (0.4 pp) when it comes to explaining a preference for UKIP/BNP. This is also true for

the populist statements, where standardized income attracts 3-4 times stronger effects than DGI-10. An exception is dissatisfaction with democracy where income is insignificant.

As for the German data, we use Oster's (2019) bounds to estimate the degree of selection on unobservables needed to reduce the coefficient of delayed gratification to zero (see Section 5.1 for a more detailed account of the method). Under Oster's recommended assumption of $R_{max} = 1.3 \times R^2$, we find that selection on unobservables would need to be 1.3 times more important than the selection on observables (employed sample: 3.7 times) in the estimation of a preference for UKIP/BNP. The same bounds range from 1.1 times to 1.9 times for the populist statements. Overall, this confirms the impression that control variables matter in particular to the analysis of UK data, rather than that of German data, and for the whole UK sample rather than the employed sample.

6.2 Detailed comparison across parties

During our investigation period, UKIP was the main home for populist political opinions in the United Kingdom. As a result of the first-past-the-post voting system, populist opinions may however be prevalent in all parties (Section 2.3). For instance, Brexit as a populist project also gained support from followers and members of the Conservative Party and received many votes in the so-called Labour heartlands in the north and the east of England. This indicates that we might also find differences in the effect of impatience on the preference for other parties in the UK. We restrict this analysis to England because the party preferences people were able to indicate vary in the survey across 'nations'. People in England could not express support for the Scottish Nationalists or any other regional group, people in Great Britain could not indicate a preference for Northern Irish political parties, and so on.

As for Germany, we make use of a multinomial model with each party preference as a separate outcome. To shed light on the issue of non-voting, we also add observations who did not indicate a party preference (see also the discussion in Section 7.3). The estimation results presented in Table 7 reveal that impatience makes the least of a difference for the probabilities of supporting UKIP/BNP compared to Labour, the small group of respondents who indicate a preference for a minor party, and the many respondents who indicate to have no party preference. Differences are more pronounced in the effect of impatience on voting for UKIP/BNP relative to Conservatives/Liberal Democrats/Greens, especially in the employed sample. For instance, the relative risk ratios for the Greens of 0.901 (whole sample) and 0.768

(employed sample) imply that a one-standard-deviation increase in impatience reduces the probability of voting for the Greens relative to UKIP/BNP by 9.9% and 23.2%, respectively.

Table 7: Multinomial results for England

<i>Relative risk ratios (ref.: UKIP/BNP preference)</i>	Conservatives	Labour	Liberals	Greens	Other parties	None
Full sample						
DGI-10	0.909*** (0.032)	0.997 (0.035)	0.940 (0.045)	0.901* (0.054)	1.182 (0.141)	1.047 (0.039)
Covariates	yes	yes	yes	yes	yes	yes
Observations	17,439	17,439	17,439	17,439	17,439	17,439
Employed sample						
DGI-10	0.822*** (0.044)	0.929 (0.049)	0.879* (0.061)	0.768*** (0.063)	1.207 (0.223)	0.955 (0.051)
Covariates	yes	yes	yes	yes	yes	yes
Observations	9,741	9,741	9,741	9,741	9,741	9,741

Source: UKHLS waves 3, 5.

*Note: The table displays relative ratios of the probability of preferring UKIP/BNP and the probability of preferring the party mentioned in the column header. They are based on population-weighted estimates of a multinomial logistic regression. The analysis considers data from England only while adding observations of those respondents who indicated 'none' when asked about their party preference. Covariates correspond to Table 6 and include job characteristics for the employed sample. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.*

6.3. Assessing the role of the ability to borrow

To assess the role of the ability to borrow in the UK data, we use information about whether respondents save some money, similar to the German data. To ensure comparability with the analysis of Germany, we focus on party preference rather than the anti-elitist statements. The corresponding questionnaire item is '*Do you save any amount of your income, for example by putting something away now and then in a bank, building society, or Post Office account, other than to meet regular bills?*'. If respondents answer affirmatively, we consider them as savers, otherwise we consider them as potentially borrowing-constrained. Table 8 presents the results.

Being a saver reduces the probability of preferring right-wing populist parties, in the British case UKIP or BNP, to all other parties (Column 1), in line with our theoretical model. Interacting impatience with being a saver does not yield the expected negative effect at first glance (Column 2). However, as Column (3) reveals, the effect does show in the young: The three-way interaction effect of DGI, saving, and being at most 50 years old is negative and significant. This squares with our impression from the main findings where the younger subsample of employees shows more pronounced effects. While statistical significance varies

around the 5%-threshold, the negative three-way interaction effect does not depend on the chosen cut-off age of 50 years, as illustrated by Figure A3 in the ESM (II). Overall, the implications derived from the theoretical model are largely supported.

Table 8: Interaction effects UK data

	(1)	(2)	(3)
<i>Dep. var.:</i> Prob(Preference for UKIP/BNP)	+ Saver	+ Interaction DGI-10 / saver	+ Interactions with young age
DGI-10	0.004 (0.003)	0.003 (0.003)	-0.001 (0.004)
Saver	-0.013*** (0.005)	-0.013*** (0.005)	-0.012** (0.006)
Young age (≤ 50 years)	-0.019*** (0.007)	-0.019*** (0.007)	-0.021** (0.008)
DGI-10 $\times$ Saver		0.002 (0.005)	0.010* (0.006)
DGI-10 $\times$ Young age			0.012** (0.006)
Young age $\times$ Saver			-0.001 (0.009)
DGI-10 $\times$ Saver $\times$ Young age			-0.019** (0.009)
Stable characteristics	yes	yes	yes
Region fixed effects	yes	yes	yes
Life outcomes	yes	yes	yes
Observations	18,084	18,084	18,084

Source: UKHLS wave 3, 5.

*Note: Based on population-weighted probit estimates of the likelihood of indicating a UKIP/BNP party preference, the table displays marginal effects (at means) of delayed gratification, young age (≤ 50 years) and being a saver, as well as interactions between the three variables. Except for age which is dichotomized here, the covariates correspond to Table 6. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.*

7. Sensitivity analyses

7.1 Alternative indicators of impatience

We can additionally test the robustness of our results by varying the indicator of time preference, employing behavioral proxies of impatience used by previous studies (see above). We identify smokers and use indicators of unhealthy eating, such as the Body Mass Index, which may reflect a time-inconsistent preference for immediate gratification. In the UKHLS data, another survey item on unhealthy eating is already embedded in the measure of impatience (item 2 of the DGI-10, see Section 4.1). SOEP respondents are asked if they maintain a healthy diet (our binary indicator distinguishes ‘not at all’ from ‘very much’, ‘much’, and ‘a little’). By

and large the results support the main findings (see Table A7 in the ESM (III)). Smoking and the Body Mass Index are positively related to support for AfD/NPD and UKIP/BNP. The estimated coefficients are more robust and consistently statistically significant for the UK. For both countries, we find self-reported unhealthy eating habits to be a strong predictor of a populist party preference.

7.2 Instrumental variable

To assess the risk of endogeneity further, we perform a two-stage instrumental variable analysis, using information about siblings. Specifically, we assume that sibling relationships significantly influence a person's patience through the development of emotion regulation. Our rationale relies to some extent on recent work by Sweeny (2025), who describes how impatience captures a negative emotional affect, triggered by delay, while patience shows a regulatory response of restraint. This form of emotion regulation may well be developed during childhood and, in the process, aided by sibling interactions through which children learn to manage their frustration, jealousy and anger (Dunn 2007; Kramer 2014). Navigating disagreements and negotiating resources with siblings require, and thus build, patience. Naturally, one would expect this effect to get stronger with each additional sibling.

The UK data do not cover an accurate measure of people's actual number of siblings, as these can only be identified if also participating in the survey, inviting all sorts of selectivity. Fortunately, the German data include biographical information about the number of actual siblings, allowing us to perform the instrumental variable analysis. Our IV approach estimates impatience at the first stage, as a result of the number of siblings, and the whole set of covariates from before. The second stage estimation uses the variation of impatience resulting from the number of siblings to estimate right-wing populist voting, again conditional on the covariates. Given that the voting outcome is binary, and the first stage an estimation of a categorical variable, we use ordered probit at the first stage and probit at the second stage. We ensure simultaneous estimation of the two equations using the Conditional Mixed Process (CMP) in Stata.

The first-stage results consistently imply a highly significant effect of the number of siblings on the level of impatience, meaning the key assumption of a strong instrument might be valid (for details see Table A8 in the ESM (III)). As our system of equations is non-linear, we cannot apply a standard test for weak instruments, though. However, we report the Kleinbergen-Papp F statistic obtained from an equivalent linear first-stage regression which produces values

around the critical number of 10. The CMP also returns a negative estimate of the covariance between the error terms, ρ_{12} , for both 2013 and 2017 (significant for 2017 only). This indicates some degree of endogeneity in the results reported above (Table 3) biasing the effect of impatience on right-wing populist voting downwards. This seems surprising at first glance, but is not uncommon in analyses of survey data (e.g., Zhang et al. 2025): surveys are able to measure latent traits like impatience only with measurement error, attenuating estimates. Instrumental variable estimation tackles this form of endogeneity alongside others. Consequently, correcting for the bias through the second stage returns highly significant effects of impatience on right-wing populist voting. *Ex-post* calculated marginal effects are highly imprecise and thus not reported. The results presented in Table A8 may be interpreted only qualitatively.

Besides the need for a strong instrument, the key assumption for an instrumental variable is the exclusion restriction: the variable must not influence the outcome (i.e., populist preference) in ways other than via the instrumented variable (i.e., impatience). In this case, one may argue that the number of siblings reduces the resources available during childhood, making it more likely that a person with siblings ends up less educated and with lower income as a voter later in life. However, this bias attenuates the effect we are after, as it would imply that having siblings increases the probability of a populist preference via low education/income. Instead, we argue that having siblings, by building patience, actually reduces the likelihood of casting a populist vote. Moreover, at all stages we control for a wide range of characteristics (all covariates from before), including personality traits, income and education to address this and other potential biases. While we cannot argue that siblings are exogenous, having siblings is a decision taken by others long before the person votes, and conditional on the covariates, there is a good chance the exclusion restriction holds to make this approach a useful check of the credibility of our baseline results.

7.3 Sample selection

Non-voting might create a sample selection issue if it was strongly related to impatience. For instance, if the most impatient people were actually non-voters, and hence not necessarily populist voters, the conclusion that populist success increases with people's impatience could be invalid. In the UK survey, respondents indicate not to have a current party preference as one option in the course of choosing between the different parties. Hence, the decisions to 'vote' and 'what to vote for' are simultaneous and do not produce a typical selection problem where

one choice pre-empts the other. Indeed, the multinomial model presented in Section 6.2, specifically Table 7, sheds light on the role of impatience in differences between having no preference and preferring a populist party, indicating that impatience may foster, to a similar extent, both populist voting and non-voting.

In the German data, respondents who have not voted could not indicate a specific party preference, creating the typical sample selection problem. We tackle this issue using a selection-on-observables approach. Specifically, we use inverse probabilities to reweight the sample of voters in such a way that it perfectly resembles the sample of all respondents eligible to vote. While a Heckman correction would also have been an option, finding a convincing exclusion restriction proved difficult. Populist parties often recruit voters from previous non-voters as they make an offer to those with low trust in the institutions. This makes it hard to identify variables that matter for voting, but not for populist voting. It is therefore more promising to exploit the richness of the SOEP dataset to predict the voting decision to a high degree based on observable variables (for overviews, see Denny and Doyle 2008; Smets and Van Ham 2013). In addition to the covariates used before, we consider a measure of people's general interest in politics, which appears to strongly predict voting. Exploiting the panel dimension of the data, we also use whether the person has voted in the previous general election of 2009 (and one indicating whether this information is missing), and thus prior to the appearance of the AfD. This indicator likely captures a number of typically unobserved reasons for (non)voting and also accounts for the fact that populist votes often come from previous non-voters. Another variable we add is disability, which also correlates with voting.

As Table A9 in the ESM (III) shows, eligible respondents and the sample of voters are quite similar in the first place. A major reason here is that the samples significantly overlap and are reweighted using population weights anyway, leading to some prior alignment. For the additional reweighting, we use the inverse of the product of the population weight and the predicted individual probability of being a voter. To this end, we estimate the probability of being a voter based on our previous set of covariates and the additional variables (e.g., interest in politics). The inverse probability weighting eliminates any remaining differences, including the crucial variable of impatience. Re-estimating our results for right-wing populist voting based on the reweighted sample returns highly significant estimates for impatience in line with our theoretical model and the previous results (Table 3). For 2013, we find again a marginal effect (at means) of impatience of 0.6 pp if all covariates are included ($p < 0.01$). For 2017, the effect is again 1.5 pp ($p < 0.01$).

7.4 Social desirability bias

One concern with our data is that voters might dishonestly indicate to have voted for a non-populist party rather than revealing their true vote for a populist party, as a form of social desirability bias. The survey methodological literature indicates that social desirability bias is particularly present in social interview situations (e.g., Chadi 2013). For some reassurance, we have therefore estimated the effect of impatience on populist voting again in a small subsample of survey participants who completed the survey without an interviewer being present, such as online self-completion. This is only possible for the German data, and hereby 18% of the sample indicating their voting in the 2017 election sample. Due to the much smaller sample size, regional covariates need to be aggregated at the federal state (NUTS-1) level (*Bundesländer*). Impatience continues to increase the probability of casting a populist vote (2.6 p.p., $p < 0.05$, at means) or right-wing populist vote (1.2 p.p., $p < 0.05$, at means) in the specification with the full sample and all control variables (corresponding to Table 2, fifth column).

8. Summary and conclusion

Our analysis characterizes a direct effect of impatience on populist voting, contributing to the public choice literature by demonstrating how an institutional constraint shapes political demand. We assume that populist parties meet this demand by promising short-term gains while neglecting future costs. In our theoretical model, individuals assess the effects on their own welfare of a forward-looking policy reform that requires a short-term sacrifice in exchange for a longer-term gain. Individuals losing lifetime income would, of course, oppose such a reform, regardless of their rate of time preference. More interestingly, however, even if the individuals gain in terms of lifetime income, strong enough impatience can drive them into a binding borrowing constraint. This constitutes an institutional friction that prevents them from smoothing their consumption by reallocating future gains to the present. Accordingly, they maximize utility by voting for a populist party opposing the reform, avoiding the short-term sacrifice. Importantly, this result applies to a wide range of types of impatience, as it is independent of whether the individual is a ‘rational’ exponential discounter or characterized by a time-inconsistent preference for immediate gratification.

Based on data for Germany and the UK, we examine whether a higher degree of impatience indeed increases the likelihood of populist voting. The results found in the German case show that the likelihood of voting for either the nationalist party NPD (*Nationaldemokratische Partei Deutschland*) or the right-wing populist party AfD (*Alternative für Deutschland*) is positively

correlated with the level of impatience. Similarly, the results found in the British UKHLS data show that a political preference for either UKIP (*United Kingdom Independence Party*) or the BNP (*British National Party*) correlates positively with impatience, as measured by the delayed gratification inventory. These correlations remain even after controlling for stable individual characteristics, regional characteristics, and life outcomes that may depend on impatience. This suggests that the choices made earlier in life do not fully explain the relationship between impatience and the likelihood of preferring populist parties.

The German data also allow us to test whether impatience differently predicts right-wing and left-wing populism. Whereas impatience significantly increases the likelihood of voting for right-wing populist parties, it does not seem to affect the likelihood of voting for a left-wing populist party. A key reason may be that German left-wing populism does not meet the constrained voters' demand for short-sighted policy as consistently as right-wing populism, given its policy stances on climate change and migration. Crucially, the empirical results confirm that the direct association of impatience and political preference is stronger in younger agents facing potential borrowing constraints than in older agents. The intuition is that young agents are more likely to face the tradeoffs implied by forward-looking reforms, suggesting that the combination of impatience and a binding borrowing constraint is particularly important to their voting behavior.

In connection with the empirical link to populism, our theoretical model also produces a clear-cut policy implication for long-term orientated policy-makers. They may counter populism by proposing forward-looking reforms combined with up-front redistribution to voters. By relaxing the borrowing constraints facing impatient voters, they may successfully secure their support for forward-looking reforms.

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