

# Globalization, Time-Preferences, and Populist Voting\*\*

Thomas Aronsson\*, Clemens Hetschko<sup>+</sup>, and Ronnie Schöb<sup>‡</sup>

July 2020

## Abstract

Societies see growing support for populist politicians who advocate an end to globalization. Our behavioral economics model links impatience to voters' appraisals of an income shock due to globalization that is associated with short-run costs and delayed gains. The model shows that impatient individuals may reject further globalization if they are subject to borrowing constraints. Using German data, we confirm that impatient voters choose right-wing anti-globalist parties. Similarly, we show for the United Kingdom that a preference for immediate gratification increases the support for right-wing anti-globalist parties as well as for Brexit. A policy implication of our study is that governments may use up-front redistribution to gain voters' support for further globalization.

Keywords: Globalization, time-preference, impatience, time-inconsistency, populism, Brexit, up-front redistribution.

JEL Classification: D15, D72, D91, F15, F61, F68, H53

---

\*\* Thomas Aronsson would like to thank the The Marianne and Marcus Wallenberg Foundation (MMW 2015.0037) for generous research grants. The authors would like to thank Jeremy Edwards, Niklas Potrafke, Panu Poutvaara and Tomas Sjögren as well as seminar participants at the universities of Frankfurt, Flensburg, Magdeburg, Berlin (FU) and Groningen for helpful comments and suggestions. They also thank participants of the 2019 annual meeting of the German Economic Association in Leipzig.

\* Umeå University. Address: Department of Economics, Umeå School of Business, Economics and Statistics, Umeå University, SE – 901 87 Umeå, Sweden. E-mail: Thomas.Aronsson@umu.se.

<sup>+</sup> University of Leeds and CESifo, Munich. Address: University of Leeds, Economics Division, Maurice Keyworth Building, Leeds LS2 9JT, United Kingdom. E-mail: C.Hetschko@leeds.ac.uk.

<sup>‡</sup> Freie Universität Berlin and CESifo. Address: School of Business & Economics, Freie Universität Berlin, Boltzmannstraße 20, D–14195 Berlin, Germany. E-mail: Ronnie.Schoeb@fu-berlin.de.

## 1. Introduction

Over the past two decades, Western societies have seen a stunning rise in support of political parties opposing important facets of globalization, such as migration, free trade, or European integration. Attitudes to globalization, and the consequences of these attitudes for voting behavior, are likely to depend on how individuals assess the gains and losses that result from intensified economic (and possibly also political) integration. Workers as well as owners of other production factors may be winners in the long run but losers in a shorter time-perspective, or vice versa (see Mussa 1974). Thus, the timing of the realization of gains and losses might be crucial. Typically, people bear the adjustment cost of a free trade agreement or labor supply shock immediately, whereas the gains materialize later on (e.g., Haggard and Webb 1993; Trefler 2004; Barrel, FitzGerald, and Riley 2010). Hence, the individuals' discounting of later gains becomes important in determining whether they consider themselves winners or losers of globalization and, subsequently, whether they support or oppose globalization in elections.

In this study, we develop a model in which impatience in combination with a restriction on borrowing against the future gains of globalization plays an essential role for the individuals' assessments of the benefits and costs of globalization. This theory is then tested using data on voting behavior in Germany and attitudes towards populist parties and Brexit in the United Kingdom. The central policy implication of our study is that governments seeking support for globalization could use up-front redistribution to reallocate resources over people's life cycles, with the result that some of the (otherwise future) benefits of globalization will materialize immediately.

Naturally, those who expect to lose from further globalization may vote against it. Many low-skilled workers suffer due to the stronger competition resulting from the more integrated international goods markets as well as from low-skilled immigrants on the domestic labor market. They therefore increasingly oppose further moves towards economic integration (see Dancygier and Walter 2015). 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; Becker, Fetzer, and Novy 2017; Colantone and Stanig 2018a). Migration and regional trade shocks produce economic insecurity and thus have a significant impact on the growing support for populist parties across Europe (Guiso et al. 2017; Colantone and Stanig 2018b).<sup>1</sup>

---

<sup>1</sup> In addition, Fetzer (2019) shows that exposure to certain kinds of political reform, such as austerity, also leads to British people being more likely to vote in favor of leaving the EU. Algan et al. (2017) link the support for populist parties to the regional consequences of the Great Recession.

---

As we are only concerned with the differential effect impatience might have, our study neither addresses the winner-loser debate nor the issue of compensating the losers of globalization. Instead, we apply a setting in which all individuals could benefit from the policy change in the long run and examine how the sequence of losses and gains affects attitudes towards further globalization and thus voting behavior. People who are particularly unwilling to trade off future well-being against immediate gratification may be more likely to oppose further globalization. As a result, even those who eventually benefit from globalization will vote against it if the short-term losses are too high. A policy shift that is beneficial for a majority of people in the long term might thus be rejected.

The rejection of beneficial reforms has been investigated before, albeit in contexts different from ours. Fernandez and Rodrik (1991) show that all people in a losing sector may oppose globalization even though some of them will eventually benefit from the reform by switching to the gaining sector. As they do not know *ex ante* that they will belong to the group of ‘winning losers’, their expected benefit from the reform is negative. They will thus vote against the reform, even if they are risk neutral and fully rational. Inequality aversion may also trigger opposition to globalization when the gains are unequally distributed, even if everyone (privately) benefits from trade. Using plausible parameters for a society characterized by inequality aversion, Antràs et al. (2017) find that a trade-induced increase in disposable income inequality reduces the gains from trade by about 20%.

We analyze the relationship between impatience and political outcomes, considering both ‘rational impatience’, where people behave in accordance with time-consistent preferences, and time-inconsistent preferences for immediate gratification. Experimental research is often supportive of the idea that people have time-inconsistent preferences (e.g., Thaler 1981; Frederick, Loewenstein, and O’Donoghue 2002; see also the review by DellaVigna 2009). This type of preferences is typically described in terms of quasi-hyperbolic discounting, and some of the policy implications thereof have been analyzed in the contexts of savings behavior (e.g., Laibson 1997) and unhealthy habits, such as smoking or eating unhealthy food (e.g., Gruber and Köszegi 2004; O’Donoghue and Rabin 2006; Aronsson and Thunström 2008; Aronsson and Sjögren 2016).

We develop a model in which each individual’s assessment of the welfare consequences of globalization depends on the person’s ability to adjust savings behavior to an associated income shock. Globalization is modeled as a decrease in current incomes and an increase in future incomes. Even if all individuals benefitted from globalization if their savings/borrowing choices were unconstrained, impatience may drive some individuals towards a binding

---

borrowing constraint, leading them to experience a welfare decline. As a result, they oppose globalization by voting for candidates and parties with an anti-globalization agenda. We show that this argument is valid regardless of whether impatient individuals are fully rational or have a time-inconsistent preference for immediate gratification. In either case, however, their perceived welfare decline can be counteracted via up-front redistribution so that a majority of agents, in the end, would experience a welfare gain from globalization.

The most important empirical implication of our theoretical model is that impatience impacts the individuals' assessment of the costs and benefits of globalization and thus their voting behavior when it comes to anti-globalist parties. This hypothesis is tested using data for both Germany and the UK. German Socio-Economic Panel data (SOEP) includes information about people's self-assessed impatience and their actual voting behavior in the 2013 and 2017 general elections in Germany. We focus on the probability of voting for right-wing populist parties, in our case the *Nationaldemokratische Partei Deutschlands* (NPD, National Democratic Party of Germany) and the *Alternative für Deutschland* (AfD, Alternative for Germany), which we interpret as an anti-globalist vote. For the UK, we use Understanding Society data (UKHLS, i.e. United Kingdom Household Longitudinal Survey). This enables us to use a different measure of impatience, namely the Delayed Gratification Inventory (DGI) which is used to elicit a preference for immediate gratification and is thus closely related to hyperbolic discounting. People's stances on the *UK Independence Party* (UKIP), the *British Nationalist Party* (BNP) and, most importantly, on Brexit serve us as close proxies for their political desire for further globalization.

Our empirical strategy is to estimate the correlation of impatience with the probability of preferring the respective anti-globalist parties and Brexit conditional on each individual's socio-demographic characteristics, job attributes, personality traits, and region fixed effects. We find a stable, significant, and positive correlation between the probability of supporting the populist parties as well as Brexit and the respective measures of impatience. The fact that the DGI score is strongly positively linked to preferring UKIP or the British Nationalist Party (BNP) to all other parties and also substantially increases the probability of preferring the UK to leave the European Union suggests that the relationship between voting and impatience is partly driven by self-control problems and not just rational impatience. In line with this view, we find for both datasets that smoking and unhealthy eating habits correlate positively with support for the respective populist parties and Brexit.

Section 2 presents our theoretical model. Section 3 introduces the data and the methodology that we employ to empirically test the implications of the model. The main results are presented in Section 4, followed by sensitivity analyses in Section 5. Section 6 concludes.

## 2. Impatience, Borrowing Constraints, and Globalization<sup>2</sup>

We start by considering a model of intertemporal choice in combination with a borrowing constraint. In the model, globalization leads to higher income combined with a short-run (adjustment) cost modeled such that current income declines and future income increases. The intertemporal income change causes the borrowing constraint to be binding for those with a sufficiently high degree of impatience. In this case, they prefer the initial allocation to the new (post-globalization) allocation, although they would prefer the new allocation if they could reallocate future income to the present. We also show that a government seeking voters' support for globalization could provide more immediate compensation for the short-run costs individuals have to bear simply by reallocating some of the future benefits to the present such that a majority of agents, in the end, will prefer the new allocation to the original one. Such policy measures will be referred to as 'up-front redistribution'.

### 2.1. A Model of Intertemporal Choice and Impatience

We consider a model of a single generation in which each individual lives for three periods.<sup>2</sup> There is no genuine uncertainty.<sup>3</sup> An individual's preferences are given by the following life-time utility function (for all  $i$ ):

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

where  $c_t^i$  denotes individual  $i$ 's consumption at time  $t$ ,  $\beta^i \in (0, 1]$  individual  $i$ 's time-inconsistent preference for immediate gratification, and  $\Theta^i = 1 / (1 + \theta^i)$  an exponential discount factor with discount rate  $\theta^i$ . Except for possible differences with respect to the parameters  $\beta^i$  and  $\Theta^i$ , individuals are assumed to be identical. The instantaneous utility function,  $u(\cdot)$ , is increasing in its argument and strictly concave. Each individual supplies one unit of labor inelastically and earns labor income,  $w$ , in the first and second period of life. The period-specific budget constraints can then be written as

<sup>2</sup> We model the time-inconsistent preference for immediate gratification in terms of quasi-hyperbolic discounting, which requires a minimum of three periods since the individual must make at least two consecutive intertemporal choices.

<sup>3</sup> This assumption simplifies the analysis. Adding uncertainty would not change the qualitative effects of impatience on the individual's assessment of the costs and benefits of globalization.

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

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

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

where  $s$  denotes savings and  $r$  the interest rate. The variable  $b$  represents a lump-sum income (positive or negative) provided by the government. For further use, we impose a non-negativity constraint on the young agent's savings in period  $t$ , such that  $s_t^i \geq 0$ , 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. This means that we focus on the implications of borrowing constraints facing the young. It is straightforward to extend the analysis to include possible borrowing constraints facing the middle-aged; for instance, by adding an exogenous income to equation (2c), or by adding a simple pension system to the model. We refrain from such extensions here as they would not affect the qualitative conclusions discussed below.

To avoid structure that is not essential for the main results, we also assume that the only task of government is to redistribute resources over the individual's life cycle. The government's budget constraint is written as follows:

$$b_t = -\frac{b_{t+1}}{1 + r_{t+1}}. \quad (3)$$

Hence, lump-sum transfers from the government are only used to redistribute income between the agent's young and middle-aged selves. We assume, to begin with, that  $b_t = b_{t+1} = 0$ .

Before turning to the individual's assessment of the welfare consequences of an income shock, and the ability of the government to influence this assessment via up-front redistribution (addressed through an increase in  $b_t$  and a corresponding decrease in  $b_{t+1}$  to preserve the public sector budget balance), let us briefly characterize consumer behavior. In doing so, we distinguish between rational and hyperbolic discounters. The *rational discounter* faces no self-control problem, i.e.,  $\beta^i = 1$ . Such an agent satisfies the following first-order conditions for  $s_t^i$  and  $s_{t+1}^i$  in period  $t$ :

$$-u'(c_t^i) + u'(c_{t+1}^i)\Theta^i(1 + r_{t+1}) \leq 0 \quad (=0 \text{ if } s_t^i > 0) \quad (4a)$$

$$-u'(c_{t+1}^i) + u'(c_{t+2}^i)\Theta^i(1 + r_{t+2}) = 0. \quad (4b)$$

Arriving at the second period of life, the agent will stick to the optimal plan implied by equation (4b), i.e., there is no preference reversal.

Next, turning to (quasi-) hyperbolic discounters, for whom  $\beta^i < 1$ , the literature typically distinguishes between naïve agents, who behave in a time-inconsistent way, and sophisticated agents, who recognize that their future selves are subject to the same self-control problem as the current self and implement a plan that these future selves will follow.<sup>4</sup> Hey and Lotito (2009) find behavior consistent both with naivety and sophistication, even if naivety seems to be much more prevalent. We consider both of these cases in what follows.

A *naïve hyperbolic discounter* erroneously expects not to suffer from any self-control problem in the future. Therefore, when young in period  $t$ , this agent plans to satisfy the following first-order conditions for  $s_t^i$  and  $s_{t+1}^i$ :

$$-u'(c_t^i) + \beta^i u'(c_{t+1}^i) \Theta^i (1 + r_{t+1}) \leq 0 \quad (= 0 \text{ if } s_t^i > 0) \quad (5a)$$

$$-u'(c_{t+1}^i) + u'(c_{t+2}^i) \Theta^i (1 + r_{t+2}) = 0. \quad (5b)$$

Equation (5b) does not contain  $\beta^i$ , since the agent expects that the preferences will remain as in equation (1) throughout the whole life cycle. However, when reaching period  $t+1$ , the agent realizes that his preferences have changed and would now like to choose  $s_{t+1}^i$  to maximize  $u(c_{t+1}^i) + \beta^i u(c_{t+2}^i) \Theta^i$  subject to equations (2b) and (2c). Equation (5b) is thus replaced by

$$-u'(c_{t+1}^i) + \beta^i u'(c_{t+2}^i) \Theta^i (1 + r_{t+2}) = 0. \quad (6)$$

Naïve agents first choose  $s_t^i$  and  $s_{t+1}^i$  in period  $t$  such that conditions (5a) and (5b) are satisfied simultaneously. Then, in period  $t+1$ , they revise their initial choice of  $s_{t+1}^i$ , conditional on the original choice of  $s_t^i$ , to satisfy equation (6).

*Sophisticated hyperbolic discounters* realize in period  $t$  that the savings choice made by their future selves in period  $t+1$  will satisfy equation (6). We can then use equations (2b), (2c), and (6) to derive the following reaction function:

$$s_{t+1}^i = s_{t+1} \left( (s_t^i - b_t)(1 + r_{t+1}), w_{t+1}, r_{t+2}, \Theta^i, \beta^i \right), \quad (7)$$

in which we have used  $b_{t+1} = -b_t(1 + r_{t+1})$  from the government's budget constraint (3). In particular, note that  $\partial s_{t+1}^i / \partial s_t^i = -\partial s_{t+1}^i / \partial b_t > 0$ . More resources lead to increased savings.

---

<sup>4</sup> O'Donoghue and Rabin (2001) consider a mixture of naivety and sophistication where agents are partially naïve, i.e., underestimate their future self-control problem. We refrain from this extension here as it would not affect the conclusions derived below.

While more savings in period  $t$  increase resources available in period  $t+1$ , more lump-sum transfers in  $t$  lower the resources available in  $t+1$ . When young, the sophisticated agent chooses savings  $s_t^i$  to maximize the utility function (1) subject to the budget constraint (3) and reaction function (7). The first-order condition becomes

$$-u'(c_t^i) + \beta^i u'(c_{t+1}^i) \Theta^i (1+r_{t+1}) + \beta^i (1-\beta^i) u'(c_{t+2}^i) (\Theta^i)^2 (1+r_{t+2}) \frac{\partial s_{t+1}^i}{\partial s_t^i} \leq 0 \quad (= 0 \text{ if } s_t^i > 0). \quad (8)$$

In order to derive the weak inequality (8), we have used the fact that the individual satisfies equation (6). Therefore, conditions (6) and (8) are the first-order conditions satisfied by the sophisticated discounter. If  $s_t^i > 0$ , and by comparing (5a) and (8), we can see that a young sophisticated discounter has an incentive to save more than a young naïve discounter, *ceteris paribus*. By saving more, the young sophisticated discounter can induce her future self to save more and thus counteract the effect that the time-inconsistent preference will have on the long-term plan.

#### *Income Change, Well-Being, and the Role of Government Intervention*

Suppose now that an income shock arises, whereby  $w_t$  decreases and  $w_{t+1}$  increases. As indicated above, this income change is interpretable in terms of a structural change following globalization since the adjustment cost to trade and labor supply shocks appear immediately, whereas the benefits materialize later on (e.g., Trefler 2004; Barrell, FitzGerald, and Riley 2010). To be able to focus on the problem at hand in the simplest possible way, we assume that the welfare effect to the individual of this income shock is strictly positive if  $\beta = \Theta = 1$ , i.e., in the absence of any impatience. Let  $w_{t,o}$  and  $w_{t+1,o}$  denote the original (pre-shock) levels of income,  $w_{t,n}$  and  $w_{t+1,n}$  denote the new (post-shock) levels, and let

$$U_o^i = u(c_{t,o}^i) + \beta^i \left( u(c_{t+1,o}^i) \Theta^i + u(c_{t+2,o}^i) (\Theta^i)^2 \right), \quad (9a)$$

$$U_n^i = u(c_{t,n}^i) + \beta^i \left( u(c_{t+1,n}^i) \Theta^i + u(c_{t+2,n}^i) (\Theta^i)^2 \right), \quad (9b)$$

for all  $i$  denote the corresponding value functions, where the second subscript attached to consumption indicates an optimal choice in each regime for agent  $i$ . Our assumptions imply  $w_{t,n} < w_{t,o}$  and  $w_{t+1,n} > w_{t+1,o}$ , as well as  $U_n^i > U_o^i$  if agent  $i$  is not impatient.<sup>5</sup>

<sup>5</sup> The analysis could easily be extended to overlapping generations. In our setting with three-period lives, the old generation would not be affected at all by globalization as their savings decision has already been made, while the middle-aged would be affected by a negative wage shock in a way similar to the young generation. This would



However, these assumptions do not imply that all individuals would necessarily vote in favor of the income change described above, had they the option to do so. On the contrary, individuals who are very impatient in the sense that  $\beta$  and/or  $\Theta$  are sufficiently low cannot fully transfer future gains to the present. The reason is that the borrowing constraint becomes binding. These impatient individuals thus experience a loss in utility and vote against the income change. This is the central point of our study and will be tested empirically later on.

The question is then whether up-front redistribution can be used to induce the majority of agents to vote in favor of globalization. For instance, a more generous welfare state could provide immediate compensation for negative income shocks through the tax and transfer system. Consider first the case where the borrowing constraint does not bind. Clearly, and irrespective of whether the agent is rational or a hyperbolic discounter (naïve or sophisticated), if  $s_{t,n}^i > 0$ , then a marginal revenue-neutral increase in current lump-sum transfers such that equation (4) continues to hold always implies

$$\frac{\partial U_n^i}{\partial b_t} = 0. \quad (10)$$

The interpretation is that up-front redistribution only leads to a savings adjustment such that the allocation of consumption remains the same. For our analysis, the result has an even more important implication: if the young individual  $i$  is a net saver in the new regime, she must prefer the new regime to the old one, irrespective of the levels of  $\beta^i$  and  $\Theta^i$ .<sup>6</sup> Therefore, as long as individual  $i$  is a net saver in the new regime, and not constrained by the inability to borrow, she will vote in favor of globalization.

For a borrowing-constrained individual, however, equation (10) does not hold. The corresponding cost benefit rule then takes the form

$$\frac{\partial U_n^i}{\partial b_t} = u'(c_t^i) - \beta^i u'(c_{t+1}^i) \Theta^i (1 + r_{t+1}) > 0 \quad (11)$$

if the agent is a naïve hyperbolic discounter or rational discounter ( $\beta^i = 1$ ), and

---

require additional inter-generational redistribution, but would not affect our qualitative results regarding welfare-improving intra-generational redistribution presented below.

<sup>6</sup> This does not mean that discounting is unimportant for the effects of up-front redistribution, since the levels of  $\beta$  and  $\Theta$  will influence whether the individual faces a binding borrowing constraint in the new regime. However, if the individual is a net saver in the new regime, she is able to reallocate the future gains from globalization in an optimal way and will thus prefer the new regime to the old one.

$$\frac{\partial U_n^i}{\partial b_t} = u'(c_t^i) - \beta^i u'(c_{t+1}^i) \Theta^i (1+r_{t+1}) - \beta^i (1-\beta^i) u'(c_{t+2}^i) (\Theta^i)^2 (1+r_{t+2}) \frac{\partial s_{t+1}^i}{\partial s_t^i} > 0 \quad (12)$$

if the agent is a sophisticated hyperbolic discounter. The implication is that, even if a majority of individuals prefer the original wage sequence  $(w_{t,o}, w_{t+1,o})$  to the new one  $(w_{t,n}, w_{t+1,n})$  when  $b_t = b_{t+1} = 0$ , the government could use up-front redistribution such that a majority would, in the end, prefer the new allocation.

Suppose that we can rank the agents in terms of impatience (from highest to lowest) based on the effective short-term discount factor  $\beta\Theta$ . Then there exists a critical level of  $b_t = \bar{b}_t$  such that the “median voter” is indifferent between saving and borrowing. Therefore, in a redistribution system where  $b_t \geq \bar{b}_t$ , a majority of agents would vote in favor of globalization. If agents are rational discounters or naïve hyperbolic discounters in the sense described above, we can immediately see that this critical  $\bar{b}_t$  must satisfy condition (5a) expressed as a strict equality for the agent with the median value of the product  $\beta\Theta$  when this individual’s savings are zero in period  $t$  such that

$$\frac{u'(w_t + \bar{b}_t)}{u'(w_{t+1} - s_{t+1}^m - \bar{b}_t(1+r_{t+1}))(1+r_{t+1})} = (\beta\Theta)^m = \frac{1}{I^m}.$$

Superscript  $m$  refers to the agent with “median patience”, defined by the median of  $\beta\Theta$ . With reference to the empirical model in Section 3, we can think of  $I = 1/(\beta\Theta)$  as an indicator of impatience: the lower  $\beta$  or  $\Theta$ , the more impatient the agent (the higher  $I$  is), and the less weight will be attached to the agent’s future utility, *ceteris paribus*. For sophisticated hyperbolic discounters, the corresponding condition for  $\bar{b}_t$  takes a more complex form as it would also reflect the reaction function given in equation (7). Yet, in principle, the same discussion applies here.

Thus, redistributive systems that provide more up-front redistribution, for instance by having a generous unemployment benefit payment scheme, increase life-time utility, implying that individuals who lose without up-front redistribution may eventually benefit from globalization. Note, however, that there is one important difference between rational discounters and quasi-hyperbolic discounters. Whereas up-front redistribution could, in principle, be used to implement a first-best resource allocation if all agents are rational discounters, this is not in general the case under present-biased preferences.<sup>7</sup> In each case,

---

<sup>7</sup> A paternalistic policy-maker who would like the individuals to behave as if they were not subject to any self-control problem could go one step further and implement a (paternalistic) first-best solution that would require

---

however, welfare systems with a higher level of up-front redistribution increase the agents' perceived net benefits of globalization in the same qualitative way.

It is not in general possible to discriminate between the types of time preferences we consider in our model on the basis of real-world data. The reason is that observed behavior consistent with high short-term discounting (our measure of impatience) can either be rational or irrational. The empirical implication is nevertheless the same: we expect a negative attitude to globalization to manifest itself in impatient voters' party preference. In what follows, we test this hypothesis using data for Germany and the UK.

### 3. Data and Methodology

Whether people oppose or favor open borders for products, investment, and migration may depend on their time preference. This central argument of our theoretical analysis will gain support if voters of parties opposing further globalization appear to be, on average, more impatient than voters of parties favoring free trade and migration.

#### 3.1 Anti-Globalist Voting in Germany

To identify the impact of impatience on anti-globalist voting, we make use of data from the German Socio-Economic Panel (SOEP) study (SOEP 2020; Schröder et al. 2020). This household survey consists of annual information on the self-reported socio-demographic characteristics, traits, attitudes, and well-being of the same individuals. It 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 wave of 2013 since it comprises data on people's self-assessed patience, which we use to measure time preference. Furthermore, we use the information on people's voting behavior in the general election (*Bundestagswahl*) of 2013 retrospectively from the wave of 2014. We repeat the analysis for the SOEP wave of 2018, in which impatience and voting in the 2017 general election are measured at the same time.

Subjects of the 2014 SOEP survey were asked to indicate their voting decision in the 2013 general election, which was held on 22 September 2013. SOEP interviews usually take place from February to April. When interviewed in 2014, people hence reported their voting behavior about six months (25.5 weeks) after the election had taken place. In doing so, they answered the question *'In the last Bundestag election on September 22, 2013, which party did you vote*

---

savings subsidies, the exact form of which depends on whether agents are naïve or sophisticated (see, e.g., Aronsson and Sjögren, 2014).

---

*for?*' Subjects could indicate for which of the eight highest ranked parties they had voted, or whether they had voted for a different party, or had not been eligible to vote, or had not gone to the polls. The last two groups are not considered in the main analysis, but we will consider those who did not go to the polls in one sensitivity analysis. A few people ticked the boxes of two parties and are therefore excluded from the sample. Further observations are omitted if respondents did not participate in both the 2013 and 2014 surveys or did not provide the information that we use for our control variables, as described in more detail below. Restricting our sample in this way, we end up with 11,005 observations.

In what follows, 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 vote against further globalization. The NPD has been the most stable extreme right-wing movement in Germany for a long time. The party has traditionally rejected any kind of globalization, whether through free trade or migration (Häusler 2016). Despite occasional successes at regional elections, it never exceeded the five-percent threshold of votes necessary to gain seats in the federal parliament.

In the 2013 general election, the newly founded AfD showed up to the right of the conservative Christian Democrats, and almost succeeded in entering parliament straightaway by polling 4.7%. After the next general election four years later, the AfD entered parliament, receiving 12.6% of all votes. It is disputable whether the AfD was already a populist party back in 2013, or just a very conservative one that “approached the 2013 German federal election with extensive populist appeals” (Franzmann 2016, p. 458). What matters in our context is, however, that as early as 2013 the party took a critical stance towards the joint European currency and advocated a partial removal of European integration (Bebnowski 2016; Decker 2016). Moreover, as in other right-wing populist movements in Europe, voters expressing strong anti-immigration motives ensured the party’s success in the 2013 election (Schmitt-Beck 2014; Berbuir, Lewandowsky, and Siri 2016). Hence, votes for the AfD in 2013 might well reflect a situation to which our theoretical model applies.

In Germany, the long-run gains of further moves towards more globalization may already be smaller than at the beginning of the age of globalization. These gains may no longer be large enough to overcompensate short-term adjustment costs for people who largely discount future gains. The AfD might have addressed such voters as early as 2013, if not necessarily on purpose, since it aimed at stopping further steps of European integration and thus towards further globalization, while not demanding a reversal of the whole process of globalization. To ease any concerns regarding our categorization of votes for the AfD in 2013, we confirm our results

---

using data from the 2017 general election, where there is no dissent whatsoever regarding the AfD's nature as a right-wing populist party (Arzheimer and Berning 2019).<sup>8</sup>

Besides right-leaning populist parties, the extreme left often opposes economic globalization to the extent that free trade goes hand in hand with market liberalization. However, some leftist movements welcome open borders for migrants. This applied at least to Germany's socialist party *Die Linke* ('The Left') in 2013 when the refugee crisis had not yet hit Germany. Moreover, Die Linke advocated further European integration in many areas, such as social policy, and a stronger role of the European parliament in the EU legislative process to the disadvantage of national governments (Die Linke 2013). Votes for Die Linke may therefore not be considered as anti-globalization votes. To test whether this strategy affects our results, we will present specifications of our empirical analysis excluding Die Linke's voters.

Although the SOEP is, by and large, a representative dataset, it does not correctly mirror the election results. A smaller fraction of people in our sample indicated they had voted for the AfD or NPD (3.7%) compared to the actual percentages of votes (6.0%) in 2013. The same holds true for the 2017 election (9.3% vs 13.0%). Not only is there the lack of representativeness; social desirability concerns might also lead to underreporting of votes for extreme parties and thus contribute to these deviations (e.g., Funk 2016). This bias should even improve the credibility of the statistically and economically significant difference between votes for socially accepted parties and votes for less accepted parties. People report having voted for right-wing populist parties despite the fact that this is socially undesirable may be particularly honest, which renders their answer very credible. Those who did not honestly reveal their vote for the AfD or NPD are falsely categorized as non-populist voters, and thus bias our results towards zero. Nonetheless, we address non-representativeness in general by using population weights in our estimations.

### *3.2 Anti-Globalist Political Preferences in the United Kingdom*

At the time, the decision of the people of the UK to leave the European Union on 23 June 2016 was widely received as the greatest success of the new right-wing anti-globalist movement in the Western world. While globalization had seemed to be a one-way street for a long time, the referendum marked a first major step toward international economic and political

---

<sup>8</sup> For the main part of our analyses, however, we stick to the 2013 sample. This is because data on impatience for the analysis of voting in the 2017 election are obtained from the 2018 SOEP wave and thus after the voting took place.

disintegration.<sup>9</sup> ‘Leave’ supporters do not want to be part of ‘an ever closer European Union’ that fosters free trade of goods and services, free movement of people, a joint currency, and constantly enlarges with new member states.<sup>10</sup> In addition, they were promised an immediate reward through increased funding of the National Health Service (‘We send the EU £350 million a week – let’s fund our NHS instead’). These supporters thus constitute an important case when studying the origins of anti-globalist political preferences, with impatience as one potential candidate for this study.

To examine the demand for anti-globalist right-wing populism in the UK, we use Understanding Society (UKHLS 2019) panel data. The survey started a first wave of interviews in 2009, 2010, and 2011 with over 40,000 participants. People have been interviewed on a yearly basis since then so that the waves overlap across years. Since the second wave, the UKHLS has integrated the remaining participants of its predecessor, the British Household Panel Survey (BHPS, yearly waves from 1991 to 2008).

For our research purposes, the fifth and the eighth UKHLS waves are of particular interest. The fifth wave (2013-2015) includes a measure of time preference, the Delayed Gratification Inventory (see next subsection). Moreover, people are regularly asked ‘*Generally speaking do you think of yourself as a supporter of any one political party?*’ If they answer in the affirmative, they are requested to state which party that is. They can choose between the Conservatives (‘Tories’), 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, such as the Scottish National Party. 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.

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 right-wing populist voters. While the BNP has traditionally rejected European integration to a great extent as part of a broader nationalist party program, UKIP was founded for the sole purpose of leading the UK

---

<sup>9</sup> As a result, the long-term effects of Brexit on employment and income are predicted to be negative (Dhingra et al. 2017; Born et al. 2019).

<sup>10</sup> We acknowledge though that some Brexit supporters want the UK to have more freedom to negotiate free trade agreements outside the EU. But even in such a scenario the UK’s overall international economic integration will reduce as those agreements cannot make up for the loss of trade with the EU (Brakman, Garretsen, and Kohl 2018).

out of the European Union. Although Brexit supporters also vote for other parties, we cannot assign any other party as clearly as UKIP and the BNP to an anti-globalist agenda. Based on our theoretical model, we thus hypothesize that impatience explains preferring UKIP/BNP to all other parties. Overall, we identify 19,310 people who indicate any party preference and also provide us with all the other data that we take into account in our analysis (see also Subsection 3.5). Among these, 1,813 prefer UKIP/BNP (the weighted share is 10.5%).

The eighth UKHLS wave (2016-2018) elicits people's Brexit stance asking them *'Should the United Kingdom remain a member of the European Union or leave the European Union?'* Respondents then either answer 'remain a member of the EU' or 'leave the EU'. Our measure of time preference is, however, not elicited again. We therefore have to assume temporal stability of time preference over a period of three years while relating the time preference gathered in the 5<sup>th</sup> wave to people's Brexit stance in wave 8. In doing so, we rely on the literature showing that time preferences are quite stable over time, similar to personality traits and risk attitude (Meier and Sprenger 2015; Meier 2018; Preuss 2019). Our sample for the analysis of the Brexit question consists of 18,390 respondents, of whom 46.2% indicated a 'leave' preference in the interview, whereas 53.8% checked 'remain' (weighted shares).

### 3.3 Measuring Time Preference

Let us then turn to the empirical counterparts of the measure of impatience in Section 2. There is no scientific consensus on the ideal way of measuring time preference yet (Cohen et al. 2020). Since the SOEP and the UKHLS are large surveys and thus need to gather information in an economical manner, they use single items or short scales that require people to assess their own time preference.

In the SOEP, self-assessed patience is measured on a scale from zero (very impatient) to ten (very patient) by the question *'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. The SOEP's measure of time preference performs well in predicting an experimentally elicited time preference, i.e., the internal rate of return between a reward received today and a delayed payment in 12 months, and can thus be seen as a valid measure of time preference (Vischer et al. 2013).

In the UKHLS, people complete a 10-item short version of the Delayed Gratification Inventory (DGI-10) that measures delayed gratification as one dimension of self-control

(Hoerger, Quirk, and Weed 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):

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). We consider this measure of time preference particularly well suited for our purposes, since it addresses the time dimension of self-control and thus an important aspect of impatience in our theoretical model. To obtain the joint DGI-10 factor for preferring immediate gratification (impatience), we reverse the starred items and run a factor analysis. The third item does not load at all on the joint factor and is therefore removed. Cronbach's alpha for the remaining items is 0.62.

Other studies have taken a different approach to measuring time preference by using behavior related to discounting (DellaVigna and Paserman 2005). Although we prefer the survey measures above, since they strike us as the more direct approach to measuring time preference, using behavior as an alternative proxy constitutes a natural robustness check. We thereby focus on health behaviors often associated with a time-inconsistent preference for immediate gratification, such as smoking or unhealthy eating habits (e.g., Borghans and Goldsteyn 2006; Khwaja et al. 2007; Ikeda et al. 2010; Story et al. 2014). If these alternative measures give the same qualitative result as our survey measures, then this will lend further support to the idea that (some of) the effects of impatience on voting behavior may reflect an underlying self-control problem.

### *3.4 Empirical Strategy*

To examine the empirical relationship between impatience and right-wing populist voting in Germany, we explain the probability of voting for either the AfD or NPD ( $r_{pref} = 1$ , or 0 otherwise) in the 2013 general election using a latent variable model. The probability depends



on a voter  $i$ 's self-assessed impatience ( $I_i$ , i.e., the inverse patience scale), which approximates our impatience function, and the voter's other observed characteristics (vector  $\mathbf{X}_i$ ):

$$P(rpref_i = 1 | I_i, \mathbf{X}_i) = P(\gamma I_i + \mathbf{X}_i' \boldsymbol{\rho} + \varepsilon_i > 0 | I_i, \mathbf{X}_i), \quad rpref_i \in \{0, 1\}, \quad (14)$$

where  $\varepsilon_i$  represents individual error terms, which are assumed to be normally distributed (probit model). All the qualitative results presented below also hold for a logit model. The estimations are performed using the maximum likelihood method. In the same way, we estimate support for right-wing populist parties in Britain, with  $rpref_i$  indicating a preference for UKIP or the BNP over all other parties, and the *DGI* score replacing the measure of self-assessed impatience. When analyzing the Brexit question,  $rpref_i$  indicates that the respondent would prefer the UK to leave the European Union rather than to remain a member state.

By means of vector  $\mathbf{X}_i$ , we control for a variety of individual characteristics to identify the *ceteris paribus* impact of impatience on populist voting. In doing so, we control for determinants of right-wing populist voting that might be correlated with impatience and thus produce a correlation of impatience and the voting decision even though no causal effect exists. The voting decision/party preference may originate from the varying circumstances of life, such as socio-demographic, regional, and job characteristics (see also the next subsection).

Time preference itself may partly have the same origins, but it is also rooted in our genes, which is probably why it is relatively stable over time and there is a substantial correlation between parents and children (Brown and Pol 2015; Chowdhury, Sutter, and Zimmermann 2018; Brenøe and Epper 2018). By comparing monozygotic and dizygotic twin pairs, Hübler (2018) disentangles the variation in impatience arising from genetic disposition from the impact of the family environment during childhood and from other determinants. He finds that about one quarter of the variation in impatience is of a genetic nature, while a common childhood experience is of minor importance.

In contrast, the decision to vote for a specific party or political project is, of course, not directly heritable. Although a genetic influence on political participation (e.g., turnout) and attitudes exists, it seems difficult to link genetics to party choice in an actual election (e.g., Hatemi et al. 2007; Fowler, Baker, and Dawes 2008; Verhulst, Eaves, and Hatemi 2012). This might be because the election program of a specific party offers a set of measures that match different political attitudes. The link between genetics and impatience should thus be stronger and more direct than the link between genetics and a specific party preference. The basic notion of our identification strategy is thus to reduce the variation in impatience to its exogenous origins that are unrelated to voting for a specific party, such as genetic variation. Hence, we

---

will identify an impact of impatience on populist voting if all factors simultaneously affecting impatience and populist voting are controlled for. A caveat of this approach is, of course, that we might partly miss the true effect we are searching for to the extent that the control variables affect populist voting through impatience.

### *3.5 Control Variables*

We aligned the ways in which the control variables are calculated as much as possible between the German and the British data. Sometimes, however, we had to use slightly different pieces of information to proxy the same determinants of an anti-globalist voting preference.

People with low education and low incomes may in particular suffer from globalization and thus vote for a right-wing populist party (Mayda and Rodrik 2005). In addition, patience is related to both education and intelligence (Potrafke 2019). We therefore consider educational attainment (SOEP: seven ISCED levels of education; UKHLS: six levels from no qualification to an academic degree) and the equivalent income of a person as control variables.<sup>11</sup> Home ownership serves as a proxy of household wealth. We will also examine the notion that borrowing constraints render it particularly likely that people cast a populist vote, as predicted in our theoretical model. To this end, we use later waves of the two panel datasets to calculate future equivalent income over the course of the following years. Furthermore, people are asked in both datasets whether they save some money.<sup>12</sup> If respondents answer in the affirmative, we consider them as savers.

To address the role of ethnicity and national identity in populist voting (e.g., Stoetzer et al. 2017), we include a variable ‘immigrant’, indicating that the respective person was not born in the respective country. We control for age and thereby allow for a U-shaped relationship with populist voting, as well as for gender, since men tend to support right-wing movements more than women (Arzheimer and Carter 2006). People’s employment status is also considered, with a distinction being made between paid employment (reference category), self-employment, unemployment, retirement, being in education, and other reasons for not being employed.

In the SOEP data, we can rely on information about overall lifetime unemployment, measured in years, to control for past employment disruptions. This is different from the

---

<sup>11</sup> Equivalent incomes are household incomes over the weighted sum of members of the households. Following the new OECD scale, the first adult has a weight of one, each additional person that is at least 14 years old is weighted 0.5, whereas younger children are weighted 0.3.

<sup>12</sup> The corresponding questionnaire items are “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?” in the SOEP and “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?” in the UKHLS.

---

UKHLS, where we calculate the number of unemployment spells over the last three years. 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 identify whether or not people have a long-term health problem.

As mentioned in the introduction, macro-level studies examine the exposure to trade shocks at the local level as a driver of the local share of populist votes. Using individual-level data, we are able to account for a person's specific exposure in a more refined manner, and consider, for instance, if the household provides some sort of financial protection in the event of unemployment (marital status), and if an earnings loss would affect the material well-being of dependents (children/people in need of care living in the same household). For the subgroup of employed people, we are able to consider job type (irregular: < 15 hours; part-time: 15-35 hours; full-time), gross hourly wage, and leadership tasks (SOEP: job autonomy; UKHLS: management position) as proxies for individual productivity. Furthermore, we use sector of industry to directly capture exposure to trade shocks, and tenure (SOEP only) and company size, which determine a worker's level of employment protection.

Macro characteristics such as the local unemployment rate and the local share of immigrants may also affect the individual propensity to cast an anti-globalist vote. For instance, the literature on the impact of increasing migration on the local share of populist voters, or related outcomes, has considerably grown in recent times.<sup>13</sup> Moreover, the regional intensity of trade shocks has been shown to foster political polarization (e.g. Autor et al. 2016). To ultimately control for any macro characteristic, we include NUTS2 region fixed effects for both countries, which allows us to consider the region of living in a comparable manner (Eurostat 2018). NUTS2 are geographic units smaller than the 12 British Government Office Regions or the 16 German Federal States (NUTS1), but larger than single cities or districts. Hence, they identify regional labor markets quite well. Note that we merge the different NUTS2 regions that form London to one entity since we consider London one local labor market. As a result, we obtain 35 NUTS2 regions for the UK and 36 NUTS2 regions for Germany.<sup>14</sup>

A valuable feature of both panel datasets is the inclusion of the five-factor traits, which comprehensively cover an individual's personality and are known to predict party preference and other political attitudes (Gerber et al. 2010; Vecchione et al. 2011; Garretsen et al. 2018).

---

<sup>13</sup> There is evidence for the so-called contact hypothesis, stating that the support for populist parties decreases with the local share of migrants (Steinmayr 2016, Vertier, and Viskanic 2018). Yet most studies indicate that immigration fosters right-wing populist/extremist voting (e.g. Halla, Wagner, and Zweimüller 2017; Dustmann, Vasiljeva, and Damm 2019; Dinas et al. 2019; Edo et al. 2019).

<sup>14</sup> To obtain variation in populist voting, two German NUTS2 regions are merged with neighbouring regions.

For instance, extraversion, agreeableness, and openness to new experience correlate with positive attitudes towards European integration and immigration, whereas neuroticism fosters populist voting. Conscientious people oppose immigration only when low-skilled (Dinesen, Klemmensen, and Nørgaard 2014; Bakker, Rooduijn, and Schumacher 2016; Nielsen 2016). Both datasets present subjects with fifteen very similar statements on individual characteristics that are used to create the Big Five personality traits (for a detailed account, see Tables A1, Appendix A, and Table B1, Appendix B). We build two binary variables for each trait, representing a relatively high disposition (in the top quartile of the trait's distribution) and a relatively low disposition (bottom quartile). In the same way, we control for risk aversion, which is measured using a single item requiring people to assess how risk-averse they are on an eleven-point scale. Risk aversion has been shown to correlate with critical attitudes towards migration and free trade in a study based on data for the US (Ehrlich and Maestas 2010). Table A2 in Appendix A (Germany) and Table B2 in Appendix B (UK) provide summary statistics for a number of socio-demographic characteristics and traits.

In addition, we conduct a couple of follow-up tests that rely on people's attitudes, for instance their concerns about their own economic situation or immigration in the German data. To be able to examine a number of anti-establishment attitudes that are closely linked with anti-globalist views in the UK (Fetzer 2019), we also link the preference for immediate gratification as measured in wave 5 of UKHLS to political attitudes and preferences indicated one year later in wave 6. We thus consider people's resentment to the political establishment as a whole (*'Are you satisfied with the way democracy works in this country?'*) and to the people currently in power (*'Public officials don't care much about what people like me think'*). In the process, we also take into account whether people *'feel better informed about politics than most people'*, which may depend on their impatience.

## 4. Empirical Findings: Time Preference and Political Preference in Germany and the UK

### 4.1 The Case of Germany

Table 1 sums up our main results for Germany. Impatience increases the probability of a right-wing populist vote in the 2013 election across all specifications. The marginal effect in standard deviations (at means) is 1pp when no controls are considered (1<sup>st</sup> column). This seems to be substantial given that the average probability is only 3.7%. Stepwise inclusion of socio-demographic variables, region fixed effects, and traits in the estimation gradually decreases the marginal effect to 0.6pp (2<sup>nd</sup> to 4<sup>th</sup> column). We then turn to a subsample of workers to account

for the individual's exposure to trade and migration shocks on the labor market when controlling for job characteristics (5<sup>th</sup> column). The effect of impatience on the probability of voting AfD or NPD is about the same as for the whole sample. Our main finding based on the most inclusive specification is thus that scoring one standard deviation above the mean of the impatience scale increases the probability of being a right-wing populist voter by 0.6pp.

*Table 1: Probit estimation of right-wing populist vote in 2013 election (summary)*

<i>Dep. var.:</i> Prob(Vote for AfD or NPD)	(1) No controls	(2) Socio- demographics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Immigration concerns	(7) Linke voters excluded	(8) Locus of control
Impatience	0.131*** (0.036)	0.126*** (0.035)	0.126*** (0.034)	0.108*** (0.035)	0.099** (0.043)	0.100*** (0.034)	0.108*** (0.035)	0.098** (0.045)
<i>Marginal effect, at means</i>	0.010*** (0.003)	0.009*** (0.002)	0.008*** (0.002)	0.006*** (0.002)	0.006** (0.003)	0.005*** (0.002)	0.007*** (0.002)	0.006** (0.002)
Socio-demographics		yes	yes	yes	yes	yes	yes	yes
Region fixed effects			yes	yes	yes	yes	yes	yes
Traits				yes	yes	yes	yes	yes
Job characteristics					yes			
Immigration concerns						yes		
Observations	11,005	11,005	11,005	11,005	5,820	11,005	10,088	7,190

*Source: SOEP waves 30 and 31 (2013, 2014), locus of control (column 8) measured in wave 27.*

*Note: The table displays population-weighted probit estimates of impatience on the likelihood to vote for the AfD or NPD in the 2013 general election (mean = 0.037). Socio-demographics include gender, age, age<sup>2</sup>, migrant background, marital status, education, income, home ownership, overnight stay in hospital last year, children/care recipients in household, employment status, and lifetime unemployment experience. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, openness, and risk aversion. Job characteristics are gross hourly wage, job autonomy, sector of industry, tenure, company size, part-time employment, and irregular employment. Complete results can be found in the Appendix, Tables A3.1, A3.2. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .*

Negative attitudes towards migration may stem from time preference, as argued above, or may have other origins such as a fear of losing national identity. To the extent that these other origins are, for some reason, related to impatience too, they might inflate the correlation between impatience and populist voting. We therefore control for being strongly concerned about immigration and not being concerned at all as a first robustness check (reference group: being somewhat concerned). However, we do not consider this specification as our main one, since controlling for concerns about immigration eliminates the unwillingness to await adjustment to migration as a potential mediator of the overall effect of impatience on populist voting, yielding a bad control problem. Indeed, the effect of impatience on populist voting decreases when we add this control variable (Table 1, column 6). Not surprisingly, concerns about immigration strongly correlate with the probability of casting such a vote (Appendix, Table A3).

As a second check, we examine how the chosen approach of dealing with voters of Die Linke affects our results. The socialist Die Linke may be seen as a left-wing populist party

---

opposing globalization where it concerns free trade, but promoting immigration and European integration, as discussed above. It is therefore unclear whether the outcome should be categorized zero or one for those voting for Die Linke. As column 7 in Table 1 reveals, excluding these voters yields the same qualitative findings as before. The same conclusion applies to a third check, where we add the locus of control, i.e., the degree to which people believe to have control over their life, as a sixth personality trait to the set of explanatory variables (8<sup>th</sup> column). As the information was not ascertained in 2013, we need to borrow it from the wave of 2010, while assuming temporal stability over three years (Table A1 in Appendix A describes the exact measurement).<sup>15</sup>

As already discussed in Section 3, it is disputable whether the AfD was a right-wing populist party in 2013, unlike later in 2017. We therefore rerun our estimation for the 2018 SOEP wave, which includes voting behavior in the 2017 election, using the same measure of impatience as well as information on all the other control variables considered so far. To measure the personality traits, we impute data from the 2017 SOEP wave. The results are displayed in Table 2 and confirm our earlier findings both for the whole sample of voters and the employed sample (columns 1 to 8). Scoring one standard deviation above the mean of impatience increases the probability of voting for the AfD or NPD substantially. Notably, a substantial fraction of the effect is explained by concerns about immigration, as revealed by the comparison of the marginal effects of columns 4 and 6.

Moreover, data on voting behavior in 2013 and 2017 of the same people allow us to examine swing voting. The refugee crisis hit Germany between the two elections, with the result that right-wing populist voting surged. Against the background of our theoretical model, we expect that bearing the short-run adjustment costs of a contemporaneous globalization shock makes the most impatient voters of pro-globalization parties in previous elections more likely to cast an anti-globalization vote in the next election. To test this notion, we compare the effect of impatience on four types of swing voting behavior by means of a multinomial model as follows. People who vote for a non-populist party in 2017 again, or switch from populist to non-populist, are considered to be comparatively patient. Voters switching from a non-populist party to a populist party are thought of as being less patient (reference category), and voters who vote for a populist party again in 2017 are considered to be the most impatient as they had already objected to globalization when the immediate costs were relatively low. The results can be

---

<sup>15</sup> Locus of control is often considered to capture relevant parts of people's personality beyond the 'Big Five' (see, e.g., Caliendo, Fossen and Kritikos 2014). Furthermore, the measurement of locus of control covers 'bitterness' which explains concerns about immigration (Poutvaara and Steinhardt 2018).

obtained from columns 9 to 11 of Table 2 and confirm these considerations. We present relative risk ratios indicating by how much the difference in impatience of one standard deviation changes the probability of showing a certain voting behavior relative to the probability of switching from a non-populist vote in 2013 to AfD/NPD in 2017 (baseline). The fact that the relative risk ratio in column 9 is smaller than one indicates that the more patient people are, the less likely it is that they will switch to a populist party in 2017 if they voted for a non-populist party in 2013. Similarly, as column 10 reveals, people who switch from AfD/NPD to a non-populist party are more patient than those who make the opposite move. The relative risk ratio greater than one in column 11 indicates that the most impatient voters stayed with one of the two populist parties.

Table 2. Impatience and voting in the 2017 election

	Probit estimates of voting for AfD/NPD 2017 general election								Multinomial logit Baseline: Switching from non- populist to AfD/NPD		
	(1) No controls	(2) Socio- demo- graphics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Immi- gration concerns	(7) Linke voters excluded	(8) Locus of control	(9) Staying non- populist	(10) AfD/NPD to non- populist	(11) Staying AfD/NPD
Impatience	0.139*** (0.024)	0.153*** (0.025)	0.160*** (0.025)	0.126*** (0.027)	0.074** (0.033)	0.099*** (0.028)	0.129*** (0.028)	0.126*** (0.031)	0.871* (0.063)	0.729** (0.097)	1.661*** (0.238)
<i>Marginal effect, at means</i>	0.023*** (0.004)	0.021*** (0.004)	0.020*** (0.003)	0.015*** (0.003)	0.010** (0.004)	0.007*** (0.002)	0.017*** (0.004)	0.014*** (0.004)			
Socio-demographics		yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region fixed effects			yes	yes	yes	yes	yes	yes	yes	yes	yes
Traits				yes	yes	yes	yes	yes	yes	yes	yes
Job characteristics					yes						
Immigration concerns						yes					
Observations	14,147	14,147	14,147	14,147	8,470	14,147	12,807	10,992	10,008	10,008	10,008

Source: SOEP wave 35 (2018). Big Five personality traits measured in wave 34. Locus of control measured in wave 32.

Note: Columns (1) to (8) present population-weighted probit estimates of impatience on the likelihood to vote for the AfD or NPD in the 2017 general election (mean = 0.093). Columns (9) to (11) present population-weighted relative risk ratios (odds ratios) of the probability of voting in 2013 and 2017 according to the column header. They are based on population-weighted estimates of a multinomial logistic regression. The baseline probability (=1) represents switching from a non-populist party to the AfD or NPD. Socio-demographics include gender, age, age<sup>2</sup>, migrant background, marital status, education, income, home ownership, overnight stay in hospital last year, children/care recipients in household, employment status, and lifetime unemployment experience. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, openness, and risk aversion. Job characteristics are gross hourly wage, job autonomy, sector of industry, tenure, company size, part-time employment, and irregular employment. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Next, we study interaction effects to examine the relationship between impatience and populist voting in greater detail. Our theory predicts that impatient people who are constrained in their ability to borrow may experience a welfare decline from globalization and, for this reason, vote for one of the two rightist parties. We therefore interact impatience with different proxies for

---

being economically disadvantaged, namely the ISCED level of education, gross hourly wage, and concerns about one's economic situation. The results are displayed in columns 1-3 of Table 3 for the 2013 election and Table A4 in the Appendix for the 2017 election. While education and wage do not interact significantly with impatience, the effects of impatience and economic concerns on voting depend heavily on each other. This finding suggests that impatience does not lead to right-wing populist voting unless people are sufficiently concerned about their economic situation. To the extent that concerns about one's own economic situation reflect the presence of binding borrowing constraints, this is precisely what our theory predicts.

A similar conclusion is reached if the measure of concerns for one's own economic situation is replaced by a direct measure of future income, which is only available for the 2013 election. Thanks to the panel structure of our data, we are able to assign persons who participated in 2013 the overall income they received over the five year-period 2013-2018, provided that they participated over the entire period. The interaction effect of this measure of future income and impatience is negative and statistically significant, suggesting that impatient people are particularly likely to vote for a right-wing populist party if their future incomes are low (Table 3, column 4). At the same time, even if a high future income means that the individual is less likely to be borrowing-constrained than otherwise, it does not imply that the individual can adjust her saving in an optimal way in response to income shocks.

A more direct measure of borrowing constraints is whether the individual saves money. Therefore, we have also interacted impatience with information on whether people are net savers. Here, too, we find a significant interaction effect, implying that impatient people who do not save were more likely to vote for the AfD or the NPD than impatient savers in 2013 (and even more so in 2017, cf. column 5 of Table 3, column 4 of Table A4). The direct effect of impatience and the interaction effect almost cancel out for savers.

The reader should, however, exercise caution in the interpretation of this result: saving is an endogenous variable, and our theory predicts that the relationship between impatience and voting behavior arises because impatience drives people into a binding borrowing constraint. We show in Appendix C (Table C1) that impatience correlates negatively with being a saver and thus makes it more likely that impatient people cannot adjust their savings to economic shocks that lead to short run cost while promising some benefits only in the future. Moreover, people who do not save are more likely to vote for populist parties than those who save. Taken together, the results in Tables 3 and C1 are thus consistent with the theoretical predictions that impatient people who do not save are more likely to vote for anti-globalist agendas than more patient people, *ceteris paribus*.



Table 3: Selected marginal interaction effects

	Reference: Column 4 of Table 1	(1) Education	(2) Wage	(3) Economic concerns	(4) Future income	(5) Saver
Impatience	0.006*** (0.002)	0.009* (0.005)	0.009** (0.004)	-0.007 (0.005)	0.016*** (0.005)	0.012*** (0.003)
ISCED level of education	-0.003* (0.001)	-0.003* (0.001)	-0.001 (0.002)	-0.002* (0.001)	-0.002 (0.002)	-0.002* (0.001)
Impatience × ISCED		-0.001 (0.001)				
Gross hourly wage			-0.000 (0.000)			
Impatience × wage			-0.000 (0.000)			
Economic concerns				0.004 (0.003)		
Impatience × econ. concerns				0.007*** (0.003)		
Future income (6 years), in 100,000€					-0.007* (0.004)	
Impatience × future income					-0.007** (0.003)	
Saver						-0.008* (0.005)
Impatience × saver						-0.010** (0.004)
Socio-demographics	yes	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes	yes
Personality traits	yes	yes	yes	yes	yes	yes
Job characteristics			yes			
Observations	11,005	11,005	5,820	10,996	7,097	10,976

Source: SOEP waves 30 and 31 (2013, 2014), Column (4) augmented by information from later waves.

Note: The table displays marginal effects (at means) based on population-weighted probit estimates for the likelihood of a vote for the AfD or NPD in the 2013 general election (mean = 3.7%). Future income adds up the equivalent incomes reported from 2013 to 2018. Socio-demographics include gender, age, age<sup>2</sup>, immigrant, marital status, education, income, home ownership, overnight stay in hospital last year, children/care recipients in household, employment status, and lifetime unemployment experience. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, openness, and risk aversion. Job characteristics are gross hourly wage, job autonomy, sector of industry, tenure, company size, part-time employment, and irregular employment. Robust standard errors in parentheses and clustered at household level in column (5), \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

#### 4.2 The Case of the UK

Table 4 highlights the main findings of our analysis of UKHLS data. It turns out that scoring high on DGI-10, i.e., preferring immediate to delayed gratification, correlates with a political preference for either UKIP or BNP (upper panel of Table 4). The marginal effect of one standard

---

deviation above the mean is 1.3pp if no controls are considered (column 1), and 0.8pp if socio-demographic characteristics are taken into account (column 2). This is non-negligible given that the mean probability of a preference for UKIP/BNP is 10.5%. Adding region fixed effects and traits to the estimation does not change this finding (columns 3 and 4). The result also holds in a subsample of employees that allows us to account for job characteristics (5<sup>th</sup> column).

Note that, in Table 4, the socio-demographic characteristics do not include unemployment experience, the traits do not include risk aversion, and the job characteristics do not include the gross hourly wage. This is because these pieces of information are only available for subsamples of respondents. We therefore control for risk aversion, hourly wage, and the number of unemployment spells over the past three years in a separate specification, in addition to the previous control variables (column 6). We find a similar impact of a preference for immediate gratification on support for UKIP/BNP.

Next, we turn to the UKHLS survey of 2014-2016 (wave 6), in which people were asked about a number of political attitudes. Note that the DGI-10 score is still taken from the previous wave, wave 5. Column 7 of Table 4 shows that we find the same general result in wave 6, i.e., the likelihood of preferring UKIP/BNP to all other parties increases with a preference for immediate gratification. In the final column (8), we control, *inter alia*, for people's beliefs about whether they are comparatively well 'informed about politics'. One might speculate whether impatient people invest less in learning about complex matters such as legislative issues. As a result, they might make economically disadvantageous political decisions. Furthermore, we account for people's resentments to the political establishment, considering whether they are 'dissatisfied with the way democracy works in the UK' and whether they agree with the statement that 'public officials don't care much about what they think'.

All three statements are strongly related to the probability of preferring UKIP/BNP, in line with Fetzer (2019). We also use standardized scores here to ease interpretation of the marginal effects. The statements, moreover, account for roughly half the marginal effect of the DGI-10 score on populist voting. Hence, this effect may be partly mediated via anti-establishment views, i.e., globalization might be a source of anti-establishment resentment. However, impatient people might also hold anti-establishment views for other reasons that motivate them to prefer UKIP or BNP. It is, therefore, important to note that the DGI-10 score is still significantly related to anti-globalist voting if anti-establishment views are controlled for.

Table 4. Time preference and support for UKIP/BNP and Brexit

		(4.1) UKIP/BNP							
Dependent variable: Prob(UKIP/BNP)		Wave 5				Wave 6			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		No controls	Socio-demographics	Region FE	Traits	Employees	Additional controls	SD, region, traits	Anti-establishment
DGI-10 score		0.071*** (0.014)	0.045*** (0.015)	0.051*** (0.015)	0.049*** (0.016)	0.083*** (0.024)	0.099*** (0.030)	0.068*** (0.017)	0.038** (0.018)
<i>Marginal effect, at means</i>		0.013*** (0.003)	0.008*** (0.002)	0.008*** (0.002)	0.007*** (0.002)	0.010*** (0.003)	0.011*** (0.004)	0.010*** (0.003)	0.005** (0.002)
Socio-demographics			yes	yes	yes	yes	yes	yes	yes
Region fixed effects				yes	yes	yes	yes	yes	yes
Traits					yes	yes	yes	yes	yes
Job characteristics						yes	yes		
Better informed than others									-0.084*** (0.018)
<i>Marginal effect, at means</i>									-0.011*** (0.002)
Dissatisfied with democracy in UK									0.218*** (0.017)
<i>Marginal effect, at means</i>									0.030*** (0.002)
Public officials don't care									0.231*** (0.019)
<i>Marginal effect, at means</i>									0.031*** (0.003)
Observations		19,310	19,310	19,310	19,310	10,358	6,754	16,434	16,434

		(4.2) Brexit					
Dependent variable: Prob(Leave)		Wave 8					
		(9)	(10)	(11)	(12)	(13)	(14)
		No controls	Socio-demographics	Region FE	Traits	Employees	Additional controls
DGI-10 score		0.071*** (0.011)	0.060*** (0.011)	0.061*** (0.012)	0.067*** (0.012)	0.084*** (0.018)	0.103*** (0.022)
<i>Marginal effect, at means</i>		0.028*** (0.004)	0.024*** (0.005)	0.024*** (0.005)	0.027*** (0.005)	0.032*** (0.007)	0.039*** (0.008)
Socio-demographics				yes	yes	yes	yes
Region fixed effects				yes	yes	yes	yes
Traits					yes	yes	yes
Job characteristics						yes	yes
Observations		18,390	18,390	18,390	18,390	10,089	6,443

Source: UKHLS waves 5 (2013-2015), 6 (2014-2016,) and 8 (2016-2018), augmented by information from previous waves.

Note: The table displays probit coefficients and marginal effects (at means) based on population-weighted estimates of the likelihood of a UKIP/BNP preference (mean = 10.5%, upper panel 4.1, (1)-(6) / mean = 10.4%, upper panel (7)-(8)) and a preference for Brexit (mean = 46.2%, lower panel 4.2). Socio-demographics include gender, age, age<sup>2</sup>, immigrant, marital status, education, equivalent income, home ownership, long-term health problem, children/care recipients in household, and employment status. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, and openness. Job characteristics are sector of industry, company size, part-time employment, and irregular employment. Additional controls comprise risk aversion, gross hourly wage, and number of unemployment spells over last three years. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Assuming temporal stability of the DGI-10 score over a time period of three years, we can relate it to people's views on the Brexit referendum (lower panel of Table 4). We run the same type of probit regressions as for the UKIP/BNP support. Again, the results imply a non-negligible positive effect of impatience on anti-globalist political preferences: while the mean probability of supporting Brexit in the data is 46.2%, the effect of scoring one standard deviation above the mean of DGI-10 ranges between 2.4pp and 3.9pp, depending on the specification (columns 9 to 14).

We also test the British data for whether wage, education, future income, and saving money interact with the DGI-10 score in the effect on support for anti-globalist agendas. In this respect, we can also use people's expectations about their future economic situation (better off than now/worse off/about the same). However, there are no significant interaction effects, unlike in the German data earlier (results available upon request). We show in Appendix C (Table C1) that there is a strong negative correlation between the strength of the preference for immediate gratification and saving, measured conditional on characteristics, suggesting that the ability to adjust to globalization is already accounted for in the direct effect of DGI-10 on the respective support for UKIP/BNP and Brexit: the lower the DGI-10 score the higher the probability of being a net saver. In turn, as our theory predicts, this increases the likelihood of opposing globalization.

#### *4.3 Determinants of Populist Political Preference Beyond Impatience*

The effects of our control variables mirror several findings of the previous literature (Tables A3, B3, and B4). For instance, women are less likely than men, and immigrants are less likely than natives, to vote for the AfD or the NPD and to support UKIP, the BNP, or Brexit. The same applies to indicators of income and wealth. Openness and agreeableness reduce the probability of supporting right-wing populism (see Bakker, Rooduijn and Schumacher 2016; Garretsen et al. 2018). The German data imply that both highly neurotic and lowly neurotic individuals are more likely to cast a populist vote than moderately neurotic individuals. In the British data, the level of education and holding a leadership position reduce the probability of preferring UKIP/BNP to all other parties and of preferring 'Leave' to 'Remain', among other things.

---

## 5. Sensitivity Analysis

### *5.1 Globalization and Non-Populist Party Preferences*

Up to here, we have argued that impatience leads to populist voting by reducing the willingness to await gains from globalization. Votes for other parties have been interpreted as being all the same, i.e., as displaying an equally more positive attitude towards globalization. However, other German parties do not support free trade and migration to the same extent, although they are in principle pro-globalization. While the liberal party (FDP) welcomes European integration, free trade, and skilled migration unanimously, the Greens and the Social Democrats (SPD) qualify their support for international trade, the current institutional set-up of which is challenged by Die Linke. The Christian Democrats clearly support free trade, but struggle to some extent with the issue of allowing legal channels of migration. Hence, if impatience related equally to voting, say, AfD/NPD and FDP, our notion that the effect originates from objecting to further globalization would be implausible.

To shed light on these considerations, we run a multinomial model (see also section 4.1) that allows for a comparison of the effect of impatience on voting for each party separately. The results of the corresponding multinomial logistic regression of the chosen party as the nominal outcome variable are shown in Table 5. It appears that increasing impatience raises the probability of voting for the AfD/NPD (baseline) relative to voting for all other parties. The difference seems to be the smallest when comparing AfD/NPD to Die Linke, or to the residual category of minor parties. This applies in particular to the employed sample when controlling for job characteristics, as documented in Table A5 in Appendix A. By comparison, impatience seems to make for a relatively large difference between the probabilities of voting AfD/NPD and voting FDP. Thus, although the differences in the effects of impatience between the non-populist parties are not statistically significant, they at least do not contradict our interpretation that attitudes towards globalization explain why relatively impatient people vote for one of the rightist populist parties.

Table 5: Multinomial results for Germany, full sample

	Union of CDU, CSU	SPD	Die Linke	Greens	FDP	Minor parties
<i>Baseline: Voting for AfD or NPD</i>						
Impatience	0.781*** (0.064)	0.778*** (0.065)	0.812** (0.080)	0.783*** (0.073)	0.723*** (0.090)	0.849 (0.092)
Socio-demographics	yes	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes	yes
Traits	yes	yes	yes	yes	yes	yes
Observations	11,005	11,005	11,005	11,005	11,005	11,005

Source: SOEP waves 30 and 31 (2013, 2014).

Note: The table displays relative ratios of the probability of voting for the party mentioned in the column header and the probability of voting for the AfD or the NPD. They are based on population-weighted estimates of a multinomial logistic regression. Socio-demographics include gender, age, age<sup>2</sup>, immigrant, marital status, education, income, home ownership, overnight stay in hospital last year, children/care recipients in household, employment status, and lifetime unemployment experience. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, openness, and risk aversion. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

In the United Kingdom during our investigation period, UKIP was the main home for anti-globalist political opinions. Brexit also gained support from followers and members of the Conservative Party and received many votes in the so-called Labour heartlands, for instance in the north and the east of England. Similar to Germany, the Liberal Democrats may be seen as the clearest proponents of a globalist agenda. 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 regions, rendering a nominal outcome variable for the whole of the UK inconsistent. People in England could not express support for the Scottish Nationalists or any other regional group, the Scottish could not indicate a preference for Northern Irish political parties, and so on.

The multinomial estimation of party preferences indicated by the wave of 2013-2015 reveals that impatience makes the least of a difference for the probabilities of supporting UKIP/BNP compared to Labour and minor parties (Table 6, for the subsample of employees see Table B5 in Appendix B). The difference in the impact of DGI-10 on Labour support compared to the Conservatives/Liberal Democrats/Greens is statistically significant. On the one hand, this is expected given that Brexit gained strong support in former industrial areas and that left-leaning voters may have anti-globalist attitudes to some extent. On the other hand, supporters of Brexit are particularly prevalent in the Conservative Party, which is why time preference might be expected to increase support for the Tories over, say, the Lib Dems.

Table 6. Multinomial results for England, full sample

	Conservative Party	Labour Party	Liberal Democrats	Greens	Minor parties
<i>Baseline: UKIP/BNP</i>					
Impatience	0.876*** (0.030)	0.957 (0.033)	0.874*** (0.040)	0.859*** (0.050)	1.090 (0.127)
Socio-demographics	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes
Traits	yes	yes	yes	yes	yes
Observations	15,030	15,030	15,030	15,030	15,030

Source. UKHLS wave 5 (2013-2015), augmented by information from previous waves.

Note. The table displays relative ratios of the probability of supporting the party mentioned in the column header and the probability of supporting UKIP/BNP. They are based on population-weighted estimates of a multinomial logistic regression. Socio-demographics include gender, age, age<sup>2</sup>, immigrant, marital status, education, income, home ownership, long-term health problem, children/care recipients in household, and employment status. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, and openness. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

## 5.2 Non-Voters

We have excluded non-voters from the sample so far, neglecting that not appearing at the poll station might relate to impatience as well. Not voting is possibly just another way of expressing a political preference, namely against the whole party system and all the parties that are part of it, including the rightist populist parties. If the most impatient people did not appear in order to express such a preference, our interpretation that impatience leads to populist voting would be questionable. Following the notion that not voting is a vote for a non-existent anti-party party, the outcome is categorized as zero for non-voters, instead of excluding them. Table 7, part A, presents the results for such an enlarged sample for Germany's 2013 election. They mirror our previous findings with impatience increasing the probability of casting a right-wing populist vote significantly in both the full and the employed samples. Table 7, part B, displays the results for the party preference of UKHLS respondents, where non-voter means that people did not indicate any closeness to some political party and answered the question of what party they would vote for tomorrow with 'none'. The effect of DGI-10 on the UKIP/BNP preference continues to hold both in the full and the employed samples.

Our samples without non-voters might be non-randomly pre-selected also if not voting is not a conscious decision against all parties. For instance, impatient people might not be willing to queue at the poll station, and therefore stay at home. Our sample selection would then potentially suffer from the problem that we miss the votes of people who, under different

circumstances, might have indicated a vote for a populist party or a different party, with the result that we overestimate or underestimate the true effect of impatience on the support of populist parties. This issue can be resolved by means of a Heckman correction, accounting for the pre-selection of the sample based on voters' individual characteristics in the first stage and estimating the probability of populist voting in the second stage. As the outcome of interest is binary, we apply the probit sample selection model (Van de Ven and Van Praag 1981).

*Table 7: Dealing with non-voters*

	Including non-voters				Heckman correction			
	(A) Germany		(B) United Kingdom		(C) Germany		(D) United Kingdom	
	<i>Full sample</i> Probability of voting for AfD/NPD	<i>Employees</i> Probability of voting for AfD/NPD	<i>Full sample</i> Probability of preferring UKIP/BNP	<i>Employees</i> Probability of preferring UKIP/BNP	<i>Stage 1</i> Probability of being a voter	<i>Stage 2</i> Probability of voting for AfD/NPD	<i>Stage 1</i> Probability of indicating a vote	<i>Stage 2</i> Probability of preferring UKIP/BNP
Impatience (SOEP)	0.099*** (0.033)	0.092** (0.041)			-0.016 (0.022)	0.107*** (0.035)		
DGI-10 (UKHLS)			0.028* (0.015)	0.060*** (0.022)			-0.073*** (0.017)	0.034** (0.017)
Socio-demographics	yes	yes	yes	yes	yes	yes	yes	yes
Traits	yes	yes	yes	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Job characteristics		yes		yes				
$\rho$						0.075		0.584
Wald-test of $\rho = 0$ , $Prob > \chi^2$						0.927		0.056
Observations	13,177	6,922	24,517	13,405	13,177		24,517	
Selected					11,005		19,310	
Non-selected					2,172		5,207	

*Source: SOEP wave 30 (2013), 31 (2014), UKHLS wave 5 (2013-2015), augmented by information from previous waves.*

*Note: To obtain the results in parts (A, B) we apply the main probit estimation approach (see Table 1/Table 4) to a sample of voters and non-voters. The outcome is coded zero for non-voters. Part (C, D) relies on a Heckman probit sample selection model where unemployment experience (marital status) enters the selection equation for the German data (British data), but not the estimation of the outcome (political preference). Apart from this, the control variables correspond to Tables 1 (Germany) and 4 (UK). Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .*

The selection stage may consider all the previous control variables as possible origins of sample selection, including impatience. Similar to an instrumental variable, at least one variable that predicts voting and thus matters in the first stage, but is unrelated to voting for the AfD/NPD or UKIP/BNP in the second stage, should be part of the first stage only. Comparing the predictors of voting from the first stage of the Heckman correction (Table 7, parts C and D) to the results of the previous analysis of party choice (Tables A2, B2) reveals that overall lifetime unemployment experience meets this requirement in the German case and marital status in the British case. In Table 7, parts C and D, we present the results of the Heckman correction with these two 'instruments' accordingly.



---

The results of the first stage imply that the pre-selection of voters may not necessarily depend on impatience in Germany, but it clearly relates to the DGI-10 score in the UK. The stronger the preference for immediate gratification, the less likely people would vote if there were an election tomorrow. At the second stage, we obtain practically the same qualitative findings as before. Impatience significantly increases the probability of voting for the AfD or NPD, and the DGI-10 score increases the probability of supporting UKIP or BNP.

### *5.3 Alternative Proxies for Time Preference*

As mentioned above, hyperbolic discounting fosters unfavorable health behaviors and outcomes, such as unhealthy eating habits, smoking, and obesity. To test whether our results for Germany also hold for behavioral measures of time-inconsistent preferences, we rerun our main probit estimation of voting for the AfD or NPD while replacing impatience with, first, a binary variable indicating whether people are smokers, second, a binary variable indicating whether they answer ‘not at all’ when asked if they maintain a healthy diet, and, third, their body mass index. The results are presented in Table 8. Note that we have to borrow the proxies for time preference from the SOEP wave of 2012 when examining voting in 2013, assuming stability over a short time horizon. Across all three measures, we obtain support for the notion that high time discounting increases the probability of populist voting, in line with our previous findings, as well as in support of the idea that the effect of impatience on voting behavior originates from a strong preference for immediate gratification.

Furthermore, we have justified our focus on the 2013 election by the fact that voting can be explained by impatience measured before the election in the same year, unlike voting in the 2017 election (see footnote 8 above). However, smoking and the BMI as alternative proxies for impatience are regularly measured in even years. It thus seems worthwhile to estimate populist voting in 2017 again, using information on these indicators obtained from the 2016 wave. As Table 8 shows, such an exercise confirms our previous findings.

Table 8: Alternative measures of time preference (Germany)

Proxy for time preference: Dependent variable: Prob(Vote for AfD or NPD)	Unhealthy eater			Smoker			Body Mass Index				
	2013 sample		2013 empl. sample	2013 sample		2013 empl. sample	2017 sample	2013 sample		2013 empl. sample	2017 sample
Unhealthy eater (binary)	0.410*** (0.139)	0.322** (0.132)	0.305* (0.172)								
Marginal effect, at means	0.032*** (0.011)	0.018** (0.007)	0.018* (0.010)								
Smoker (binary)				0.213*** (0.069)	0.115 (0.073)	0.175** (0.089)	0.112* (0.063)				
Marginal effect, at means				0.017*** (0.005)	0.007 (0.004)	0.011** (0.006)	0.013* (0.008)				
BMI (continuous)								0.016** (0.006)	0.015** (0.006)	0.007 (0.008)	0.010** (0.005)
Marginal effect, at means								0.001** (0.000)	0.001** (0.000)	0.000 (0.001)	0.001** (0.001)
Socio-demographics	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Traits	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Job characteristics			yes			yes				yes	
Observations	9,528	9,528	5,080	10,628	10,628	5,623	11,393	10,559	10,559	5,590	11,261

Source: SOEP waves 29-31 (2013 sample), SOEP waves 33-35 (2017 sample).

Note: The table displays coefficients and marginal effects (at means) based on a probit estimation of voting for the AfD or NPD in the 2013/2017 general elections. Voting is ascertained in the year after the election (2014, 2018), proxies of time preference are measured in the year before the election (2012, 2016), and control variables are measured in the year of the election (2013, 2017). Control variables correspond to Table 1. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Although the DGI-10 already addresses self-control problems, we can test the robustness of our results, varying the measure of time preference for the analysis of the UK as well. For instance, we can replace the DGI-10 score with the mean value of the DGI subdomain items referring to eating behavior (item 1 and item 2 reverse coded; see Subsection 3.3). In addition, we can identify smokers in the UKHLS data. Table 9 displays the corresponding results. As expected, both unhealthy eating habits and smoking increase the probabilities of supporting UKIP/BNP (upper table) and Brexit (lower table).<sup>16</sup>

Finally, and unrelated to health, we recalculate the DGI-10 score in such a way that it even more closely resembles our theoretical notion of discounting. In the process, we only use the items whose wordings explicitly refer to *time* for the factor analysis computing the DGI score ('DGI time', based on items 2, 4, 5, 9, and 10; see Subsection 3.3). This also shows that preferring immediate gratification has a strong positive effect on supporting right-wing populism.

<sup>16</sup> Based on previous waves of UKHLS and BHPS it is possible to calculate the body mass index for British subjects too. In line with the German data, we find that the body mass index is positively correlated with preferring UKIP/BNP and Brexit (results available upon request). However, we do not consider these results here because the time lag between the measures of the body mass index and respondents' political preferences is up to ten years and body weight varies over time (Pajunen et al. 2012).

Table 9. Alternative measures of time preference (United Kingdom)

(9.1) UKIP/BNP									
Proxy for time preference:	Unhealthy eater			Smoker			DGI time		
Dependent variable: Prob(UKIP/BNP)	Full sample	Employed	Full sample	Employed	Full sample	Employed	Full sample	Employed	
Unhealthy eater (score from 0 to 10)	0.029*** (0.007)	0.025*** (0.007)	0.032*** (0.010)						
Marginal effect, at means	0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)						
Smoker (binary)				0.330*** (0.035)	0.246*** (0.039)	0.182*** (0.055)			
Marginal effect, at means				0.059*** (0.006)	0.037*** (0.006)	0.023*** (0.007)			
DGI time (standardized)							0.079*** (0.014)	0.054*** (0.016)	0.077*** (0.024)
Marginal effect, at means							0.014*** (0.003)	0.008*** (0.002)	0.010*** (0.003)
Socio-demographics		yes	yes	yes	yes		yes	yes	
Region fixed effects		yes	yes	yes	yes		yes	yes	
Traits		yes	yes	yes	yes		yes	yes	
Job characteristics			yes		yes			yes	
Observations	19,310	19,310	10,358	19,309	19,309	10,358	19,310	19,310	10,358

  

(9.2) Brexit									
Proxy for time preference:	Unhealthy eater			Smoker			DGI time		
Dependent variable: Prob(Brexit)	Full sample	Employed	Full sample	Employed	Full sample	Employed	Full sample	Employed	
Unhealthy eater (score from 0 to 10)	0.031*** (0.005)	0.035*** (0.005)	0.038*** (0.007)						
Marginal effect, at means	0.012*** (0.002)	0.014*** (0.002)	0.015*** (0.003)						
Smoker (binary)				0.292*** (0.031)	0.203*** (0.034)	0.181*** (0.045)			
Marginal effect, at means				0.116*** (0.012)	0.081*** (0.013)	0.070*** (0.017)			
DGI time (standardized)							0.059*** (0.011)	0.049*** (0.012)	0.052*** (0.018)
Marginal effect, at means							0.023*** (0.004)	0.019*** (0.005)	0.020*** (0.007)
Socio-demographics		yes	yes	yes	yes		yes	yes	
Region fixed effects		yes	yes	yes	yes		yes	yes	
Traits		yes	yes	yes	yes		yes	yes	
Job characteristics			yes		yes			yes	
Observations	18,390	18,390	10,089	18,390	18,390	10,089	18,390	18,390	10,089

Source: UKHLS waves 5 (2013-2015, upper panel) and 8 (2016-2018, lower panel), augmented by information from previous waves.

Note: The table displays probit coefficients and marginal effects (at means) based on population-weighted estimates of the likelihood of a UKIP/BNP preference (mean = 10.5%, upper panel 9.1) and a preference for Brexit (mean = 46.2%, lower panel 9.2). Control variables correspond to Table 4. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

---

## 6. Summary and Discussion

Attitudes towards globalization are likely to depend on peoples' assessments of the costs and benefits that result from economic integration. When the costs materialize immediately while the benefits are delayed, discounting becomes important in determining whether individuals consider themselves as winners or losers of globalization, and thus also whether they favor or oppose globalization in an election. One crucial aspect in this process is the individual's ability to shift future gains intertemporally. Impatient people may have reduced their own savings to a minimum, so that they cannot shift future gains to the present. Our theoretical model shows that impatience (manifested through discounting) in combination with such a borrowing constraint leads individuals to oppose globalization, even if they will experience a long-term income gain.

Using rich data for Germany and the UK, we tested the hypothesis that a higher degree of impatience increases the likelihood that individuals oppose globalization. This allowed us to relate empirical measures of time preference to the support of right-wing populist parties and projects that we consider anti-globalist. We find a significant and positive relationship between impatience and the probability of preferring rightist populist parties or projects that counteract globalization to political alternatives. For both the UK and Germany, this main result holds independently of a large set of characteristics reflecting people's socio-demographic background, regional exposure to previous globalization shocks, traits, and job attributes. Moreover, the result based on the measure of impatience in the UK data, the Delayed Gratification Inventory, supports the view that the effect of impatience on voting behavior is (at least partly) driven by an underlying self-control problem. This interpretation is reinforced by the fact that the relationship between time preferences and the likelihood of anti-globalist political preferences persists in both countries if the indicator of time preference is replaced by behavioral proxies of self-control problems such as smoking or unhealthy eating habits.

Overall, the main take-home message of our study is that impatience may increase support for populism through anti-globalist sentiment. The major policy implication is that a globalization dividend may be generated by providing up-front redistribution. Governments can shift some of the future gains of globalization to the present in order to compensate for the immediate losses that voters face, so that impatient voters start to benefit from globalization and thus support it. A welfare gain is thereby not only established by better aligning people's behavior with their long-term preferences, but also in a pure welfarist sense by relaxing borrowing constraints. It is an open question for future research to what extent immediate

---

compensation for individual costs due to structural changes moderates the effects we find in this study.

Note that the implications of our study go beyond globalization, as the origin of the income shock can clearly be a different one, as long as it brings about short-run adjustment costs and long-run gains. Thus the model might also apply to other structural changes that lead to reallocations of factors of production across industries. Promoting digitization at the risk of destroying traditional jobs, adjusting to climate change, investing today in precautionary measures against future pandemics, and fiscal reforms that cut today's spending as a provision for future recessions may be further examples.

An interesting question is whether impatience can fuel the recent rise of political populism. We consider two interrelated reasons relevant. First, the redistribution of resources has generally become less extensive across Western societies since the 1980s. The support for globalization might thus have declined, not only because the losers of globalization have remained uncompensated, but also because the short-run adjustment costs are not buffered to the same extent anymore. This could also explain why we find the same implications for Germany and the UK, despite the fact that Germany has a more redistributive welfare regime. Due to reforms in Germany in the 2000s, there has been a convergence in welfare state generosity between the two countries.

Another reason is the decline in overall efficiency gains from further globalization. Given that citizens in many countries already enjoy free trade and freedom of movement to a great extent, the efficiency gains of further globalization are much lower than they were at the beginning of the globalization era. Thus, there has been an increase in the weight attached to motives speaking against further globalization in people's voting decisions, such as inequality aversion or impatience. These preferences may always have existed, but were not pivotal as long as the efficiency gains were large enough. In recent years, however, these preferences have decisively shaped voters' choices.

## References

- Algan, Yann, Sergei Guriev, Elias Papaioannou, and Evgenia Passari (2017): “The European trust crisis and the rise of populism”, *Brookings Papers on Economic Activity* 2/2017, pp. 309–400.
- Antràs, Pol, Alonso de Gortari, and Oleg Itskhoki (2017): “Globalization, inequality and welfare”, *Journal of International Economics* 108, pp. 387–412.
- Aronsson, Thomas and Tomas Sjögren (2014): “Tax policy and present-biased preferences: Paternalism under international capital mobility”, *Journal of Economic Behavior & Organization* 106, pp. 298-316.
- Aronsson, Thomas and Tomas Sjögren (2016): “Quasi-hyperbolic discounting, paternalism and optimal mixed taxation”, *Mathematical Social Sciences* 84, pp. 24-36.
- Aronsson, Thomas and Linda Thunström (2008): “A note on optimal paternalism and health capital subsidies”, *Economics Letters* 101, pp. 241-242.
- Arzheimer, Kai and Elisabeth Carter (2006): “Political opportunity structures and right-wing extremist party success”, *European Journal of Political Research* 45(3), pp. 419-443.
- Arzheimer, Kai and Carl Berning (2019): “How the Alternative for Germany (AfD) and their voters veered to the radical right, 2013–2017”, *Electoral Studies*, online first.
- Autor David, David Dorn, Gordon Hanson, and Kaleb Majlesi (2016): *Importing political polarization? The electoral consequences of rising trade exposure*, NBER Working Paper 22637.
- Bakker, Bert N., Matthijs Rooduijn, and Gijs Schumacher (2016): “The psychological roots of populist voting: evidence from the United States, the Netherlands and Germany”, *European Journal of Political Research* 55(2), pp. 302-320.
- Barrell, Ray, John FitzGerald, and Rebecca Riley (2010): “EU enlargement and migration: Assessing the macroeconomic impacts”, *JCMS: Journal of Common Market Studies* 48(2), pp. 373-395.
- Bebnowski, David (2016): “»Gute« Liberale gegen »böse« Rechte?”, in: A. Häusler (ed.), *Die Alternative für Deutschland*, Springer VS: Wiesbaden, pp. 25-35.
- Becker, Sascha O., Thiemo Fetzer, and Dennis Novy (2017): “Who voted for Brexit? A comprehensive district-level analysis”, *Economic Policy* 32(92), pp. 601-650.
- Berbair, Nicole, Marcel Lewandowsky, and Jasmin Siri (2016): “The AfD and its sympathisers: finally a right-wing populist movement in Germany?”, *German Politics*, 24(2), pp. 154-178.
- Borghans, Lex and Bart H. H. Golsteyn (2006): “Time discounting and the body mass index: Evidence from the Netherlands”, *Economics & Human Biology* 4(1), pp. 39-61.
- Born, Benjamin, Gernot Müller, Moritz Schularick, and Petr Sedláček (2019): “The costs of economic nationalism: evidence from the Brexit experiment”, *Economic Journal* 129(623), pp. 2722–2744.
- Brakman, Steven, Harry Garretsen, and Tristan Kohl (2018): “Consequences of Brexit and options for a ‘Global Britain’”, *Papers in Regional Science* 97(1), pp. 55-72.
- Brenøe, Anne Ardila, and Thomas Epper (2018): *The intergenerational transmission of time preferences persists across four decades*, University of Zurich Working Paper.
- Brown, Heather and Marjon van der Pol (2015): “Intergenerational transfer of time and risk preferences”, *Journal of Economic Psychology* 49, pp. 187-204.
- Caliendo, Marco, Frank Fossen, and Alexander Kritikos (2014): “Personality and the decision to become and stay self-employed”, *Small Business Economics* 42(4), pp. 787-814.

- Chowdhury, Shyamal, Matthias Sutter, and Klaus Zimmermann (2018): *Evaluating intergenerational persistence of economic preferences: A large scale experiment with families in Bangladesh*, ZEF-Discussion Papers on Development Policy No. 250.
- Cohen, Jonathan D., Keith M. Ericson, David Laibson, and John M. White (2020): “Measuring time preferences”, *Journal of Economic Literature* 58(2), pp. 299-347.
- Colantone, Italo and Piero Stanig (2018a): “Global competition and Brexit”, *American Political Science Review* 112(2), pp. 201-218.
- Colantone, Italo and Piero Stanig (2018b): “The trade origins of economic nationalism: Import competition and voting behavior in Western Europe”, *American Journal of Political Science* 62(4), pp. 936-953.
- Dancygier, Rafaela M. and Stefanie Walter (2015): “Globalization, labor market risks, and class cleavages”, in: P. Beramendi et al. (eds.), *The Politics of Advanced Capitalism*, Cambridge University Press: Cambridge, Mass., pp. 133–156.
- Decker, Frank (2016): “Die »Alternative für Deutschland« aus der vergleichenden Sicht der Parteienforschung”, in: A. Häusler (ed.), *Die Alternative für Deutschland*, Springer VS: Wiesbaden, pp. 7-23.
- DellaVigna, Stefano and M. Daniele Paserman (2005): “Job search and impatience”, *Journal of Labor Economics* 23(3), pp. 527-588.
- DellaVigna, Stefano (2009): “Psychology and economics: evidence from the field”, *Journal of Economic Literature* 47(2), pp. 315–372.
- Dhingra, Swati, Hanwei Huang, Gianmarco Ottaviano, João Paulo Pessoa, Thomas Sampson, and John Van Reenen (2017): “The costs and benefits of leaving the EU: trade effects”, *Economic Policy* 32(92), pp. 651–705.
- Die Linke (2013): *100% sozial. Wahlprogramm zur Bundestagswahl 2013*, DIE LINKE, Berlin.
- Dinas, Elias, Konstantinos Matakos, Dimitrios Xeferis, and Dominik Hangartner (2019): “Waking up the golden dawn: Does exposure to the refugee crisis increase support for extreme-right parties?”, *Political Analysis* 27(2), pp. 244-254.
- Dinesen, Peter T., Asbjørn S. Nørgaard, and Robert Klemmensen (2014): “The civic personality: Personality and democratic citizenship”, *Political Studies* 62, pp. 134–152.
- Dustmann, Christian, Kristine Vasiljeva, and Anna Piil Damm (2016): *Refugee migration and electoral outcomes*, CReAM Discussion Paper No. 1619.
- Edo, Anthony, Yvonne Giesing, Jonathan Öztunc, and Panu Poutvaara (2019): “Immigration and electoral support for the far-left and the far-right”, *European Economic Review* 115, pp. 99–143.
- Ehrlich, Sean and Cherie Maestas (2010): “Risk orientation, risk exposure, and policy opinions: The case of free trade”, *Political Psychology* 31(5), pp. 657-684.
- Eurostat (2018): *Regions in the European Union. Nomenclature of territorial units for statistics NUTS 2016-EU28*, Manuals and Guidelines, Edition 2018.
- Fernandez, Raquel and Dani Rodrik (1991): “Resistance to reform: status quo bias in the presence of individual-specific uncertainty”, *American Economic Review*, 81(5), pp. 1146–1155.
- Fetzer, Thiemo (2019): “Did Austerity cause Brexit?” *American Economic Review* 109(11), pp. 3849–3886.
- Fowler, James H., Laura A. Baker, and Christopher T. Dawes (2008): “Genetic variation in political participation”, *American Political Science Review* 102(2), pp. 233-248.
- Franzmann, Simon (2016): “Calling the Ghost of Populism: The AfD's Strategic and Tactical Agendas until the EP Election 2014”, *German Politics* 25(4), pp. 457-479.

- Frederick, Shane, George Loewenstein, and Ted O'Donoghue (2002): "Time discounting and time preference: a critical review", *Journal of Economic Literature* 40(2), pp. 351–401.
- Funk, Patricia (2016): "How accurate are surveyed preferences for public policies? Evidence from a unique institutional setup", *Review of Economics and Statistics* 98(3), pp. 442-454.
- Garretsen Harry, Janka Stoker, Dimitrios Soudis, Ron Martin, and Peter Rentfrow (2018): "Brexit and the relevance of regional personality traits: more psychological openness could have swung the regional vote", *Cambridge Journal of the Regions, Economy and Society* 11(1), pp. 165-175.
- Gerber, Alan S., Gregory A. Huber, David Doherty, and Conor M. Dowling (2010): "Personality and political attitudes: relationships across issue domains and political contexts", *American Political Science Review* 104(1), pp. 111-133.
- Gruber, Jonathan and Botond Köszegi (2004): "Tax incidence when individuals are time-inconsistent: The case of cigarette excise taxes", *Journal of Public Economics* 88, pp. 1959–1987.
- Guiso, Luigi, Helios Herrera, Massimo Morelli, and Tommaso Sonno (2017): *Demand and supply of populism*, CEPR Discussion Papers No. 11871.
- Haggard, Stephan, and Steven B. Webb (1993): "What do we know about the political economy of economic policy reform?", *World Bank Research Observer* 8(2), pp. 143–168.
- Halla, Martin, Alexander F. Wagner, and Josef Zweimüller (2017): "Immigration and voting for the far right", *Journal of the European Economic Association* 15(6), pp. 1341-1385.
- Hatemi, Peter K., Sarah E. Medland, Katherine I. Morley, Andrew C. Heath, and Nicholas G. Martin (2007): "The genetics of voting: an Australian twin study", *Behavior Genetics* 37(3), pp. 435-448.
- Häusler, Alexander (2016): "Themen der Rechten", in: A. Häusler, M. Langebach, and F. Virchow (ed.), *Handbuch Rechtsextremismus*, Springer VS: Wiesbaden, pp. 135-180.
- Hey, John D. and Gianna Lotito (2009): "Naive, resolute or sophisticated? A study of dynamic decision making", *Journal of Risk and Uncertainty* 38(1), pp. 1–25.
- Hoerger, Michael, Stuart Queek, and Nathan Weed (2011): "Development and validation of the Delayed Gratification Inventory", *Psychological Assessment* 23(3), pp. 725-738.
- Hübler, Philipp M.A. (2018): "Heritability of time preference: Evidence from German twin data", *Kyklos* 71(3), pp. 433-455.
- Ikeda, Shinsuke, Myong-Il Kang, and Fumio Ohtake (2010): "Hyperbolic discounting, the sign effect, and the body mass index", *Journal of Health Economics* 29(2), pp. 268-284.
- Khwaja, Ahmed, Dan Silverman, and Frank Sloan (2007): "Time preference, time discounting, and smoking decisions", *Journal of Health Economics* 26(5), pp. 927-949.
- Laibson, David (1997): "Golden eggs and hyperbolic discounting", *The Quarterly Journal of Economics* 112(2), pp. 443–478.
- Mayda, Anna Maria and Dani Rodrik (2005): "Why are some people (and countries) more protectionist than others?", *European Economic Review* 49(6), pp. 1393–1430.
- Meier, Armando N. (2018): *Emotions, risk attitudes, and patience*, mimeo.
- Meier, Stephan and Charles Sprenger (2015): "Temporal stability of time preferences", *Review of Economics and Statistics* 97(2), pp. 273–286.
- Mussa, Michael (1974): "Tariffs and the distribution of income: The importance of factor specificity, substitutability, and intensity in the short and long run", *Journal of Political Economy* 82(6), pp. 1191–1203.
- Nielsen, Julie H. (2016): "Personality and euroscepticism: The impact of personality on attitudes towards the EU", *Journal of Common Market Studies* 54(5), pp. 1175-1198.



- 
- Nikolka, Till and Panu Poutvaara (2016): “Brexit – theory and empirics”, *CESifo Forum* 17(4), pp. 68-75.
- O’Donoghue, Ted and Mathiew Rabin (2001): “Choice and procrastination”, *Quarterly Journal of Economics* 116, 121–160.
- O’Donoghue, Ted and Mathiew Rabin (2006): “Optimal sin taxes”, *Journal of Public Economics* 90, 1825–1849.
- Pajunen, Pia, Erkki Vartiainen, Satu Männistö, Pekka Jousilahti, Tiina Laatikainen, and Markku Peltonen (2012): “Intra-individual changes in body weight in population-based cohorts during four decades: the Finnish FINRISK study”, *European Journal of Public Health* 22(1), pp. 107–112.
- Poutvaara, Panu and Max Steinhardt (2018): “Betterness in life and attitudes towards immigration”, *European Journal of Political Economy* 55, pp. 471-490.
- Potrafke, Niklas (2019): “Risk aversion, patience and intelligence: evidence based on macro data”, *Economics Letters* 178, pp. 116-120.
- Preuss, Malte (2019): *Intra-individual stability of time preferences: a survey approach for the long-run*, mimeo.
- Preuss, Malte, and Juliane Hennecke (2018): “Biased by success and failure: How unemployment shapes locus of control”, *Labour Economics* 53, pp. 63–74.
- Schmitt-Beck, Rüdiger (2014): “Euro-Kritik, Wirtschaftspessimismus und Einwanderungskepsis: Hintergründe des Beinah-Wahlerfolges der Alternative für Deutschland (AfD) bei der Bundestagswahl 2013”, *Zeitschrift für Parlamentsfragen* 45(1), pp. 94-112.
- Schröder, Carsten, Johannes König, Alexandra Fedorets, Jan Goebel, Markus M. Grabka, Holger Lüthen, Maria Metzinger, Felicitas Schikora, and Stefan Liebig (2020): “The economic research potentials of the German Socio-Economic Panel study”, *German Economic Review*, forthcoming.
- SOEP (2020): Socio-Economic Panel Data for Years 1984-2018, version 35.
- Steinmayr, Andreas (2016): *Exposure to refugees and voting for the far-right: (Unexpected) results from Austria*, IZA Discussion Paper No. 9790.
- Stoetzer, Matthias-Wolfgang, Steffen Gerlich, and Jochen Koesters (2017): *Trump’s first triumph: The US republican primaries 2016 – An analysis of socio-demographic, time-related and regional influences*, Jenaer Beiträge zur Wirtschaftsforschung No. 2017/2.
- Story, Giles, Ivo Vlaev, Ben Seymour, Ara Darzi, and Raymond J. Dolan (2014): “Does temporal discounting explain unhealthy behavior? A systematic review and reinforcement learning perspective”, *Frontiers in Behavioral Neuroscience* 8(76), pp. 1-20.
- Thaler, Richard (1981): “Some empirical evidence on dynamic inconsistency”, *Economics Letters* 8(3), pp. 201-207.
- Trefler, Daniel (2004): “The long and short of the Canada-US free trade agreement”, *American Economic Review* 94(4), pp. 870-895.
- UKHLS (2019): *Understanding Society: Waves 1-9, 2009-2018 and Harmonised BHPS: Waves 1-18, 1991-2009*, UK Data Service.
- Van de Ven, Wynand P. M. M., and Bernard M. S. Van Praag (1981): “The demand for deductibles in private health insurance: A probit model with sample selection”, *Journal of Econometrics* 17(2), pp. 229-252.

- Vecchione, Michele, Harald Schoen, José Luis González Castro, Jan Cieciuch, Vassilis Pavlopoulos, and Gian Vittorio Caprara (2011): “Personality correlates of party preference: The Big Five in five big European countries”, *Personality and Individual Differences* 51(6), pp. 737-742.
- Vertier, Paul and Max Viskanic (2018): *Dismantling the “jungle”: Migrant relocation and extreme voting in France*, CESifo Working Paper No. 6927.
- Verhulst, Brad, Lindon J. Eaves, and Peter K. Hatemi (2012): “Correlation not causation: The relationship between personality traits and political ideologies”, *American Journal of Political Science* 56(1), pp. 34-51.
- Vischer, Thomas, Thomas Dohmen, Armin Falk, David Huffman, Jürgen Schupp, Uwe Sunde, and Gert G. Wagner (2013): “Validating an ultra-short survey measure of patience” *Economics Letters* 120(2), pp. 142-145.

## Appendix A: Additional tables (Germany)

Table A1. Items underlying the Big Five personality traits and locus of control

	Items
Agreeableness	I am forgiving I am considerate and kind to others I am sometimes a bit rude to others*
Conscientious	I am effective and efficient in completing tasks I am somewhat lazy*
Extroversion	I am a thorough worker I am communicative, talkative I am reserved*
Neuroticism	I am outgoing, sociable I am relaxed, able to deal with stress* I am nervous I am a worrier
Openness	I am original, someone who comes up with new ideas I am imaginative I am someone who values artistic/aesthetic experiences
Locus of control	1) How my life goes depends on me 2) Compared to other people, I have not achieved what I deserve* 3) What a person achieves in life is above all a question of fate or luck* 4) If a person is socially or politically active, he/she can have an effect on social conditions 5) I frequently have the experience that other people have a controlling influence over my life* 6) One has to work hard in order to succeed 7) If I run up against difficulties in life, I often doubt my own abilities* 8) Opportunities I have in life are determined by the social conditions* 9) Inborn abilities are more important than any efforts one can make* 10) I have little control over the things that happen in my life*

*Note: Starred traits are reverse coded. For creating the Big Five traits (upper panel), individuals are asked to rate how much each item describes them from 1 (does not describe me at all) to 7 (describes me perfectly). In the case of locus of control (lower panel), respondents indicate to what extent they agree with the items from 1 (disagree completely) to 7 (agree completely). We follow the literature by running a factor analysis to consider the factor loadings of each item in creating a continuous locus of control variable. In the process, items (4) and (9) drop out (see, e.g., Preuss and Hennecke (2018)). We sum up people's self-assessments over the items that belong to the same Big Five trait or to the locus of control and build two binary variables for each trait representing a relatively high disposition (quartile of the trait's distribution) and a relatively low disposition (bottom quartile).*

Table A2. Descriptive statistics Germany, dependent on voting for AfD/NPD in 2013 election

	<i>Voters of AfD and NPD</i>		<i>Voters of other parties</i>		Difference
	Mean / share	Std. dev.	Mean / share	Std. dev.	
Impatience, scale 0-10	4.43	2.55	3.74	2.27	0.70***
Female	0.38	0.49	0.51	0.50	-0.13***
Age, in years	49.53	17.13	54.53	17.69	-5.00***
Migrant background, share	0.02	0.14	0.05	0.22	-0.03***
<i>Marital status, shares</i>					
Married	0.55	0.50	0.54	0.50	0.01
Separated	0.03	0.16	0.02	0.16	0.00
Divorced	0.08	0.27	0.09	0.29	-0.01
Widowed	0.03	0.18	0.10	0.29	-0.06***
Single	0.31	0.46	0.25	0.43	0.06*
ISCED level of education (scale 0-6)	3.66	1.36	3.85	1.43	-0.19**
Equivalent income (€)	1702.86	750.46	1857.24	1192.82	-154.39***
Home Ownership, share	0.44	0.50	0.56	0.50	-0.12***
Children in household, share	0.10	0.30	0.10	0.30	0.00
Care recipient in household, share	0.02	0.13	0.04	0.19	-0.02***
Stayed in hospital last year, share	0.11	0.31	0.15	0.35	-0.04*
Unemployment experience, in years	1.01	2.44	0.82	2.30	0.19
<i>Employment status, shares</i>					
Employed	0.64	0.48	0.53	0.50	0.11
among them: self-employed	0.07	0.26	0.06	0.24	0.01
In education	0.06	0.25	0.05	0.21	0.02
Unemployed	0.03	0.17	0.03	0.17	0.00
Not employed, other reason	0.03	0.18	0.04	0.19	-0.01
Retired	0.23	0.42	0.35	0.48	-0.12***
<i>Traits</i>					
Neuroticism, scale 1-7	3.81	1.36	3.72	1.21	0.09
Openness, scale 1-7	4.63	1.13	4.62	1.16	0.01
Agreeableness, scale 1-7	5.02	1.06	5.41	0.95	-0.39***
Conscientiousness, scale 1-7	5.87	0.90	5.83	0.90	0.04
Extraversion, scale 1-7	4.93	1.04	4.83	1.10	0.10
Risk aversion, scale 0-10	5.19	2.43	5.54	2.33	-0.34**
Sample size (weighted share)	374 (3.7%)		10,631 (96.3%)		

Source: SOEP waves 31 (2013), 32 (2014)

Note: The table displays population-weighted sample statistics. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Table A3.1 Probit estimates AfD/NPD in 2013 election

<i>Dependent variable:</i> Prob(Voting for AfD or NPD)	(1) No controls	(2) SD	(3) Region fixed effect	(4) Traits	(5) Employed sample	(6) Immigration concerns	(7) Linke voters excluded	(8) Locus of control
Impatience	0.131*** (0.036)	0.126*** (0.035)	0.126*** (0.034)	0.108*** (0.035)	0.099** (0.043)	0.100*** (0.034)	0.108*** (0.035)	0.098** (0.045)
Female		-0.223*** (0.069)	-0.234*** (0.067)	-0.225*** (0.070)	-0.188* (0.102)	-0.198*** (0.072)	-0.229*** (0.071)	-0.222** (0.091)
Age		-0.005 (0.014)	-0.009 (0.013)	-0.011 (0.013)	-0.043* (0.025)	-0.008 (0.014)	-0.010 (0.014)	-0.005 (0.018)
Age <sup>2</sup>		0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Migrant background		-0.403 (0.255)	-0.405 (0.255)	-0.408* (0.246)	-0.511* (0.302)	-0.310 (0.258)	-0.413* (0.251)	-0.115 (0.283)
<i>Marital status (ref. married):</i>								
Separated		-0.058 (0.217)	-0.055 (0.213)	-0.059 (0.211)	-0.002 (0.268)	-0.006 (0.209)	-0.019 (0.217)	-0.438* (0.255)
Divorced		-0.163 (0.120)	-0.165 (0.121)	-0.173 (0.122)	-0.293** (0.137)	-0.149 (0.127)	-0.147 (0.124)	-0.079 (0.156)
Widowed		-0.321** (0.149)	-0.327** (0.152)	-0.299* (0.153)	-0.316 (0.310)	-0.285* (0.163)	-0.311** (0.157)	-0.350* (0.187)
Single		-0.160 (0.130)	-0.161 (0.123)	-0.161 (0.121)	-0.224 (0.139)	-0.130 (0.120)	-0.159 (0.123)	-0.143 (0.143)
ISCED level of education		-0.046** (0.023)	-0.049** (0.023)	-0.045* (0.023)	-0.023 (0.033)	-0.007 (0.026)	-0.047** (0.024)	-0.056* (0.031)
Equivalent income		-0.090** (0.037)	-0.092** (0.038)	-0.100*** (0.037)	-0.047 (0.048)	-0.071** (0.036)	-0.110*** (0.038)	-0.082* (0.043)
Home ownership		-0.186*** (0.070)	-0.170** (0.071)	-0.167** (0.069)	-0.082 (0.091)	-0.151** (0.070)	-0.185*** (0.070)	-0.162* (0.089)
Children in household: yes		-0.165 (0.106)	-0.207** (0.105)	-0.196* (0.103)	-0.082 (0.120)	-0.113 (0.102)	-0.197* (0.104)	-0.244* (0.132)
Care recipients in hh: yes		-0.333* (0.179)	-0.366* (0.188)	-0.367** (0.187)	-1.503*** (0.288)	-0.413** (0.197)	-0.342* (0.189)	-0.424* (0.240)
Hospital stay last year: yes		-0.122 (0.093)	-0.127 (0.090)	-0.122 (0.089)	-0.025 (0.126)	-0.088 (0.093)	-0.126 (0.090)	-0.263** (0.110)
Unemployment experience		0.012 (0.012)	0.010 (0.013)	0.012 (0.012)	0.011 (0.021)	0.010 (0.013)	0.016 (0.013)	0.005 (0.016)
<i>Employment status (ref. paid job)</i>								
Self-employment		0.049 (0.117)	0.047 (0.119)	0.013 (0.121)	0.092 (0.153)	0.089 (0.125)	-0.000 (0.124)	0.082 (0.147)
In education		-0.131 (0.169)	-0.170 (0.165)	-0.175 (0.165)		-0.103 (0.164)	-0.200 (0.165)	-0.258 (0.273)
Unemployment		-0.291 (0.193)	-0.263 (0.193)	-0.287 (0.187)		-0.344* (0.191)	-0.250 (0.198)	-0.339 (0.281)
Out of labor force		-0.117 (0.173)	-0.077 (0.170)	-0.091 (0.164)		-0.117 (0.163)	-0.079 (0.163)	0.097 (0.204)
Retirement		-0.125 (0.131)	-0.125 (0.131)	-0.143 (0.128)		-0.132 (0.135)	-0.136 (0.130)	-0.013 (0.153)
NUTS2 region fixed effects			yes	yes	yes	yes	yes	yes
<i>Traits (ref. medium level):</i>								
Highly open				-0.003 (0.082)	0.108 (0.102)	-0.001 (0.084)	0.005 (0.084)	0.020 (0.103)
Lowly open				-0.153** (0.076)	-0.183* (0.100)	-0.176** (0.080)	-0.159** (0.078)	-0.212** (0.101)
Highly neurotic				0.203** (0.088)	0.375*** (0.120)	0.143* (0.087)	0.203** (0.089)	0.133 (0.109)
Lowly neurotic				0.180** (0.074)	0.233*** (0.089)	0.239*** (0.077)	0.180** (0.075)	0.117 (0.094)
Highly conscientious				0.045 (0.096)	-0.065 (0.121)	-0.043 (0.102)	0.037 (0.098)	0.208* (0.117)
Lowly conscientious				-0.014 (0.075)	-0.037 (0.095)	0.042 (0.075)	-0.010 (0.076)	0.028 (0.092)
Highly agreeable				-0.103 (0.088)	0.055 (0.110)	-0.106 (0.092)	-0.100 (0.090)	-0.230** (0.115)
Lowly agreeable				0.158** (0.074)	0.140 (0.094)	0.109 (0.076)	0.168** (0.075)	0.064 (0.094)

To be continued on the next page.

<i>Dependent variable:</i> Prob(Voting for AfD or NPD) <i>(ctd.)</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No controls	SD	Region fixed effect	Traits	Employed sample	Immigration concerns	Linke voters excluded	Locus of control
Highly extraverted				-0.060 (0.085)	-0.080 (0.105)	-0.101 (0.086)	-0.049 (0.086)	-0.053 (0.107)
Lowly extraverted				-0.051 (0.078)	-0.078 (0.099)	-0.029 (0.079)	-0.051 (0.079)	-0.039 (0.099)
Highly risk-averse				0.095 (0.085)	0.049 (0.113)	0.092 (0.089)	0.095 (0.087)	0.175* (0.105)
Lowly risk-averse				0.059 (0.073)	0.121 (0.093)	0.052 (0.075)	0.061 (0.074)	0.072 (0.096)
Locus of control: high (internal)								0.105 (0.101)
Locus of control: low (external)								0.155 (0.099)
Part-time job					-0.348*** (0.134)			
Irregular job					0.091 (0.194)			
Gross hourly wage					-0.006 (0.004)			
Autonomy					-0.036 (0.053)			
<i>Industry (ref. public admin.):</i>								
Agriculture					-0.114 (0.360)			
Manufacturing, mining, energy					0.103 (0.168)			
Construction					0.152 (0.179)			
Transport					0.311 (0.207)			
Services					0.031 (0.244)			
Education					-0.072 (0.172)			
Health, social services					0.058 (0.194)			
Company size (scale 0-3)					-0.042 (0.196)			
Tenure					0.165 (0.193)			
Immigration concerns: strong						0.664*** (0.074)		
Immigration concerns: none						-0.298*** (0.092)		
Observations	11,005	11,005	11,005	11,005	5,820	11,005	10,088	7,190

Source: SOEP, waves 30 (2013) and 31 (2014).

Note: The table displays population-weighted probit estimates of voting for the AfD or NPD in the 2013 general election in Germany. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Robust standard errors in parentheses.

Table A3.2 Marginal effects AfD/NPD in 2013 election

Dependent variable: Prob(Voting for AfD or NPD)	(1) No controls	(2) SD	(3) Region fixed effect	(4) Traits	(5) Employed sample	(6) Immigration concerns	(7) Linke voters excluded	(8) Locus of control
Impatience	0.010*** (0.003)	0.009*** (0.002)	0.008*** (0.002)	0.006*** (0.002)	0.006** (0.003)	0.005*** (0.002)	0.007*** (0.002)	0.006** (0.002)
Female		-0.016*** (0.005)	-0.014*** (0.004)	-0.013*** (0.004)	-0.012* (0.006)	-0.009*** (0.003)	-0.014*** (0.004)	-0.012** (0.005)
Age		-0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.003* (0.002)	-0.000 (0.001)	-0.001 (0.001)	-0.000 (0.001)
Age <sup>2</sup>		0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Migrant background		-0.028 (0.017)	-0.025 (0.015)	-0.024* (0.014)	-0.032* (0.018)	-0.015 (0.012)	-0.026* (0.015)	-0.006 (0.016)
<i>Marital status (ref. married):</i>								
Separated		-0.004 (0.015)	-0.003 (0.013)	-0.004 (0.012)	-0.000 (0.016)	-0.000 (0.010)	-0.001 (0.014)	-0.025* (0.014)
Divorced		-0.011 (0.008)	-0.010 (0.007)	-0.010 (0.007)	-0.018** (0.009)	-0.007 (0.006)	-0.009 (0.008)	-0.004 (0.009)
Widowed		-0.022** (0.010)	-0.020** (0.009)	-0.018** (0.009)	-0.019 (0.019)	-0.014* (0.008)	-0.019** (0.010)	-0.020* (0.010)
Single		-0.011 (0.009)	-0.010 (0.007)	-0.010 (0.007)	-0.014 (0.008)	-0.006 (0.006)	-0.010 (0.008)	-0.008 (0.008)
ISCED level of education		-0.003** (0.002)	-0.003** (0.001)	-0.003* (0.001)	-0.001 (0.002)	-0.000 (0.001)	-0.003** (0.001)	-0.003* (0.002)
Equivalent income		-0.006** (0.003)	-0.006** (0.002)	-0.006*** (0.002)	-0.003 (0.003)	-0.003** (0.002)	-0.007*** (0.002)	-0.005* (0.002)
Home ownership		-0.013*** (0.005)	-0.010** (0.004)	-0.010** (0.004)	-0.005 (0.006)	-0.007** (0.003)	-0.012*** (0.004)	-0.009* (0.005)
Children in household: yes		-0.012 (0.007)	-0.013* (0.006)	-0.012* (0.006)	-0.005 (0.007)	-0.005 (0.005)	-0.012* (0.007)	-0.014* (0.008)
Care recipients in hh: yes		-0.023* (0.013)	-0.022* (0.011)	-0.022** (0.011)	-0.093*** (0.019)	-0.020** (0.009)	-0.021* (0.012)	-0.024* (0.013)
Hospital stay last year: yes		-0.009 (0.007)	-0.008 (0.006)	-0.007 (0.005)	-0.002 (0.008)	-0.004 (0.004)	-0.008 (0.006)	-0.015** (0.006)
Unemployment experience		0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)
<i>Employment status (ref. paid job)</i>								
Self-employment		0.003 (0.008)	0.003 (0.007)	0.001 (0.007)	0.006 (0.009)	0.004 (0.006)	-0.000 (0.008)	0.005 (0.008)
In education		-0.009 (0.012)	-0.010 (0.010)	-0.010 (0.010)		-0.005 (0.008)	-0.012 (0.010)	-0.014 (0.015)
Unemployment		-0.020 (0.014)	-0.016 (0.012)	-0.017 (0.011)		-0.016* (0.009)	-0.016 (0.012)	-0.019 (0.016)
Out of labor force		-0.008 (0.012)	-0.005 (0.010)	-0.005 (0.010)		-0.006 (0.008)	-0.005 (0.010)	0.005 (0.011)
Retirement		-0.009 (0.009)	-0.008 (0.008)	-0.008 (0.008)		-0.006 (0.006)	-0.008 (0.008)	-0.001 (0.009)
NUTS2 region fixed effects			yes	yes	yes	yes	yes	yes
<i>Traits (ref. medium level):</i>								
Highly open				-0.000 (0.005)	0.007 (0.006)	-0.000 (0.004)	0.000 (0.005)	0.001 (0.006)
Lowly open				-0.009** (0.005)	-0.011* (0.006)	-0.008** (0.004)	-0.010** (0.005)	-0.012** (0.006)
Highly neurotic				0.012** (0.005)	0.023*** (0.007)	0.007* (0.004)	0.013** (0.006)	0.007 (0.006)
Lowly neurotic				0.011** (0.004)	0.014** (0.006)	0.011*** (0.004)	0.011** (0.005)	0.007 (0.005)
Highly conscientious				0.003 (0.006)	-0.004 (0.007)	-0.002 (0.005)	0.002 (0.006)	0.012* (0.007)
Lowly conscientious				-0.001 (0.004)	-0.002 (0.006)	0.002 (0.004)	-0.001 (0.005)	0.002 (0.005)
Highly agreeable				-0.006 (0.005)	0.003 (0.007)	-0.005 (0.004)	-0.006 (0.006)	-0.013** (0.006)
Lowly agreeable				0.009** (0.004)	0.009 (0.006)	0.005 (0.004)	0.010** (0.005)	0.004 (0.005)

To be continued on the next page.

<i>Dependent variable:</i> Prob(Voting for AfD or NPD) ( <i>ctd.</i> )	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No controls	SD	Region fixed effect	Traits	Employed sample	Immigration concerns	Linke voters excluded	Locus of control
Highly extraverted				-0.004 (0.005)	-0.005 (0.007)	-0.005 (0.004)	-0.003 (0.005)	-0.003 (0.006)
Lowly extraverted				-0.003 (0.005)	-0.005 (0.006)	-0.001 (0.004)	-0.003 (0.005)	-0.002 (0.006)
Highly risk-averse				0.006 (0.005)	0.003 (0.007)	0.004 (0.004)	0.006 (0.005)	0.010* (0.006)
Lowly risk-averse				0.004 (0.004)	0.007 (0.006)	0.003 (0.004)	0.004 (0.005)	0.004 (0.005)
Locus of control: high (internal)								0.006 (0.006)
Locus of control: low (external)								0.009 (0.006)
Part-time job					-0.021** (0.008)			
Irregular job					0.006 (0.012)			
Gross hourly wage					-0.000 (0.000)			
Autonomy					-0.002 (0.003)			
<i>Industry (ref. public admin.):</i>								
Agriculture					-0.007 (0.022)			
Manufacturing, energy, mining					0.006 (0.010)			
Construction					0.009 (0.011)			
Transport					0.019 (0.013)			
Services					0.002 (0.015)			
Education					-0.004 (0.011)			
Health, social services					0.004 (0.012)			
Company size (scale 0-3)					-0.003 (0.012)			
Tenure					0.010 (0.012)			
Immigration concerns: strong						0.032*** (0.004)		
Immigration concerns: none						-0.014*** (0.004)		
Observations	11,005	11,005	11,005	11,005	5,820	11,005	10,088	7,190

Source: SOEP, waves 30 (2013) and 31 (2014).

Note: The table displays marginal effects (at means) of population-weighted probit estimates of voting for the AfD or NPD in the 2013 general election in Germany (mean = 0.037). \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Robust standard errors in parentheses.



Table A4: Selected marginal interaction effects, 2017 election

	(1) Education	(2) Wage	(3) Economic concerns	(4) Saver
Impatience	0.017* (0.009)	0.015* (0.008)	0.000 (0.009)	0.026*** (0.005)
ISCED level of education	-0.019*** (0.002)	-0.018*** (0.004)	-0.019*** (0.002)	-0.019*** (0.002)
Impatience × ISCED	-0.000 (0.002)			
Gross hourly wage		-0.000 (0.000)		
Impatience × wage		-0.001 (0.001)		
Economic concerns			0.018*** (0.005)	
Impatience × econ. concerns			0.009* (0.005)	
Saver				-0.028*** (0.007)
Impatience × saver				-0.018*** (0.006)
Socio-demographics	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes
Personality traits	yes	yes	yes	yes
Job characteristics		yes		
Observations	14,165	8,480	14,153	14,122

Source: SOEP wave 35 (2018).

Note: The table displays marginal effects (at means) based on population-weighted probit estimates for the likelihood of a vote for the AfD or NPD in the 2017 general election (mean = 9.3%). Socio-demographics include gender, age, age<sup>2</sup>, immigrant, marital status, education, income, home ownership, overnight stay in hospital last year, children/care recipients in household, employment status, and lifetime unemployment experience. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, openness, and risk aversion. Job characteristics are gross hourly wage, job autonomy, sector of industry, tenure, company size, part-time employment, and irregular employment. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Table A5: Multinomial model Germany, sample of employees (2013 election)

	Union of CDU, CSU	SPD	Die Linke	Greens	FDP	Minor parties
<i>Baseline: Voting for AfD or NPD</i>						
Impatience	0.804** (0.083)	0.792** (0.082)	0.887 (0.114)	0.845 (0.098)	0.753* (0.117)	0.892 (0.123)
Socio-demographics	yes	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes	yes
Traits	yes	yes	yes	yes	yes	yes
Observations	5,820	5,820	5,820	5,820	5,820	5,820

Source: SOEP waves 31(2013), 32 (2014).

Note: The table displays relative ratios of the probability of voting for the party mentioned in the column header and the probability of voting for the AfD/NPD. They are based on population-weighted estimates of a multinomial logistic regression. Socio-demographics include gender, age, age<sup>2</sup>, migrant background, marital status, education, income, home ownership, overnight stay in hospital last year, children/care recipients in household, employment status, and lifetime unemployment experience. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, openness, and risk aversion. Job characteristics are gross hourly wage, job autonomy, sector of industry, tenure, company size, part-time employment, and irregular employment. Robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

## Appendix B: Additional tables (United Kingdom)

Table B1. Items underlying the Big Five personality traits

	<i>Items</i>
Agreeableness	I see myself as someone who has a forgiving nature. I see myself as someone who is considerate and kind to almost everyone.
Conscientious	I see myself as someone who is sometimes rude to others.*
	I see myself as someone who does things efficiently.
	I see myself as someone who tends to be lazy.*
Extroversion	I see myself as someone who does a thorough job.
	I see myself as someone who is talkative.
Neuroticism	I see myself as someone who is reserved.*
	I see myself as someone who is outgoing, sociable.
	I see myself as someone who is relaxed, handles stress well.*
Openness	I see myself as someone who gets nervous easily.
	I see myself as someone who worries a lot.
	I see myself as someone who is original.
	I see myself as someone who has an active imagination.
	I see myself as someone who is someone who values artistic, aesthetic experiences.

*Note: Starred traits are reverse coded. For creating the Big Five traits, individuals are asked to rate how much each item applies to them from 1 (does not apply to me at all) to 7 (applies to me perfectly). We sum up people's self-assessments over the items that belong to the same trait and build two binary variables for each trait representing a relatively high disposition (in the top quartile of the trait's distribution) and a relatively low disposition (in the bottom quartile).*

Table B2.1. Descriptive statistics UKHLS wave 5, party preference for UKIP/BNP

	Party preference for UKIP/BNP		Preference for other party		Difference
	Mean / share	Std. dev.	Mean / share	Std. dev.	
DGI-10, standardized score	0.08	0.99	-0.06	0.98	0.13***
Female, share	0.43	0.49	0.51	0.50	-0.08***
Age, in years	54.69	16.84	51.64	17.80	3.06***
Migrant background, share	0.04	0.19	0.10	0.29	-0.06***
<i>Marital status, shares</i>					
Married	0.57	0.50	0.57	0.50	0.00
Married, but separated	0.01	0.12	0.02	0.12	0.00
Divorced	0.09	0.28	0.07	0.25	0.02***
Widowed	0.06	0.24	0.07	0.26	-0.01
Unmarried	0.26	0.44	0.28	0.45	-0.02
Educational attainment, scale 1-6	4.38	2.17	4.92	1.93	-0.54***
Equivalent income (£)	1,521.53	869.05	1,851.55	1,721.95	-330.02***
Home Ownership, share	0.70	0.46	0.76	0.43	-0.06***
Children in household, share	0.24	0.43	0.28	0.45	-0.04***
Care recipient in household, share	0.09	0.29	0.07	0.25	0.03***
Long-term health problem, share	0.45	0.50	0.35	0.48	0.09***
<i>Employment status, shares</i>					
Employed	0.48	0.50	0.57	0.50	-0.09***
among them: self-employed	0.08	0.27	0.08	0.27	-0.01
In education	0.01	0.11	0.03	0.17	-0.02***
Unemployed	0.05	0.23	0.04	0.19	0.02***
Retired	0.34	0.47	0.29	0.45	0.05***
Other employment status	0.11	0.31	0.08	0.26	0.03***
<i>Traits</i>					
Neuroticism, scale 1-7	3.48	1.48	3.52	1.43	-0.04
Openness, scale 1-7	4.42	1.36	4.61	1.30	-0.19***
Agreeableness, scale 1-7	5.48	1.14	5.63	1.01	-0.15***
Conscientiousness, scale 1-7	5.50	1.12	5.47	1.08	0.04
Extraversion, scale 1-7	4.61	1.35	4.57	1.31	0.04
Sample size (weighted share)	1,813 (10.5%)		17,497 (89.5%)		

Source: UKHLS, wave 5 (2013-2015)

Note: The table displays population-weighted sample statistics. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Table B2.2. Descriptive statistics UKHLS wave 8, leave vs remain

	<i>Leave</i>		<i>Remain</i>		Difference
	Mean / share	Std. dev.	Mean / share	Std. dev.	
DGI-10, standardized score	0.03	1.00	-0.08	0.96	0.11***
Female, share	0.51	0.50	0.55	0.50	-0.04***
Age, in years	55.11	16.73	50.18	16.93	4.92***
Migrant background, share	0.05	0.23	0.11	0.31	-0.06***
<i>Marital status, shares</i>					
Married	0.56	0.50	0.56	0.50	0.00
Married, but separated	0.02	0.12	0.01	0.11	0.00
Divorced	0.09	0.28	0.06	0.24	0.03***
Widowed	0.08	0.26	0.06	0.23	0.02***
Unmarried	0.26	0.44	0.31	0.46	-0.05***
Educational attainment, scale 1-6	4.55	2.08	5.00	1.67	-0.45***
Equivalent income (£)	1,776.18	1,528.41	2,118.57	1,713.83	-342.40***
Home Ownership, share	0.69	0.46	0.75	0.43	-0.06***
Children in household, share	0.25	0.43	0.30	0.46	-0.05***
Care recipient in household, share	0.08	0.28	0.06	0.24	0.02***
Long-term health problem, share	0.42	0.49	0.34	0.47	0.08***
<i>Employment status, shares</i>					
Employed	0.52	0.50	0.64	0.48	-0.13***
among them: self-employed	0.08	0.27	0.09	0.28	-0.01*
In education	0.01	0.09	0.02	0.13	-0.01***
Unemployed	0.03	0.18	0.03	0.16	0.01**
Retired	0.34	0.48	0.24	0.43	0.10***
Other employment status	0.10	0.29	0.07	0.25	0.03***
<i>Traits</i>					
Neuroticism, scale 1-7	3.52	1.47	3.62	1.41	-0.11***
Openness, scale 1-7	4.42	1.33	4.70	1.26	-0.28***
Agreeableness, scale 1-7	5.57	1.08	5.61	1.00	-0.04**
Conscientiousness, scale 1-7	5.50	1.11	5.41	1.08	0.09***
Extraversion, scale 1-7	4.59	1.30	4.53	1.31	0.06***
Sample size (weighted share)	8,281 (46.2%)		10,109 (53.8%)		

Source: UKHLS, wave 8 (2016-2018)

Note: The table displays population-weighted sample statistics. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Table B3.1. Probit estimates UKIP/BNP

Dep. var.: Prob(UKIP/BNP)	Wave 5						Wave 6	
	(1) No controls	(2) Socio- demographics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Additional controls	(7) Baseline	(8) Anti- establish- ment views
DGI-10 standardized score	0.071*** (0.014)	0.045*** (0.015)	0.051*** (0.015)	0.049*** (0.016)	0.083*** (0.024)	0.099*** (0.030)	0.068*** (0.017)	0.038*** (0.018)
Better informed than others								-0.084*** (0.018)
Dissatisfied with democracy in UK								0.218*** (0.017)
Public officials don't care								0.231*** (0.019)
Female		-0.187*** (0.029)	-0.184*** (0.029)	-0.192*** (0.031)	-0.135*** (0.050)	-0.203*** (0.061)	-0.254*** (0.033)	-0.305*** (0.035)
Age		0.016*** (0.006)	0.019*** (0.006)	0.019*** (0.006)	-0.000 (0.012)	0.011 (0.016)	0.016** (0.007)	0.012* (0.007)
Age <sup>2</sup>		-0.000* (0.000)	-0.000** (0.000)	-0.000** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000 (0.000)
Immigrant		-0.427*** (0.066)	-0.410*** (0.068)	-0.404*** (0.068)	-0.382*** (0.095)	-0.295** (0.121)	-0.285*** (0.072)	-0.222*** (0.076)
<i>Marital status (ref. married)</i>								
Divorced		0.053 (0.055)	0.053 (0.056)	0.063 (0.056)	0.227*** (0.084)	0.300*** (0.100)	0.032 (0.061)	-0.010 (0.063)
Separated		-0.161 (0.110)	-0.152 (0.112)	-0.135 (0.113)	-0.221 (0.171)	-0.322 (0.232)	-0.020 (0.124)	-0.048 (0.126)
Widowed		-0.137** (0.069)	-0.121* (0.070)	-0.121* (0.070)	-0.352 (0.350)	-0.162 (0.365)	-0.163** (0.072)	-0.181** (0.073)
Single		-0.001 (0.040)	0.015 (0.041)	0.028 (0.041)	0.038 (0.056)	-0.000 (0.071)	-0.070 (0.045)	-0.097** (0.047)
Educational attainment		-0.066*** (0.008)	-0.063*** (0.008)	-0.062*** (0.008)	-0.090*** (0.016)	-0.073*** (0.020)	-0.054*** (0.009)	-0.051*** (0.008)
Equivalent income / 1000		-0.136*** (0.022)	-0.138*** (0.023)	-0.139*** (0.023)	-0.080*** (0.024)	-0.037 (0.031)	-0.121*** (0.025)	-0.098*** (0.023)
Home ownership		-0.100*** (0.037)	-0.105*** (0.038)	-0.098*** (0.038)	-0.075 (0.055)	-0.061 (0.069)	-0.172*** (0.042)	-0.089** (0.043)
Children		-0.035 (0.040)	-0.036 (0.041)	-0.037 (0.041)	-0.004 (0.052)	-0.048 (0.065)	-0.085* (0.045)	-0.064 (0.046)
Care giving		0.093* (0.053)	0.092* (0.054)	0.092* (0.055)	0.125 (0.094)	0.285** (0.111)	0.085 (0.058)	0.028 (0.061)
Long-term health problem		0.087*** (0.031)	0.082*** (0.031)	0.088*** (0.032)	0.075 (0.048)	0.051 (0.061)	0.144*** (0.034)	0.094*** (0.035)
<i>Employment status (ref. paid job)</i>								
Self-employed		0.024 (0.053)	0.003 (0.054)	0.014 (0.055)			0.070 (0.058)	0.052 (0.059)
In education		-0.271** (0.134)	-0.227* (0.138)	-0.210 (0.137)			-0.157 (0.180)	-0.061 (0.183)
Unemployed		0.124 (0.077)	0.126 (0.079)	0.130* (0.079)			-0.068 (0.105)	-0.175 (0.109)
Retired		0.041 (0.052)	0.048 (0.053)	0.056 (0.053)			0.055 (0.055)	0.048 (0.056)
Other		0.171*** (0.055)	0.182*** (0.056)	0.195*** (0.056)			0.299*** (0.061)	0.259*** (0.063)
NUTS2 region fixed effect			yes	yes	yes	yes	yes	yes
<i>Traits (ref. medium level)</i>								
Highly neurotic				-0.018 (0.054)	-0.073 (0.086)	0.035 (0.103)	-0.066 (0.059)	-0.066 (0.059)
Lowly neurotic				0.021 (0.032)	0.018 (0.046)	0.039 (0.057)	0.035 (0.035)	0.035 (0.035)
Highly open				-0.008 (0.041)	-0.005 (0.057)	0.045 (0.073)	-0.117** (0.046)	-0.117** (0.046)
Lowly open				0.148*** (0.035)	0.098** (0.050)	0.089 (0.062)	0.076* (0.039)	0.076* (0.039)

To be continued on the next page.

Dep. var.: Prob(UKIP/BNP) (ctd.)	Wave 5				Wave 6			
	(1) No controls	(2) Socio- demographics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Additional controls	(7) Baseline	(8) Anti- establish- ment views
Highly agreeable				0.035 (0.042)	0.111* (0.063)	0.167** (0.079)	0.060 (0.046)	0.060 (0.046)
Lowly agreeable				0.150*** (0.033)	0.194*** (0.048)	0.193*** (0.060)	0.077** (0.037)	0.077** (0.037)
Highly extraverted				0.071* (0.040)	0.079 (0.056)	0.043 (0.070)	-0.008 (0.044)	-0.008 (0.044)
Lowly extraverted				-0.038 (0.036)	-0.085 (0.052)	-0.073 (0.065)	-0.051 (0.039)	-0.051 (0.039)
Highly conscientious				0.115*** (0.042)	0.119** (0.060)	0.071 (0.076)	0.076* (0.045)	0.076* (0.045)
Lowly conscientious				-0.054 (0.034)	-0.095* (0.049)	-0.153** (0.062)	-0.139*** (0.038)	-0.139*** (0.038)
Part-time job					-0.026 (0.054)	0.017 (0.068)		
Irregularly employed					-0.166* (0.100)	-0.096 (0.136)		
Leadership position					-0.213*** (0.047)	-0.256*** (0.059)		
<i>Industry (ref. public admin.)</i>								
Retail					-0.029 (0.097)	-0.082 (0.113)		
Construction					0.104 (0.110)	0.142 (0.152)		
Agriculture					-0.122 (0.191)	-0.024 (0.291)		
Manufacturing, mining, energy, water, waste					-0.004 (0.094)	-0.002 (0.108)		
Logistics					0.265** (0.110)	0.214* (0.129)		
Other services					-0.010 (0.099)	0.009 (0.123)		
Professional services					-0.282*** (0.095)	-0.372*** (0.113)		
Agency services					-0.063 (0.177)	-0.072 (0.206)		
Health and social services					-0.094 (0.093)	-0.109 (0.109)		
Education					-0.290*** (0.103)	-0.292** (0.118)		
Company size (scale 0-3)					-0.022 (0.022)	-0.024 (0.028)		
Unemployment, last three years (in years)						-0.054 (0.060)		
Gross hourly wage						-0.006 (0.004)		
Highly risk-averse (ref. medium level)						-0.169* (0.087)		
Lowly risk-averse (ref. medium level)						-0.008 (0.060)		
Number of observations	19,310	19,310	19,310	19,310	10,358	6,754	16,434	16,434

Source: UKHLS, waves 5 (2013-2015) and 6 (2014-2016).

Note: The table displays population-weighted probit estimates of preferring UKIP or BNP to all other parties. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Robust standard errors in parentheses.

Table B3.2. Marginal effects UKIP/BNP

Dep. var.: Prob(UKIP/BNP)	Wave 5				Wave 6			
	(1) No controls	(2) Socio- demographics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Additional controls	(7) Baseline	(8) Anti- establish- ment views
DGI-10 standardized score	0.013*** (0.003)	0.008*** (0.002)	0.008*** (0.002)	0.007*** (0.002)	0.010*** (0.003)	0.011*** (0.004)	0.010*** (0.003)	0.005*** (0.002)
Better informed than others								-0.011*** (0.002)
Dissatisfied with democracy in UK								0.030*** (0.002)
Public officials don't care								0.031*** (0.003)
Female		-0.031*** (0.005)	-0.028*** (0.005)	-0.029*** (0.005)	-0.017*** (0.006)	-0.024*** (0.007)	-0.039*** (0.005)	-0.042*** (0.005)
Age		0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	-0.000 (0.001)	0.001 (0.002)	0.002** (0.001)	0.002* (0.001)
Age <sup>2</sup>		-0.000* (0.000)	-0.000** (0.000)	-0.000** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000 (0.000)
Immigrant		-0.072*** (0.011)	-0.063*** (0.010)	-0.061*** (0.010)	-0.047*** (0.011)	-0.034** (0.014)	-0.043*** (0.011)	-0.030*** (0.010)
<i>Marital status (ref. married)</i>								
Divorced		0.009 (0.009)	0.008 (0.009)	0.010 (0.009)	0.009 (0.009)	0.008 (0.009)	0.005 (0.009)	-0.001 (0.009)
Separated		-0.027 (0.018)	-0.023 (0.017)	-0.020 (0.017)	-0.027 (0.018)	-0.023 (0.017)	-0.003 (0.019)	-0.007 (0.017)
Widowed		-0.023** (0.011)	-0.019* (0.011)	-0.018* (0.011)	-0.023** (0.011)	-0.019* (0.011)	-0.025** (0.011)	-0.025** (0.010)
Single		-0.000 (0.007)	0.002 (0.006)	0.004 (0.006)	-0.000 (0.007)	0.002 (0.006)	-0.011 (0.007)	-0.013** (0.006)
Educational attainment		-0.011*** (0.001)	-0.010*** (0.001)	-0.009*** (0.001)	-0.011*** (0.001)	-0.010*** (0.001)	-0.008*** (0.001)	-0.007*** (0.001)
Equivalent income / 1000		-0.023*** (0.004)	-0.021*** (0.003)	-0.021*** (0.003)	-0.023*** (0.004)	-0.021*** (0.003)	-0.018*** (0.004)	-0.013*** (0.003)
Home ownership		-0.017*** (0.006)	-0.016*** (0.006)	-0.015** (0.006)	-0.017*** (0.006)	-0.016*** (0.006)	-0.026*** (0.006)	-0.012** (0.006)
Children		-0.006 (0.007)	-0.006 (0.006)	-0.006 (0.006)	-0.006 (0.007)	-0.006 (0.006)	-0.013* (0.007)	-0.009 (0.006)
Care giving		0.016* (0.009)	0.014* (0.008)	0.014* (0.008)	0.016* (0.009)	0.014* (0.008)	0.013 (0.009)	0.004 (0.008)
Long-term health problem		0.015*** (0.005)	0.013*** (0.005)	0.013*** (0.005)	0.015*** (0.005)	0.013*** (0.005)	0.022*** (0.005)	0.013*** (0.005)
<i>Employment status (ref. paid job)</i>								
Self-employed		0.004 (0.009)	0.001 (0.008)	0.002 (0.008)			0.011 (0.009)	0.007 (0.008)
In education		-0.045** (0.022)	-0.035* (0.021)	-0.032 (0.021)			-0.024 (0.027)	-0.008 (0.025)
Unemployed		0.021 (0.013)	0.019 (0.012)	0.020 (0.012)			-0.010 (0.016)	-0.024 (0.015)
Retired		0.007 (0.009)	0.007 (0.008)	0.009 (0.008)			0.008 (0.008)	0.007 (0.008)
Other		0.029*** (0.009)	0.028*** (0.009)	0.030*** (0.009)			0.046*** (0.009)	0.035*** (0.009)
NUTS2 region fixed effect			yes	yes	yes	yes	yes	yes
<i>Traits (ref. medium level)</i>								
Highly neurotic				-0.003 (0.008)	-0.009 (0.011)	0.004 (0.012)	-0.004 (0.009)	-0.009 (0.008)
Lowly neurotic				0.003 (0.005)	0.002 (0.006)	0.005 (0.007)	0.002 (0.005)	0.005 (0.005)
Highly open				-0.001 (0.006)	-0.001 (0.007)	0.005 (0.008)	-0.018*** (0.007)	-0.016** (0.006)
Lowly open				0.022*** (0.005)	0.012** (0.006)	0.010 (0.007)	0.014** (0.006)	0.010* (0.005)

To be continued on the next page.



Dep. var.: Prob(UKIP/BNP) (ctd.)	Wave 5				Wave 6			
	(1) No controls	(2) Socio- demographics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Additional controls	(7) Baseline	(8) Anti- establish- ment views
Highly agreeable				0.005 (0.006)	0.014* (0.008)	0.019** (0.009)	0.010 (0.007)	0.008 (0.006)
Lowly agreeable				0.023*** (0.005)	0.024*** (0.006)	0.022*** (0.007)	0.016*** (0.005)	0.010** (0.005)
Highly extraverted				0.011* (0.006)	0.010 (0.007)	0.005 (0.008)	-0.002 (0.006)	-0.001 (0.006)
Lowly extraverted				-0.006 (0.005)	-0.010 (0.006)	-0.008 (0.008)	-0.011* (0.006)	-0.007 (0.005)
Highly conscientious				0.017*** (0.006)	0.015** (0.007)	0.008 (0.009)	0.015** (0.007)	0.010* (0.006)
Lowly conscientious				-0.008 (0.005)	-0.012* (0.006)	-0.018** (0.007)	-0.019*** (0.006)	-0.019*** (0.005)
Part-time job					-0.003 (0.007)	0.002 (0.008)		
Irregularly employed					-0.021* (0.012)	-0.011 (0.016)		
Leadership position					-0.026*** (0.006)	-0.030*** (0.007)		
<i>Industry (ref. public admin.)</i>								
Retail					-0.004 (0.012)	-0.010 (0.013)		
Construction					0.013 (0.014)	0.017 (0.018)		
Agriculture					-0.015 (0.024)	-0.003 (0.034)		
Manufacturing, mining, energy, water, waste					-0.001 (0.012)	-0.000 (0.013)		
Logistics					0.033** (0.014)	0.025* (0.015)		
Other services					-0.001 (0.012)	0.001 (0.014)		
Professional services					-0.035*** (0.012)	-0.043*** (0.013)		
Agency services					-0.008 (0.022)	-0.008 (0.024)		
Health and social services					-0.012 (0.012)	-0.013 (0.013)		
Education					-0.036*** (0.013)	-0.034** (0.014)		
Company size (scale 0-3)					-0.003 (0.003)	-0.003 (0.003)		
Unemployment, last three years (in years)						-0.006 (0.007)		
Gross hourly wage						-0.001* (0.000)		
Highly risk-averse (ref. medium level)						-0.020** (0.010)		
Lowly risk-averse (ref. medium level)						-0.001 (0.007)		
Number of observations	19,310	19,310	19,310	19,310	10,358	6,754	16,434	16,434

Source: UKHLS, waves 5 (2013-2015) and 6 (2014-2016).

Note: The table displays marginal effects (at means) of population-weighted probit estimates of preferring UKIP or BNP to all other parties ((1)-(6) mean = 10.5%, (7)-(8), mean = 10.4%).

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

Table B4.1. Probit estimates Vote Leave

<i>Dep. var.: Prob(Leave)</i>	Wave 8					
	(1) No controls	(2) Socio- demographics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Additional controls
DGI-10 standardized score	0.071*** (0.011)	0.060*** (0.011)	0.061*** (0.012)	0.067*** (0.012)	0.084*** (0.018)	0.103*** (0.022)
Female		-0.111*** (0.022)	-0.112*** (0.022)	-0.135*** (0.023)	-0.098*** (0.037)	-0.119** (0.048)
Age		0.023*** (0.005)	0.025*** (0.005)	0.024*** (0.005)	0.028*** (0.009)	0.035*** (0.013)
Age <sup>2</sup>		-0.000** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000** (0.000)	-0.000* (0.000)
Immigrant		-0.434*** (0.042)	-0.407*** (0.044)	-0.402*** (0.044)	-0.409*** (0.058)	-0.319*** (0.076)
<i>Marital status (ref. married)</i>						
Divorced		0.068* (0.041)	0.076* (0.041)	0.086** (0.041)	0.120** (0.060)	0.115 (0.072)
Separated		0.013 (0.086)	0.023 (0.086)	0.050 (0.086)	0.073 (0.108)	0.039 (0.134)
Widowed		-0.082* (0.049)	-0.069 (0.049)	-0.081* (0.049)	0.289** (0.129)	0.249 (0.157)
Single		-0.029 (0.031)	-0.013 (0.031)	0.008 (0.031)	-0.030 (0.040)	-0.046 (0.050)
Educational attainment		-0.080*** (0.006)	-0.076*** (0.006)	-0.073*** (0.006)	-0.115*** (0.011)	-0.107*** (0.014)
Equivalent income / 1000		-0.064*** (0.013)	-0.063*** (0.013)	-0.062*** (0.013)	-0.032** (0.013)	-0.071*** (0.019)
Home ownership		-0.215*** (0.029)	-0.230*** (0.029)	-0.220*** (0.029)	-0.152*** (0.041)	-0.160*** (0.051)
Children		0.055* (0.030)	0.058* (0.030)	0.049 (0.030)	0.022 (0.037)	-0.008 (0.047)
Care giving		0.091** (0.043)	0.091** (0.043)	0.083* (0.044)	-0.023 (0.071)	0.055 (0.091)
Long-term health problem		0.039* (0.023)	0.030 (0.024)	0.045* (0.024)	0.072** (0.034)	0.079* (0.042)
<i>Employment status (ref. paid job)</i>						
Self-employed		0.060 (0.040)	0.048 (0.040)	0.065 (0.040)		
In education		0.003 (0.116)	0.080 (0.116)	0.108 (0.116)		
Unemployed		0.155** (0.077)	0.169** (0.078)	0.173** (0.078)		
Retired		0.101*** (0.038)	0.097** (0.039)	0.118*** (0.039)		
Other		0.203*** (0.044)	0.198*** (0.045)	0.211*** (0.045)		
NUTS2 region fixed effect			yes	yes	yes	yes
<i>Traits (ref. medium level)</i>						
Highly neurotic				0.003 (0.040)	-0.005 (0.056)	0.019 (0.070)
Lowly neurotic				0.067*** (0.024)	0.048 (0.033)	0.049 (0.041)

To be continued on the next page.

<i>Dep. var.: Prob(Leave)</i> <i>(ctd.)</i>	Wave 8					
	(1)	(2)	(3)	(4)	(5)	(6)
	No controls	Socio- demographics	Region FE	Traits	Employed sample	Additional controls
Highly open				-0.116*** (0.030)	-0.124*** (0.041)	-0.115** (0.053)
Lowly open				0.161*** (0.026)	0.123*** (0.035)	0.133*** (0.044)
Highly agreeable				0.064** (0.031)	0.048 (0.044)	0.002 (0.056)
Lowly agreeable				0.090*** (0.025)	0.132*** (0.034)	0.106** (0.043)
Highly extraverted				-0.007 (0.030)	0.000 (0.041)	-0.039 (0.052)
Lowly extraverted				-0.099*** (0.026)	-0.103*** (0.036)	-0.103** (0.046)
Highly conscientious				0.126*** (0.032)	0.172*** (0.043)	0.194*** (0.055)
Lowly conscientious				-0.099*** (0.025)	-0.111*** (0.035)	-0.145*** (0.043)
Part-time job					0.008 (0.039)	0.060 (0.048)
Irregularly employed					-0.005 (0.069)	-0.011 (0.093)
Leadership position					-0.167*** (0.033)	-0.185*** (0.041)
<i>Industry (ref. public admin.)</i>						
Retail					0.164** (0.070)	0.136 (0.084)
Construction					0.305*** (0.091)	0.178 (0.125)
Agriculture					-0.006 (0.149)	0.072 (0.230)
Manufacturing, mining, energy, water, waste					0.152** (0.071)	0.140* (0.085)
Logistics					0.237*** (0.091)	0.202* (0.110)
Other services					0.026 (0.072)	0.009 (0.090)
Professional services					-0.200*** (0.067)	-0.195** (0.082)
Agency services					-0.163 (0.153)	-0.338* (0.191)
Health and social services					-0.017 (0.064)	0.043 (0.076)
Education					-0.282*** (0.069)	-0.304*** (0.080)
Company size (scale 0-3)					-0.052*** (0.016)	-0.072*** (0.020)
Unemployment, last three years (in years)						0.008 (0.052)
Gross hourly wage						-0.000 (0.000)
Highly risk-averse (ref. medium level)						-0.088 (0.060)
Lowly risk-averse (ref. medium level)						0.020 (0.043)
Number of observations	18,390	18,390	18,390	18,390	10,089	6,443

Source: UKHLS, waves 8 (2016-2018).

Note: The table displays population-weighted probit estimates of preferring 'Leave' to 'Remain'.

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

Table B4.2. Marginal effects Vote Leave

<i>Dep. var.: Prob(Leave)</i>	Wave 8					
	(1) No controls	(2) Socio- demographics	(3) Region FE	(4) Traits	(5) Employed sample	(6) Additional controls
DGI-10 standardized score	0.028*** (0.004)	0.024*** (0.005)	0.024*** (0.005)	0.027*** (0.005)	0.032*** (0.007)	0.039*** (0.008)
Female		-0.044*** (0.009)	-0.044*** (0.009)	-0.054*** (0.009)	-0.038*** (0.014)	-0.045** (0.018)
Age		0.009*** (0.002)	0.010*** (0.002)	0.009*** (0.002)	0.011*** (0.004)	0.014*** (0.005)
Age <sup>2</sup>		-0.000** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000** (0.000)	-0.000* (0.000)
Immigrant		-0.172*** (0.017)	-0.161*** (0.017)	-0.159*** (0.018)	-0.158*** (0.022)	-0.122*** (0.029)
<i>Marital status (ref. married)</i>						
Divorced		0.027* (0.016)	0.030* (0.016)	0.034** (0.016)	0.046** (0.023)	0.044 (0.028)
Separated		0.005 (0.034)	0.009 (0.034)	0.020 (0.034)	0.028 (0.042)	0.015 (0.051)
Widowed		-0.033* (0.019)	-0.027 (0.019)	-0.032* (0.019)	0.111** (0.050)	0.095 (0.060)
Single		-0.011 (0.012)	-0.005 (0.012)	0.003 (0.012)	-0.011 (0.015)	-0.018 (0.019)
Educational attainment		-0.032*** (0.002)	-0.030*** (0.002)	-0.029*** (0.002)	-0.044*** (0.004)	-0.041*** (0.005)
Equivalent income / 1000		-0.026*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)	-0.012** (0.005)	-0.027*** (0.007)
Home ownership		-0.085*** (0.012)	-0.091*** (0.012)	-0.087*** (0.012)	-0.059*** (0.016)	-0.061*** (0.020)
Children		0.022* (0.012)	0.023* (0.012)	0.019 (0.012)	0.009 (0.014)	-0.003 (0.018)
Care giving		0.036** (0.017)	0.036** (0.017)	0.033* (0.017)	-0.009 (0.027)	0.021 (0.035)
Long-term health problem		0.016* (0.009)	0.012 (0.009)	0.018* (0.009)	0.028** (0.013)	0.030* (0.016)
<i>Employment status (ref. paid job)</i>						
Self-employed		0.024 (0.016)	0.019 (0.016)	0.026 (0.016)		
In education		0.001 (0.046)	0.032 (0.046)	0.043 (0.046)		
Unemployed		0.062** (0.030)	0.067** (0.031)	0.069** (0.031)		
Retired		0.040*** (0.015)	0.039** (0.015)	0.047*** (0.015)		
Other		0.080*** (0.018)	0.079*** (0.018)	0.084*** (0.018)		
NUTS2 region fixed effect			yes	yes	yes	yes
<i>Traits (ref. medium level)</i>						
Highly neurotic				0.001 (0.016)	-0.002 (0.022)	0.007 (0.027)
Lowly neurotic				0.027*** (0.009)	0.018 (0.013)	0.019 (0.016)

To be continued on the next page.

<i>Dep. var.: Prob(Leave)</i> ( <i>ctd.</i> )	Wave 8					
	(1)	(2)	(3)	(4)	(5)	(6)
	No controls	Socio- demographics	Region FE	Traits	Employed sample	Additional controls
Highly open				-0.046*** (0.012)	-0.048*** (0.016)	-0.044** (0.020)
Lowly open				0.064*** (0.010)	0.047*** (0.014)	0.051*** (0.017)
Highly agreeable				0.025** (0.012)	0.018 (0.017)	0.001 (0.021)
Lowly agreeable				0.036*** (0.010)	0.051*** (0.013)	0.041** (0.016)
Highly extraverted				-0.003 (0.012)	0.000 (0.016)	-0.015 (0.020)
Lowly extraverted				-0.039*** (0.010)	-0.040*** (0.014)	-0.039** (0.017)
Highly conscientious				0.050*** (0.013)	0.066*** (0.017)	0.074*** (0.021)
Lowly conscientious				-0.039*** (0.010)	-0.043*** (0.013)	-0.055*** (0.017)
Part-time job					0.003 (0.015)	0.023 (0.018)
Irregularly employed					-0.002 (0.027)	-0.004 (0.035)
Leadership position					-0.064*** (0.013)	-0.071*** (0.016)
<i>Industry (ref. public admin.)</i>						
Retail					0.063** (0.027)	0.052 (0.032)
Construction					0.118*** (0.035)	0.068 (0.048)
Agriculture					-0.002 (0.058)	0.027 (0.088)
Manufacturing, mining, energy, water, waste					0.058** (0.027)	0.053* (0.032)
Logistics					0.091*** (0.035)	0.077* (0.042)
Other services					0.010 (0.028)	0.004 (0.034)
Professional services					-0.077*** (0.026)	-0.074** (0.031)
Agency services					-0.063 (0.059)	-0.129* (0.073)
Health and social services					-0.006 (0.025)	0.016 (0.029)
Education					-0.109*** (0.026)	-0.116*** (0.031)
Company size (scale 0-3)					-0.020*** (0.006)	-0.028*** (0.007)
Unemployment, last three years (in years)						0.003 (0.020)
Gross hourly wage						-0.000 (0.000)
Highly risk-averse (ref. medium level)						-0.034 (0.023)
Lowly risk-averse (ref. medium level)						0.008 (0.016)
Number of observations	18,390	18,390	18,390	18,390	10,089	6,443

Source: UKHLS, waves 8 (2016-2018).

Note: The table displays marginal effects (at means) of population-weighted probit estimates of preferring 'Leave' (mean = 46.2%) to 'Remain'. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Robust standard errors in parentheses.

Table B5. Multinomial model UK, sample of employees

	Conservatives	Labour	Lib Dems	Greens	Other parties
<i>Baseline: Prob(UKIP/BNP)</i>					
Impatience	0.812*** (0.042)	0.924 (0.047)	0.858** (0.057)	0.756*** (0.059)	1.081 (0.190)
Socio-demographics	yes	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes	yes
Traits	yes	yes	yes	yes	yes
Observations	8,250	8,250	8,250	8,250	8,250

Source: UKHLS, wave 5 (2013-2015).

Note: The table displays relative ratios of the probability of preferring the party mentioned in the column header and the probability of preferring UKIP/BNP. They are based on population-weighted estimates of a multinomial logistic regression. Socio-demographics include gender, age, age<sup>2</sup>, migrant background, marital status, education, equivalent income, home ownership, long-term health problem, children/care recipients in household, and employment status. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, and openness. Job characteristics are gross hourly wage, leadership position, sector of industry, tenure, company size, part-time employment, and irregular employment. Robust standard errors in parentheses, \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

## Appendix C: Additional tables (both countries)

Table C1. Savings, time preference and voting

	Germany		United Kingdom	
	(1) Prob(Saver)	(2) Prob(AfD/NPD)	(3) Prob(Saver)	(4) Prob(UKIP/BNP)
Impatience score	-0.012** (0.006)			
DGI-10 score			-0.049*** (0.004)	
Saver		-0.011** (0.005)		-0.015*** (0.005)
Socio-demographics	yes	yes	yes	yes
Region fixed effects	yes	yes	yes	yes
Observations	13,142	10,976	23,103	19,111

Source: SOEP waves 31 (2013), 32 (2014) / UKHLS, wave 5 (2013-2015).

Note: The table displays population-weighted probit estimates of saving money in columns (1) and (3) and of the probability to vote for/prefer a populist party in columns (2) and (4). Socio-demographics include gender, age, age<sup>2</sup>, migrant background, marital status, education, equivalent income, home ownership, long-term health problem, children/care recipients in household, and employment status. Region fixed effects are measured at the NUTS2 level. Traits cover neuroticism, extraversion, agreeableness, conscientiousness, and openness. Job characteristics are gross hourly wage, leadership position, sector of industry, tenure, company size, part-time employment, and irregular employment. Standard errors clustered at household level. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .