

Automation, Culture, and Vote Choice

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Abstract

How does revolutionary technological change translate into the political arena? Over the last two decades, we have seen an important restructuring of employment relationships in post-industrial societies, and technological change is widely considered one of the main drivers of these transformations. The emerging literature in political economy has shown that exposure to automation makes individuals more likely to support radical right parties. However, the extant works have not yet identified the mechanisms linking exposure to automation and political behavior. In this paper, I explore the potential mechanisms, focusing on the interplay between economic and cultural factors. Using mediation analysis and survey data from the European Social Survey (2012-2016) for thirteen European countries, I present evidence that outgroup threat and nostalgic sentiments mediate the effects of technological change on support for radical right parties and political disengagement. My findings have important implications for understanding the links between structural change in labor markets, cultural backlash, and political inequality.

Keywords: automation, cultural grievances, nostalgia, xenophobia.

1 Introduction

In periods of important economic change and distress, it has been well documented the changes in individuals' existential or societal threats ([Barauskaitė, Gineikienė, and Fennis, 2022](#); [Routledge et al., 2008](#)), as well as the increase of nativism ([Goldstein and Peters, 2014](#); [Bukowski et al., 2017](#)). Political psychologists have shown how economic anxiety can diminish prosocial feelings ([Granulo, Fuchs, and Puntoni, 2019](#); [Festinger, 1954](#)), and triggers outgroup threats ([Brader, Valentino, and Suhay, 2008](#)) or nostalgia ([Zhou et al., 2013](#)). My work contributes by focusing on one of the main drivers of structural changes in the labor market since the mid-1990s, technological change ([Autor, Katz, and Kearney, 2006](#); [Goos and Manning, 2007](#); [Goos, Manning, and Salomons, 2009](#); [Autor, 2013b, 2015](#)). This phenomenon, for example, accounts for about 50-70% of the changes in the US wage

structure (Acemoglu and Restrepo, 2022). While the relationship between economic and cultural factors is well explored for several disciplines, its interplay is still unexplored when analyzing the recent wave of automation and its political consequences.

Although there is a growing research agenda unpacking the political consequences of technological change, most of these debates have exclusively centered on the role of economic factors. For instance, previous work documents the link between losers of automation and political choices against the status quo (e.g. Frey, Berger, and Chen, 2017; Owen, 2019; Gingrich, 2019; Im et al., 2019; Milner, 2021b; Kurer and Palier, 2019; Autor et al., 2020), as well as support for the establishment and status quo among ordinary winners (Gallego, Kurer, and Scholl, 2021). A few exceptions looking at non-economic consequences incorporate its effect on social status (Kurer, 2020) and attitudes toward immigration (Gamez-Djokic and Waytz, 2020; Kaihovaara and Im, 2020; Wu, 2022a,b).

However, previous work has not yet unpacked the mechanisms for which automation translates to vote choices. For instance, we still do not know why losers increase their support to radical right populists instead of radical left ones. Moreover, there are mixed results regarding automation effects on redistribution preferences (e.g. Thewissen and Rueda, 2019; Cavaille, 2014; Zhang, 2022; Gallego, Kurer, and Scholl, 2021; Dermont and Weisstanner, 2020). Additionally, the few efforts to incorporate cultural factors into the analysis lack an integrated framework to explain how economic and cultural change interrelate to shape the political arena.

I contribute to this debate by asking how and to what extent exposure to technological change affects individuals' political choices. I argue we should incorporate the role of culture in our analysis. I also extend previous works by including the study of feelings of nostalgia, a coping mechanism to alleviate the insecurity generated by the structural transformations in the labor market. In particular, I propose a mechanism linking automation and voting behavior: cultural grievances, by which I refer to changes in attitudes and values after feeling threatened. To put it plainly, automation alters job opportunities and stability generating personal and societal (relative to others) insecurities, which translate into negative attitudes toward outgroups and nostalgia about the past. Both cultural grievances make people more politically disengaged and more likely to be appealed to by candidates espousing anti-immigration and nostalgic rhetoric, common among radical right populists.

My analysis yields three main results. First, looking at automation's effects on cultural grievances, I confirm previous work about the increase in hostility toward immigrants and present new evidence of the rise of nostalgic feelings. Second, I argue that economic and cultural factors are interrelated and should be analyzed together (Margalit,

2019; Colantone, Ottaviano, and Stanig, 2021). I use this framework to explore the mechanisms to explain why the losers of automation are the reservoir of populist right parties. I present evidence of the linkages between cultural grievances and voting behavior, which I finally formalize empirically using causal mediation analysis. Third, I examine automation's effects on political disengagement, which potentially could also explain the rise of populism. These results are robust to different operationalization of the exposure to automation, based on current occupation (Frey and Osborne, 2017), or predicted probability based on other characteristics, and regional robot exposure (Anelli, Colantone, and Stanig, 2021). They are also robust to the inclusion of several potential confounders at the individual and regional levels.

My work help to understand the previously documented relationship between exposure to automation and support for the radical right (Im et al., 2019; Frey, Berger, and Chen, 2017; Autor et al., 2020). It also contributes to a small but growing literature analyzing the relationship between economic hardship and culture (e.g. Ballard-Rosa, Scheve, and Jensen, 2021; Colantone and Stanig, 2018; Green, Hellwig, and Fieldhouse, 2022; Carreras, Irepoglu Carreras, and Bowler, 2019; Hays, Lim, and Spoon, 2019; Baccini and Weymouth, 2021; Gidron and Hall, 2017a). For instance, considering the interplay between economic factors (e.g., trade or deindustrialization) with cultural factors as moderators, we see works analyzing symbolic non-material factors and race (Sabet, 2016; Baccini and Weymouth, 2021). Regarding works considering culture as endogenous, important examples of trade's effects and the interplay with xenophobia or authoritarianism are Hays, Lim, and Spoon (2019), and Ballard-Rosa, Scheve, and Jensen (2021). An example of long-term economic distress is the work by Carreras, Irepoglu Carreras, and Bowler (2019). I engage with these works by focusing on the interplay between different economic phenomena, technological change, and cultural beliefs as a pathway to understanding changes in individuals' vote choices. Unlike other economic phenomena that have been studied before, automation has the particularity of creating new losers that were middle-class members, generating a hollowing out the middle (Kurer and Palier, 2019; Jaimovich and Siu, 2019). The middle class is a sizeable electoral group,¹ and the changes in their political behavior (e.g., radicalization or disengagement) are essential to understand the changes in party systems and the democratic system more generally (e.g. Lipset, 1959; Moore, 1966; Boix, 2003; Acemoglu, Acemoglu, and Robinson, 2006).

The rest of my paper is organized as follows. I first define and discuss the relevance of technological change. Section 3 presents my theoretical framework and hypotheses. I

¹They are about 25%–30% of the workforce in advanced capitalist democracies, and estimations of automated jobs suggest that a bigger proportion is at risk (e.g., 47% of the US workforce).

then explain my empirical strategy, which relies on several waves of the European Social Survey (ESS). I present evidence of the relationship between automation exposure and cultural grievances. Later, I evaluated the role of culture as a pathway of automation to politics using causal mediation analysis. Before the concluding section, I present illustrations of populist rhetoric and the use of anti-immigration and nostalgia.

2 Technological Change and Politics

Over the last two decades, we have seen an important restructuring of employment relationships in post-industrial societies. Technological change is the main driver of these transformations ([Anelli, Colantone, and Stanig, 2021](#); [Milner, 2021a,b](#); [Acemoglu and Restrepo, 2021](#)). Starting in mid 1990s a significant advance in robotic technology started, which scholars named the automation shock (e.g. [Acemoglu and Restrepo, 2020](#); [Anelli, Colantone, and Stanig, 2019](#)). Data from the International Federation of Robotics (IFR) documents the abrupt rise in the stock of (industrial) robots in the United States and western Europe since 1993.² According to [Acemoglu and Restrepo \(2021\)](#) automation's displacement effects account for at least 50% of the changes in the US wage structure. Moreover, estimations regarding the computerization of jobs, and its translation to employment for the US, for instance, suggest that 47% ([Frey and Osborne, 2017](#)) of jobs are at high risk of automation.

The threat of automation has not seemed to go unnoticed by citizens. Millions of workers worldwide fear that robots will replace their jobs. For instance, the special issue of the Eurobarometer in 2017 shows that three-quarters of Europeans consider that due to robot and artificial intelligence incorporation, jobs are at risk of disappearance (more jobs will be destroyed than new ones created). Moreover, about 72% of respondents agree that robots and artificial intelligence steal people's jobs and 44% estimate that their current jobs will possibly be at least partially automated.

Automation, the increase of tasks that can be developed by capital ([Acemoglu and Restrepo, 2018a](#)), has two sides. One type of technological change implies displacement effects, in which old tasks set by workers can now be automated (e.g., [Acemoglu and Restrepo, 2019, 2018a](#)). Another type refers to the creation of new tasks that did not exist before, named reinstatement effects (e.g., [Acemoglu and Restrepo, 2019](#)). Thus, automation generates a large group of losers and new winners. To put it plainly, the consequences of automation are routine- and capital-biased (e.g. [Autor, 2013a](#); [Acemoglu and Restrepo, 2018b](#); [Dauth et al., 2018](#); [Graetz and Michaels, 2018](#); [Kurer and Gallego, 2019](#)). This phe-

²See also [Acemoglu and Restrepo \(2020\)](#)

nomenon is known as job polarization, which means that in occupations where machines cannot execute tasks –non-routine– wages and employment have grown faster than in occupations where labor can be replaced by machines.³

Routine occupations mainly refer to middle-skill and middle-wage jobs prevalent in blue- and white-collar sectors (i.e., manufacturing, administration). For example, an accountant specializing in taxes can now be replaced by tax filing software (e.g., Sprintax) or a truck driver by driverless vehicles. This affected group of workers represents a hollowing out of the middle class instead of just a decline of poor individuals (e.g., [Kurer and Palier, 2019](#); [Jaimovich and Siu, 2019](#)). These labor market changes and their unequal consequences will likely have multiple political implications.

There is a growing literature on political science that has focused on voters at the losing side of the technological change transformation and linking them with political choices against the status quo (e.g., [Frey, Berger, and Chen, 2017](#); [Owen, 2019](#); [Gingrich, 2019](#); [Im et al., 2019](#); [Kurer, 2020](#); [Milner, 2021b](#); [Colantone, Ottaviano, and Stanig, 2021](#); [Anelli, Colantone, and Stanig, 2019](#)). However, the mechanisms for which automation translates to vote choices have not been well established. In this work, I contribute by looking at the interplay between automation and cultural grievances (outgroup threats and nostalgia) to affect the support for right populist parties and political disengagement. The following section presents my argument.

3 A Cultural Path from Automation to Radical Right Populism and Disengagement

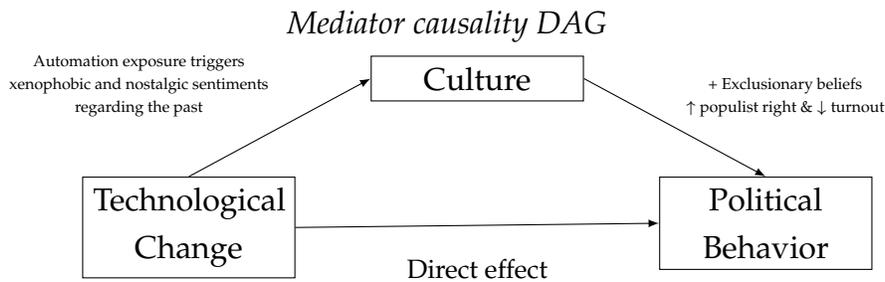
A recent psychological experiment shows that when job losses affect other people, individuals prefer human workers to be replaced by other human workers rather than robots ([Granulo, Fuchs, and Puntoni, 2019](#)). However, when subjects face the dilemma of their own job loss, individuals prefer to be replaced by robots. These results are puzzling. Why do individuals forget their prosocial feelings (preference toward humans) when contemplating their job prospects? A possible explanation is status threat and desire for stability. If a human replaces “you”, then someone else is stealing “your job” and doing better than you. Another work by [Anelli, Giuntella, and Stella \(2021\)](#) shows that robot exposure is associated with a reduction in marriage rates, an increase in divorces, and a reduction in fertility. While [O’Brien, Bair, and Venkataramani \(2022\)](#) link automation with the increase of working-mortality for “despair.” These three studies are examples of the potential

³See [Autor, Katz, and Kearney \(2006\)](#); [Goos and Manning \(2007\)](#); [Goos, Manning, and Salomons \(2009\)](#); [Autor \(2013a, 2015\)](#)

non-economic consequences of exposure to automation risks. I build on them to propose a cultural pathway of the relationship between technological change and political behavior.

I examine how exposure to automation risks may influence voting behavior by making more likely to support populist right parties and to consider abstention. I argue that the threat of losing the job can incite changes in cultural beliefs, influencing political response. As previous scholars have argued, populist right candidates provide a representation channel to individuals with cultural grievances due to the fear of social change. Individuals’ job conditions are important determinants of feelings of insecurity (or stability), and as [Inglehart \(2018\)](#) argues, “economic and physical insecurity are conducive to xenophobia, strong in-group solidarity, authoritarian politics and rigid adherence to their group’s traditional cultural norms” (p.8). In particular, ‘status anxiety’ could play a key role on vote choice decisions ([Kurer, 2020](#); [Gidron and Hall, 2017b](#)).

The following diagram presents the cultural pathway from automation to radical right populism and disengagement. I propose two paths: outgroup threats and nostalgia. I argue that individuals exposed to automation risks are more likely to perceive immigrants as an economic and cultural threat and to hold nostalgic sentiments about a better past. In this section, I describe these paths, which are informed by previous psychology and voting behavior theories.



3.1 Outgroup Threat: Xenophobia

Theories explaining attitudes toward outgroups have demonstrated that people under discomfort and threat may blame social outgroups ([Allport, 1954](#); [Glick, 2005](#)). This mechanism helps them to restore a sense of personal control ([Bukowski et al., 2017](#)). Technological change, in particular, robot incorporation in the working space, can increase the exposure to risks and fears of losing the job. Figure 3 in the appendix shows that workers with higher automation risks are more likely to have concerns about losing jobs, fears about difficulties in finding a new job, job insecurity, and be more unsatisfied with their work.

As experimentally demonstrated by [Granulo, Fuchs, and Puntoni \(2019\)](#), fear about subjects' work may depress prosocial feelings triggering social comparison and status threat. Thus, I posit that automation may trigger outgroup threats.

Past work has well documented that economic threat associated with economic decline, natural disasters, and unemployment generate outgroup hostility (e.g. [Andrighetto et al., 2016](#); [Brambilla and Butz, 2013](#); [Gamez-Djokic and Waytz, 2020](#); [Hepworth and West, 1988](#); [Hovland and Sears, 1970](#)). When people face scarcity, such as job scarcity, self-perceptions about individuals' worth and others' worth may change, generating more pro-discriminatory behavior as justification for preference to withhold the scarce resources ([Krosch and Amodio, 2014](#)). In particular, individuals from economically depressed regions ([Hernes and Knudsen, 1992](#)), low-skilled ([Scheve and Slaughter, 2001](#)), or from shrinking sectors ([Dancygier and Donnelly, 2013](#)) can perceive immigrants as a threat for their jobs, and develop anti-immigrants attitudes. Along these lines, [Carreras, Irepoglu Carreras, and Bowler \(2019\)](#) link long-term economic decline with xenophobic attitudes and support for the UK's Brexit referendum.

My argument builds on the nascent group of scholars studying automation and attitudes toward immigration, who hold that individuals exposed to automation risks have more xenophobic attitudes ([Kaihovaara and Im, 2020](#); [Gamez-Djokic and Waytz, 2020](#); [Wu, 2022a](#)). [Gamez-Djokic and Waytz \(2020\)](#) explain the hostility toward immigrants as a result of realistic (scarcity of resources) and symbolic (status change) intergroup threat. [Wu \(2022a\)](#) explains it as misattribution of blame, and presents evidence of an increase of support for policies that restrict foreign workers [Wu \(2022b\)](#). Interestingly, [Liu and Portes \(2021\)](#) document that US regions with greater availability of cheap foreign workers, such as low-skill immigrants from Latin America, are associated with lower rates of workers replaced by robots.

I contribute to extant works by closing the cycle from automation to political behavior. Unlike previous scholars assuming blame misattribution or voter ignorance ([Wu, 2022a](#); [Mansfield and Mutz, 2013](#)), I consider there are good reasons for citizens to feel threatened by the scarcity of jobs. Thus, they may develop xenophobic predispositions, affecting their voting decisions and making them more likely to support candidates who validate their status threat concerns by espousing anti-immigration rhetoric, such as populist right parties. Moreover, these insecurities expressed as outgroup threats may also affect individuals' self-perception of efficacy and self-esteem ([Marx and Nguyen, 2016](#); [Beesley and Bastiaens, 2020a](#)), which may generate greater apathy toward political participation.

3.2 Nostalgia

Technological change is the primary driver of the re-structuring of employment relationships in post-industrial societies (Anelli, Colantone, and Stanig, 2021). These critical changes may question the current way of life and society's values. For instance, middle-class workers who had not been directly affected by other economic shocks, such as globalization, are now beginning to fear their replacement by machines. In periods of dramatic social change, nostalgic sentiments regarding a safe and familiar past may arise as a mechanism to bring comfort (Brown, Kozinets, and Sherry, 2003).

Research on the origins of nostalgia explains it on people's discontent, anxiety, fear, and uncertainty (Davis, 1979). It is also related to current life overall dissatisfaction (Hirsch, 1992). Elliot (2009) documents that in times of anxiety (e.g., during economic recessions), individuals seek nostalgic feelings to soothe uncertainty. For instance, Barauskaitė, Gineikienė, and Fennis (2022) document their thesis "saved by the past" about how the Covid-19 disease threat triggered nostalgic consumption. Automation and the threat of job loss may generate personal insecurity (worrisome about job stability) and social anxiety (in relation to others that may not be as exposed). Under these individual and societal insecurities, nostalgic consumption may provide a way to cope with these threats (Routledge et al., 2008; Wildschut et al., 2006; Barauskaitė, Gineikienė, and Fennis, 2022).

Past research on nostalgia consumption concludes that it alleviates insecurities by providing feelings of familiarity and stability (Hart, Shaver, and Goldenberg, 2005; Rindfleisch, Burroughs, and Wong, 2009). Zhou et al. (2013) describe nostalgia as a "self-protection" and "self-enhancement" strategy, helping to fulfill the desire to maintain social status. It can also increase feelings of belonging (Wildschut et al., 2006) and psychologically soothing threatening experiences (Sedikides, Wildschut, and Baden, 2004).

I argue that automation is a relevant social change related to workers' job conditions, especially for affecting a new group of losers, the middle class. These changes may trigger the need for safety and generate nostalgic sentiments. I consider that these nostalgic feelings are related to job security rather than anti-technology (given the acceptance of technology devices in individuals' daily life). This need for safety and to re-establish hierarchies of the past meet populist right rhetoric associated with a bittersweet feeling about the past (van Prooijen et al., 2022; Mutz, 2018). Along these lines, previous studies link nostalgic deprivation, and societal pessimism with the support for radical right (e.g., Steenvoorden and Harteveld, 2018; Gest, Reny, and Mayer, 2018; de Vries and Hoffmann, 2018). Based on these scholars, it seems reasonable that individuals exposed to automa-

tion risks may develop nostalgic sentiments and desire for nostalgic consumption, which in the political arena finds nostalgic providers in politicians romanticizing previous economy and cultural status quo such as Trump claiming “make America great again” or the UKIP with its slogan “take back control.” Concerning participation, existing works have shown that economic losers (e.g., due to globalization, unemployment) have a lower sense of purpose about the present and future [Beesley and Bastiaens \(2020b\)](#); [Marx and Nguyen \(2016\)](#); [Solt \(2008\)](#). Nostalgic feelings can then question current political actors, exacerbating political disengagement.

To sum up, this paper’s main contribution is to show that cultural predispositions and attitudes such as xenophobia and nostalgia are endogenous to economic threats such as automation risks. A structural change in the dimensions of this automation wave will generate individuals’ personal and societal insecurities, finally affecting people’s voting choices. Following the stated literature, I expect the following empirical implications about the direct relationship between automation and cultural beliefs:

Hypothesis 1. *Outgroup threats:* *Individuals who are more exposed to technological change are more likely to hold anti-immigration attitudes.*

Hypothesis 2. *Nostalgia:* *Individuals who are more exposed to technological change are more likely to have nostalgic sentiments about the past.*

Then, I hypothesize that cultural beliefs mediate part of automation risks’ effects on individuals’ vote choices:

Hypothesis 3. *Radical Right Populist:* *The effect of technological change on support for radical-right populist parties is mediated by xenophobic attitudes and nostalgic sentiments.*

Hypothesis 4. *Political Disengagement:* *The effect of technological change on political disengagement is mediated by xenophobic attitudes and nostalgic sentiments.*

4 Empirical Analysis

4.1 Data

I test my core hypotheses using the European Social Survey (ESS). I include waves 1-7 (2002-2016) for part of the analysis and only waves 6 and 7 for the mediation analysis. My sample includes thirteen West European countries: Austria, Belgium, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and

the United Kingdom. The ESS provides detailed information about respondents' occupations, which allows me to estimate the exposure to automation risks. I use the variable that contains the International Standard Classification of Occupations (ISCO-08 and ISCO-88) to build my independent variable. Since the 6th wave of the ESS contains occupations using ISCO-08. I converted this occupation to the classification using ISCO-88. The harmonization comes from [Thewissen and Rueda \(2019\)](#). I also attached to each subject the 2010 Standard Occupational Classification (SOC) based on the conversion provided by [Thewissen and Rueda \(2019\)](#).

My key independent variable is the exposure to technological change, which I approach using the measure developed by [Frey and Osborne \(2017\)](#) for the US case. They estimate occupations' probability of computerization using a Gaussian process classifier. According to [Frey and Osborne \(2017\)](#) "computerization is now spreading to domains commonly defined as non-routine" (p.258); their measure aims to capture these dynamics. For instance, tasks related to processing big data are associated with non-routine occupations, but now, new algorithms exist, and new technologies can automate even these complex tasks. Their measure, therefore, has the uniqueness of providing an estimation for what recent technological change is likely to mean for the future of employment. This measure ranges from 0 to 1, where 0 represents no probability of computerisation (e.g., recreational therapists), and 1 represents a fully computerizable task (e.g., telemarketers). Moreover, this measure is based on the task approach ([Autor, 2013a](#)), by which individual occupations and tasks have important consequences for workers' exposure to risks and economic well-being. This approach assumes that occupation characteristics are important determinants of which workers will be harmed (or benefited) by automation.

As a measure of automation exposure, I also incorporate a proxy for robot adoption into the models developed by [Anelli, Colantone, and Stanig \(2021\)](#). This measure combines individual vulnerability with changes in the stock of robots in the last two years, relying on data provided by the International Federation of Robotics (IFR). Moreover, I replicated the analysis with Anelli's et al. (2021) individual measure of automation exposure, which predicted the probabilities of automation based on individual characteristics and the pre-automation historical composition of employment at the occupation level.

My dependent variables are two dummies drawn from the ESS: support for radical right parties and turnout. The first one equals one if the preferred party is categorized as a radical-right party. This classification follows previous scholars' criteria. Examples of radical right parties in the sample are AfD (Germany), UKIP (United Kingdom), and the Front National (France). The second one, turnout, takes the value of 1 when the respondent voted in the last national elections and 0 otherwise (only among individuals

eligible to vote).

To explore how automation affects voting behavior, I look at individual-level proxies for “cultural grievances.” Thus, for the outgroup path (anti-immigration attitudes), I rely on three questions from the ESS that have been widely used to measure xenophobic attitudes (e.g., [Hays, Lim, and Spoon, 2019](#); [Carreras, Irepoglu Carreras, and Bowler, 2019](#)). The first question asks respondents about cultural threats, whether “country’s cultural life undermined or enriched by immigrants” (*imueclt*); the second one asks about the consequences for the economy, whether immigration is “bad or good for the country’s economy” (*imbgeco*). Finally, the third question asks whether immigrants “make the country worse or better place to live” (*imwbcnt*). These are 11-point scales ranging from 0, representing negative views about immigration (e.g., a worse place to live), to 10, representing positive views (e.g., better place to live). These questions represent relevant proxies for the outgroup threat since they cover attitudes toward immigration not just from an economic perspective but also considering cultural values.

Moreover, I rely on two questions capturing pessimistic views about the future and preference for the past for the nostalgic pathway. The first question asks respondents whether it is hard “to be hopeful about the future of the world” (*nhpftr*); the second question asks the level of agreement with the following sentence: “For most people in this country, life is getting worse” (*lfwrs*). The answer options range from (1) ‘agree strongly’ to (5) ‘disagree strongly.’ Prior works have used these survey questions to measure nostalgia (e.g., [Steenvoorden and Hartevelde, 2018](#)). Unfortunately, these questions are only available for the years 2006 and 2012.

The literature on political behavior discusses several other factors that may affect individuals’ vote choices. Following these scholars, I include in the model individual-level controls for age, sex, years of education, location, ethnic minority, employment characteristics (e.g. [Frey, Berger, and Chen, 2017](#); [Gingrich, 2019](#); [Thewissen and Rueda, 2019](#)). The model will also include changes in robot stocks, unemployment rate, and immigrant exposure at the regional level.

4.2 Methods

My analysis first replicates what previous scholars had documented about the relationship between automation risks and support for the radical right (e.g., [Im et al., 2019](#); [Frey, Berger, and Chen, 2017](#); [Gingrich, 2019](#); [Milner, 2021b](#)). Next, I examine the correlation between automation risks and participation in elections. Thirdly, this paper examines the direct relationship between exposure to automation and cultural grievances (**hypotheses**

1 and 2). All these models account for time-invariant regional characteristics by incorporating fixed effects by region (at the NUT2 level) and for idiosyncratic characteristics of elections by including country-year fixed effects. To evaluate the empirical relationship between automation risks and cultural grievances, I estimate a linear regression model that takes the following form:

$$Y_{ijr} = \beta_0 + \beta_1 \text{Automation Risk}_i + \beta_2 X_i + \gamma_r + \mu_j + \epsilon_{ijr} \quad (1)$$

where Y_{ijr} is the cultural grievances of individual i from region r and at country-year j ; Automation Risk_i is the probability of computerization from 0 (not computerizable at all) to 1 (fully computerizable); X_i captures various sociodemographic control variables; γ_r is a region-specific intercept capturing possible unobserved regional effects; μ_j is a country-year specific intercept capturing possible unobserved country-election effects; and ϵ_{it} is the error term. I expect β_1 to be negative since greater exposure to automation risks should be associated with less pro-immigration attitudes and less hopeful about the future.

After the patterns regarding **hypotheses 1 and 2** are established (i.e., exposure to automation risks triggers cultural grievances), the linkages of cultural grievances with vote choices are still pending. That is, we still need to prove whether cultural grievances are a causal mechanism through which automation risks translate into support for populist right parties and abstention (**hypotheses 3 and 4**). To do that, I estimate a causal mediation analysis incorporating the cultural pathway (outgroup and nostalgia) as mediators.

I follow the approach proposed by [Imai et al. \(2011\)](#), which allows us to disaggregate the average treatment effect (ATE) or total effect into the average causal mediation effect (ACME) and the average direct effect (ADE). While ATE is the average difference between the treated and untreated group, ACME is the proportion of this effect that moved through mediators.

The main challenge with the mediation analysis is that there is a strong assumption to consider: sequential ignorability ([Imai et al., 2011](#); [Keele, Tingley, and Yamamoto, 2015](#)). This assumption implies two conditions. First, conditional on the observed pretreatment covariates (e.g., age), the treatment (automation) is independent of the outcome and the mediator; second, the observed mediator (cultural grievances) should be independent of the outcomes conditioned in the observed treatment and pretreatment covariates. Unfortunately, the sequential ignorability assumption cannot be tested with observed data ([Imai, Keele, and Tingley, 2010](#); [Imai et al., 2011](#)). To address this assumption, I will include multiple pretreatment confounders such as gender, age, education, and regional and country-year characteristics in the model. Additionally, [Imai et al. \(2011\)](#) provide a

method for checking the estimations' sensitivity to potential violations of the sequential ignorability assumption, which I implement.

The model to be estimated regarding **hypotheses 3 and 4** is represented by the following system of equations (2 and 3). The first equation denotes the estimation of the effect of automation on the increase of outgroup predispositions and feelings of nostalgia. The outcomes of interest are two 1) whether or not an individual supports a populist far-right party, and 2) whether or not an individual voted in past elections. The treatment is exposure to technological change. The mediators are proxies for cultural grievances: outgroup threat (xenophobia) and nostalgia. Note that $Culture_i$ in the second equation comes from the first one.

$$Culture_{irj} = \beta_0 + \beta_1 Automation_i + X_i \beta_2 + \gamma_r + \mu_j + \epsilon_{irj} \quad (2)$$

$$Y_{irj} = \beta_0 + \beta_1 Culture_i + X_i \beta_2 + \gamma_r + \mu_j + \epsilon_{irj} \quad (3)$$

where Y_i represents the outcome of interest, that is, whether individual i supported a far-right party or voted in past national elections; $Automation_i$ is a proxy of the risk of computerization when looking at personal exposure; $Culture_i$ is a proxy for exclusionary attitudes, and nostalgia; X_i captures various control variables at the individual level such as gender, and age; γ_r and μ_j are intercepts capturing possible unobserved regional r or country-year j effects; and ϵ_{it} is the error term. My theoretical expectations are that there is a negative association between exposure to technological change and culture ($\beta_1 < 0$ in the first equation). In short, the more exposure, the lower the score in the pro-immigration questions and the lower the hope for the future. Then, from the second equation, when the outcome is the support for radical right populist parties, I expect outgroup threat and nostalgia to be positively related ($\beta_1 > 0$). Finally, when the dependent variable is turnout, I expect both mediators to negatively correlate with turnout ($\beta_1 < 0$).

4.3 Results

4.3.1 Automation, outgroup threat and nostalgia

I start with preliminary analyses replicating previous scholars' evidence about the relationship between automation and vote choices. Columns 1 and 2 of Table 1 confirm the argument of a turn against the political status quo. As individual exposure to automation increases, voters' probability of supporting a populist radical right party increases significantly while the probability of turnout decreases. For example, when the probability

of computerization is at its minimum value (0 for recreational therapists), the probability that the individual will vote for a populist party is .006. At the other extreme, when the probability of computerization is at its maximum value (1 for telemarketers), the probability of choosing a populist right candidate at the next election is 0.18. Regarding turnout, the probability of participating in the election drops from 0.91 (recreational therapists) to 0.65 (telemarketers). Figure 4 presents the predicted values for these outcomes.

Columns 3 to 5 of Table 1 present the test for the **Hypothesis 1**, which states that individuals more exposed to automation are more likely to feel threatened by outgroups, which I operationalized as holding more anti-immigration attitudes. These estimated relationships are substantively in line with my theoretical expectations. The negative coefficients denote that larger exposure to automation risks is associated with lower values regarding tolerance to immigrants. These results are consistent with the three operationalization regarding attitudes toward immigrants: cultural threat, economic threat, and general threat to the country. These estimates imply that if we compare the extremes of the distribution of risks (from 0 probability of computerization to 1), the increase in automation risk will lead to a decrease in an individual's predisposition to welcome immigrants in her culture, economy, and country by about 2.37 - 1.98 units. These results are consistent with previous works by [Kaihovaara and Im \(2020\)](#), [Gamez-Djokic and Waytz \(2020\)](#), and [Wu \(2022a\)](#). Figure 5 displays the marginal effects.

Next, **Hypotheses 2** posits that individuals more exposed to automation risks are more likely to develop nostalgic sentiments. Columns 6 and 7 of Table 1 present the estimated effects of automation risks on nostalgic feelings. I reject the null hypothesis of no relationship with 99% of confidence for both of the operationalization of nostalgia: life is getting worse and being hopeless about the future. The negative sign of the coefficients indicates that as individuals are more exposed, they have less hope for the future, developing nostalgic sentiments about the past. The estimated average effect for an increase in the probability of computerization of 1 point represents a 0.72-0.73 points decrease in the hope of a better future (5-point scale variable), that is, about a 14.6% increase of nostalgic sentiments.

The results are robust to various alternative specifications. I start by incorporating a regional-level additional explanatory variable: the changes in the exposure to robots operationalized as the variation in the previous three years of the number of robots per thousands of workers constructed by [Anelli, Colantone, and Stanig \(2021\)](#) with data from the International Federation of Robotics (IFR). Table 2 in the Appendix shows that results remain unchanged regarding individual exposure to risk. Moreover, regional exposure to robots also explains the increase of support for populist radical right parties with 90% of

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radical Right	Turnout	Culture	Economy	Live	Life Better	Hopeful
Frey & Osborne	3.503*** (0.231)	-1.764*** (0.127)	-2.376*** (0.100)	-2.315*** (0.094)	-1.987*** (0.095)	-0.718*** (0.052)	-0.735*** (0.058)
Demographic	✓	✓	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓	✓	✓
NUTS FE	✓	✓	✓	✓	✓	✓	✓
Observations	64440	141092	151296	150778	151615	44674	44923
$R^2(p)$	0.174	0.103	0.162	0.116	0.136	0.294	0.134
AIC	2.7e+04	1.3e+05	6.7e+05	6.6e+05	6.5e+05	1.2e+05	1.3e+05

Standard errors clustered by region-year in parentheses

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

Table 1: Automation, cultural attitudes, and vote choices.

Dependent variable: A) Support for populist radical right; B) Turnout; C) level of agreement with immigration as better for culture, economy and life. Answers range from “Not like me at all” (= 1) to “Very much like me” (= 10). D) level of agreement with “life is getting worse” and “hard to have hope about the future.” Answers range from “Agree strongly” (= 1) to “Disagree strongly” (= 5). Source: ESS (1-7) data.

confidence. Still, we fail to reject the null hypothesis regarding the relationship between changes in the stock of robots and participation in elections. Moreover, the increase of robots in the region also increases anti-immigration predispositions and nostalgic sentiments (columns 3-7).

Then, I add several control variables to the previous models that the literature on voting behavior considers may affect vote choices and individuals’ attitudes (e.g. Frey, Berger, and Chen, 2017; Gingrich, 2019; Thewissen and Rueda, 2019; Hays, Lim, and Spoon, 2019). At the individual level, I first add dummy variables for being foreign-born, living in a city (urban), and being an ethnic minority. Then, I incorporate three dummy variables about respondents’ experience in the labor market: i) unemployed, which takes the value of one if the respondent was unemployed at any time in the past year; ii) union membership, which indicates whether or not the respondent is unionized; iii) limited employment contract, which reflects some degree of precariousness in the linkages with the job.⁴ Finally, I incorporate into the models two additional regional-level variables: i) immigrant exposure, proxied as the proportion of foreign-born respondents in the region; and ii) regional unemployment, calculated as the share of unemployed respondents in the region. I expect respondents with greater precariousness in their labor market integration to be more likely to hold anti-immigration predispositions and nostalgic sentiments and support populist right candidates or abstain. Regarding the regional-level variables, while unemployment may increase anti-immigrant propensity and nostalgic views, the

⁴The results remain the same if we exclude employment variables, which arguably may also be post-treatment.

expectations regarding immigration exposure are less clear. Previous scholars have argued that it can decrease outgroup threat predispositions or exacerbate them (Inglehart, 2018; Norris, 2004).

Adding these additional control variables does not affect either substantively or significantly the estimations. Table 3 in appendix shows the results, which in all cases show support for hypotheses 1 and 2. Moreover, several of the control variables are also statistically significant. Women voters tend to be less likely to support populist right candidates, and they hold more pro-immigration attitudes regarding immigrants' impact on culture but more anti-immigration predisposition regarding economic and overall consideration of immigrants, as well as more nostalgia. These results are consistent with previous scholars arguing women are more protectionist (e.g., Betz and Fortunato, 2022). Other results that are consistent with previous scholars are that more years of education are associated with less cultural grievances (pro-immigration attitudes and less nostalgic sentiments), as well as less support for radical right parties and more participation; older respondents are more likely to be xenophobic, and nostalgic; foreign-born hold less hostile attitudes toward immigrants, and the future. Then, regarding labor market indicators, as expected, unemployed individuals have more anti-immigration attitudes and nostalgic sentiments. At the same time, union members and those with precarious contracts are more likely to be pro-immigrants but more nostalgic about a better past.

To assess that i) current occupations may mask past automation dynamics (e.g., a worker that has already been displaced) and ii) the interaction of individual and regional exposure, I re-estimate previous models using different specifications of the independent variable. I rely on the measure proposed by Anelli, Colantone, and Stanig (2021), which proxies automation risks based on the predicted probabilities for an individual to be occupied in high-automatability occupations and the incorporation of robots in an individual's region. Tables 4, and 5 (with and without control variables) show the estimations. Results remain unchanged. A one-SD increase in individual exposure to automation leads to a decrease of about 0.31-0.26 units regarding pro-immigration predisposition (10 points-scale) and a decrease of about 0.14-0.12 on nostalgic sentiments (5 points-scale).

Overall, these results (Table 1, and appendix Tables 2-5) provide robust evidence supporting the theoretical expectations: technological change generates changes in cultural beliefs. Those individuals more exposed to automation risks are more likely to hold hostile attitudes toward outgroups, particularly anti-immigrants, and are also more likely to feel nostalgic about a safer past. The question left is whether parts of automation's effects on voting behavior documented by previous scholars are mediated by cultural grievances (xenophobia and nostalgia), which I explore in the next section.

4.3.2 How does automation risks affect political choices?

To start exploring the relationship between cultural grievances and vote choices I estimate simple logistic models including my main independent variable, automation risks, several demographic control variables, and the mediators as alternative explanations for voting behavior (see Tables 6 and 7).⁵ All estimated coefficients are statistically significant and with the expected sign. These results in conjunction with the established in the previous section, shed some light in line with the theoretical expectations but are not enough evidence of a pathway from automation to voting behavior through cultural grievances. To do so, I implement a causal mediation analysis, in which the exposure to automation risks gives the treatment condition, the mediators are the proxies for cultural grievances (outgroup threat and nostalgia), and the outcomes of interest support for the radical right and participation in elections.

Figure 1 displays the average mediation causal effect (AMCE) for each one of the mediators. The blue (green) points indicate the point estimates for the outgroup (nostalgia) hypothesis, with their 95% confidence intervals generated using simulations from a robust variance-covariance matrix. On the left side, the figure shows the estimates for the support for the radical right. All these estimates are positive, and the null hypothesis of no relationship is rejected, which supports the **Hypothesis 3**. The magnitude of the mediated effects of automation on support for the populist right is an increase of about 3.5 percentage points (pp) through anti-immigration predisposition and about 1 pp through nostalgia. To put these results in context, Figure 2 presents the point estimates and confidence intervals for the average direct effect (ADE) of exposure to automation. Together ACME and ADE represent the average treatment effect (ATE) or total effect, which is about 15 pp for the outgroup models. Therefore, about a 30% of the causal effect of automation on support for the populist right is mediated by hostility toward immigrants. Then, regarding the nostalgic path (proxied as life is getting worse) 1.6 pp increase represents about 12% of the total effect of automation on support for the radical right. Thus, the mediated effect of cultural grievances is significant and sizable, which tells us the importance of understanding the interplay between economic and cultural phenomena.

On the right side of Figure 1 the point estimates indicate support for the **Hypothesis 4**, which states that outgroup threats and nostalgic sentiments mediate the effects of technological change on political disengagement. In this case, the AMCE for xenophobic inclinations and nostalgia is about the same, implying a decrease in the likelihood of turnout of 1.5-2 pp. The mediated effect regarding turnout is less sizeable than the medi-

⁵Tables 8 and 9 replicates similar models instrumenting robot exposure with robot adoption in other countries by [Anelli, Colantone, and Stanig \(2021\)](#). The results remain unchanged.

ated effect on the support for radical right parties. The proportion of the mediated effect is about 5.4% for all the proxies, except for anti-immigration predispositions regarding the economy at 8.1%. Figure 2 shows that the direct effect of automation is about 23 pp.

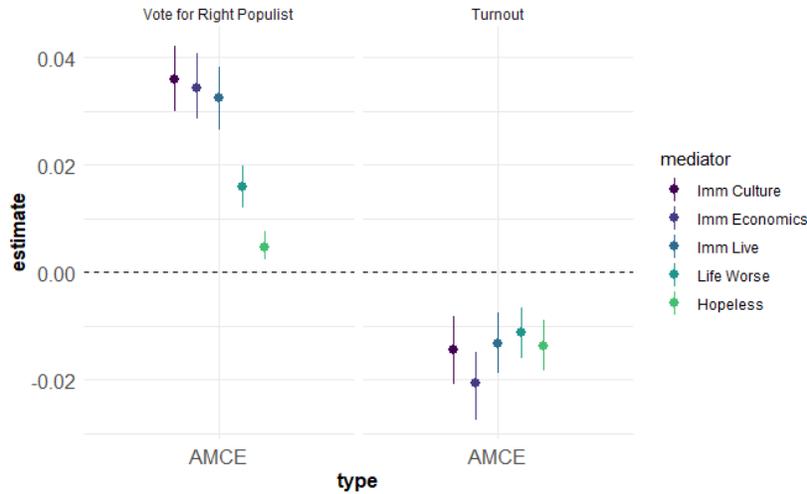


Figure 1: Mediated effect of automation through cultural beliefs on political behavior. Source: ESS 6-7

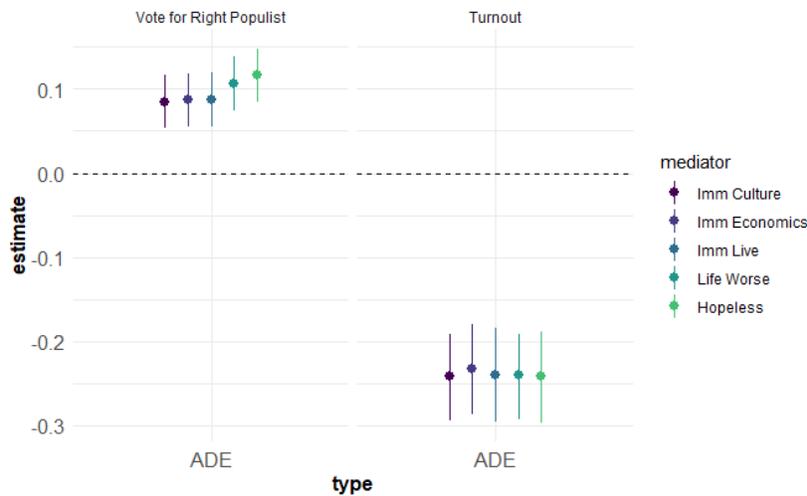


Figure 2: Direct effect of automation on political behavior. Source: ESS 6-7

To check the robustness of the results, I estimated four mediation models for each dependent variable varying i) the inclusion of pre-treatment variables (some or the full battery) and ii) using two operationalization of the independent variable: the probability of computerization provided by Frey and Osborne (2017), and the individual exposure to

automation measured by [Anelli, Colantone, and Stanig \(2021\)](#). Tables 10-17 present the results of the second stage of the mediated models. Results remain unchanged for all the model specifications, finding support for cultural beliefs as the mediator of the effects of automation on the support for populist right parties and decreasing turnout.

To assess the validity of the causal identification of the mediation analysis, I implement the sensitivity analysis proposed by [Hicks and Tingley \(2011\)](#); [Imai et al. \(2011\)](#); [Tingley et al. \(2014\)](#). These authors offer a method to calculate how severe should be the violations to the key identifying assumption, sequential ignorability, to misinterpret the mediation results causally. Table 18 shows the sensitivity of the results (ρ). The parameter ρ indicates that if the correlation between the residuals of the mediator equation (e.g., see equation 2) ϵ_{i2} and the residuals of the outcome equation (e.g., see equation 3) ϵ_{i3} ascends to ρ , then the point estimate of the ACME will be zero. In this case, the correlation between the residuals for immigration must be approximately 0.4 for the ACME to be zero regarding the support for the radical right and about 0.2 for turnout. Regarding nostalgia, the correlation between omitted confounders would have to be 0.1 for ACME to be zero for both dependent variables. Intuitively, the mediated effect will be indistinguishably from zero if the omitted confounders have more explanatory power than the power of all of the variables and fixed effects included in the models. While this is possible, the sensitivity analysis gives us some confidence in the results, especially for the outgroup threat path with a more sizable sensitivity value.

To conclude, these results indicate that automation affects voting behavior directly and indirectly through a cultural pathway. Individuals more exposed to automation risks appear to develop higher hostility toward outgroups, in this case, immigrants, and sentiments of nostalgia about the past. This anxiety and insecurity caused by automation seem to lead to support for populist radical right candidates and political disengagement. A non-despicable proportion of the effect on the support for the extreme right is mediated by anti-immigration predisposition (30%) and nostalgia (12%). The mediated effects on turnout are relatively smaller (5-8%) but still relevant. These results have important implications for understanding the complexity of the technological change phenomenon since we are not just facing a simple economic decline. It is one –if not the most– significant structural change in the labor market of the century, and it appears to affect non-economic predispositions of individuals too. Hence, cultural grievances are endogenously affected by this economic phenomenon. Looking at the results in conjunction, the implications for democracy may be relevant since the losers of automation ended up supporting xenophobic and nostalgic parties or going out of the political arena (abstaining).

5 Discussion

To this point, I have provided evidence that exposure to automation risks is associated with higher hostility to outgroups and nostalgic sentiments. I have also demonstrated the existence of a causal path linking automation and voting behavior through cultural beliefs. To make sense of these results, this section illustrates how recent populist rhetoric is well organized to appeal to those who feel threatened by economic and societal changes such as technological change.

The recent electoral victory of Giorgia Meloni, head of the populist radical right Brothers of Italy party, is a good example of the use of anti-immigration appeals. In her recent campaign, Meloni made clear statements about prioritizing Italian people instead of foreign ones. For instance, she said, “No to mass immigration, yes to work for our people”⁶ and she called to block African migrants. In her expected coalition government, we would likely see Matteo Salvini (leader of the League party), one of the country’s anti-immigration leaders. He used xenophobic language to blame for the lack of jobs among native Italians. In a 2015 Facebook post, he stated: “While in Sicily the highways close, viaducts collapse, and youth unemployment exceeds 50%, tonight another 1,200 immigrants will land in Palermo, which will be welcomed and maintained (...) In Italy, only immigrants can find the treasure” (McGinnis, 2021). The use of this antagonism between the vulnerable natives versus the “undeserving” migrants can be extremely appealing among those who have developed more hostile attitudes toward immigration.

Nostalgia is also a key component of populist rhetoric (e.g, van Prooijen et al., 2022; Steenvoorden and Harteveld, 2018; Gest, Reny, and Mayer, 2018; Elçi, 2021). For example, nostalgic language played a critical role in the Brexit referendum. By that time, Boris Johnson used to remind voters of a time when Britain was once powerful, for instance, using his slogan “let’s take back control.” Several other political actors also appealed to nostalgic sentiments, such as the Leave’s campaign slogan “BeLeave in Britain again” or UKIP’s slogan “we want our country back.”⁷ All these slogans revolve around a great past and imply strengthening bonds among the member of these idealized times, which indirectly excludes those who do not share the exact origins (e.g., immigrants). In this glorious past, a clear order existed; for instance, jobs were more stable, and the middle class was not at risk.

The populist rhetoric also centers on anti-elitism and critics of politicians. These appeals call into a question the legitimacy of politics (Mudde, 2007; Fernández-Vázquez,

⁶See speech on June 13, 2022 (source: YouTube).

⁷See more examples in [The Brexit collection](#), LSE Digital Library.

[Lavezzolo, and Ramiro, 2022](#)). The rise of anti-politics and the lack of legitimacy of current politicians can then also speak to vulnerable voters, and exacerbate political disengagement (e.g., increasing non-voters).

6 Conclusion

This article has provided a theoretical framework and empirical evidence to understand better the political consequences of the current wave of automation. I have argued that technological change translates to the political arena directly and indirectly through individual's cultural beliefs. Using survey data from European countries, I have demonstrated a link between exposure to automation risks, xenophobia, and feelings of nostalgia. Individuals more exposed to automation are more likely to be hostile against immigration and more nostalgic about the past. These changes in cultural beliefs will then find comfort in populism, which makes subjects more likely to support candidates espousing this rhetoric. I then presented evidence of the relationship between these cultural grievances and voting behavior, which I lastly formalized using mediation analysis.

One of this paper's contributions is to point out the relationship between the structural changes in the labor market and nostalgia for a better past. By borrowing from previous works on psychology and consumption (e.g., [Barauskaitė, Gineikienė, and Fennis, 2022](#); [Zhou et al., 2013](#)) I provide a framework to understand how automation, which is a great source of job insecurity, generates nostalgic sentiments, which then find comfort in populist speeches. I thus contribute to the small but growing group of scholars exploring automation and culture, looking at status threat [Kurer \(2020\)](#) and blame misattribution to foreigners ([Wu, 2022a,b](#); [Kaihovaara and Im, 2020](#); [Gamez-Djokic and Waytz, 2020](#)).

A second contribution is to explicitly provide evidence of the interplay between automation and culture and its political consequence on the support for populist right parties and political disengagement. I have argued that economic and cultural factors are relevant to understanding the rise of right populism and disengagement. Thus, my results contribute to the literature on support for populist right parties and automation by providing a mechanism for this relationship ([Gallego and Kurer, 2022](#); [Anelli, Colantone, and Stanig, 2021](#)). They also contribute to the growing effort to understand the interplay between economic and cultural grievances ([Gidron and Hall, 2017a](#); [Ballard-Rosa, Scheve, and Jensen, 2021](#); [Carreras, Irepoglu Carreras, and Bowler, 2019](#); [Colantone and Stanig, 2018](#); [Hays, Lim, and Spoon, 2019](#)).

This paper's results have important implications for politics. The analysis suggests that cultural beliefs are somewhat endogenous to the effects of automation. Therefore,

addressing the causes, such as compensating losers or adopting re-conversion labor policies, may alleviate the rise of xenophobia and nostalgia. If these cultural grievances are alleviated, opportunistic populist politicians will have fewer chances to appeal to exposed individuals, and political participation may be less weakened.

There is still much work to be done regarding the role of technological change and cultural beliefs. In that sense, the major shortcoming of this paper is that it relies on observational data to unpack the causal mediated effects of cultural beliefs. The analysis should be replicated by using experimental tools such as survey experiments to leverage its internal validity. Second, my study is limited to two operationalization of cultural grievances since I only looked at hostility toward immigrants and nostalgia. Future research should extend the analysis beyond xenophobia and nostalgia to other expressions of cultural grievances. Third, we need to develop a better understanding of individuals when deciding whether to abstain from or support populist right parties. Fourth, my analysis has explored the role of culture as a mediator of the relationship between automation risks and voting behavior. However, a complementary study is needed about the role of pre-existent cultural beliefs also to moderate this relationship. Finally, it will be important to understand better how objective exposure to risk correlates with subjective perceptions.

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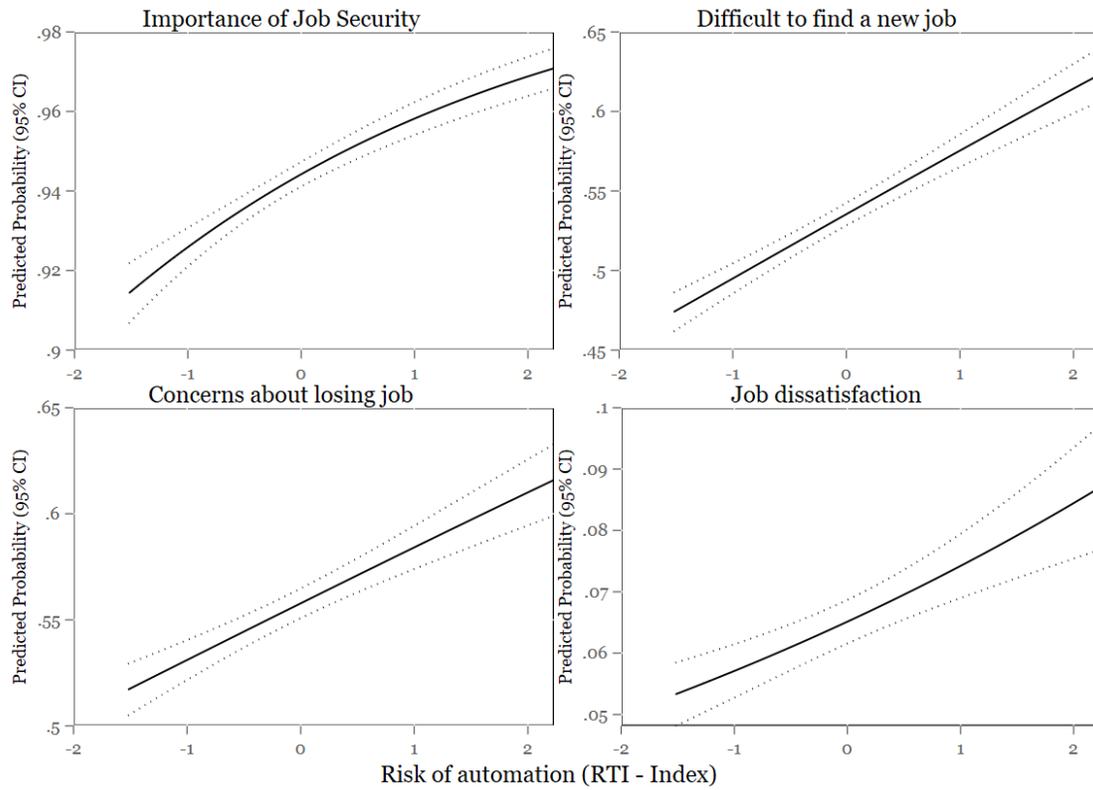
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Appendix

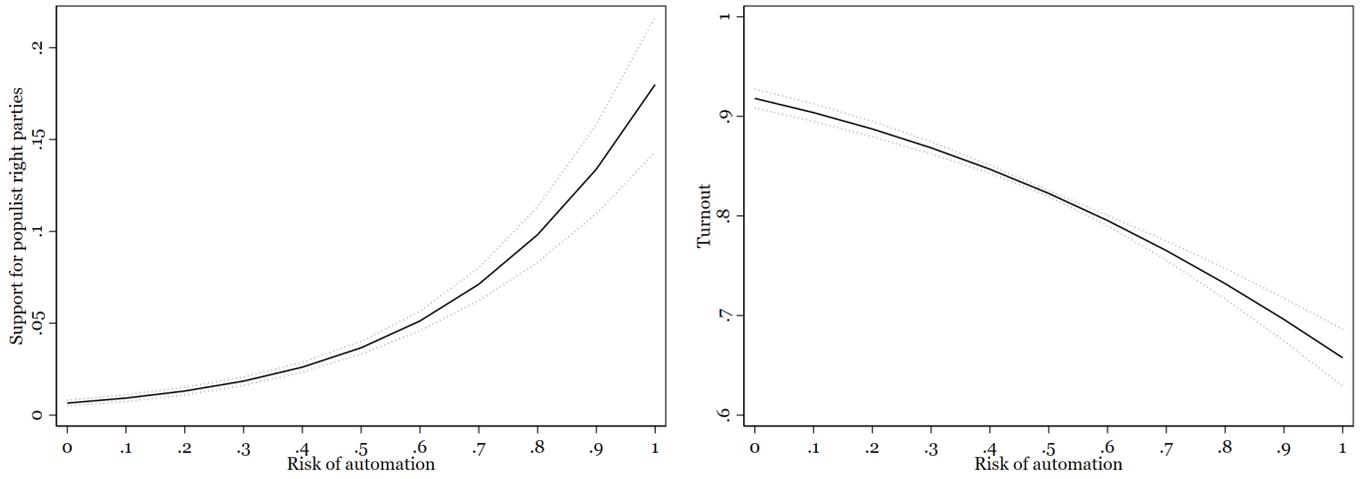
A Figures

Figure 3: Importance of job security, Difficulties to find a new job, Concerns about losing the job and Job dissatisfaction



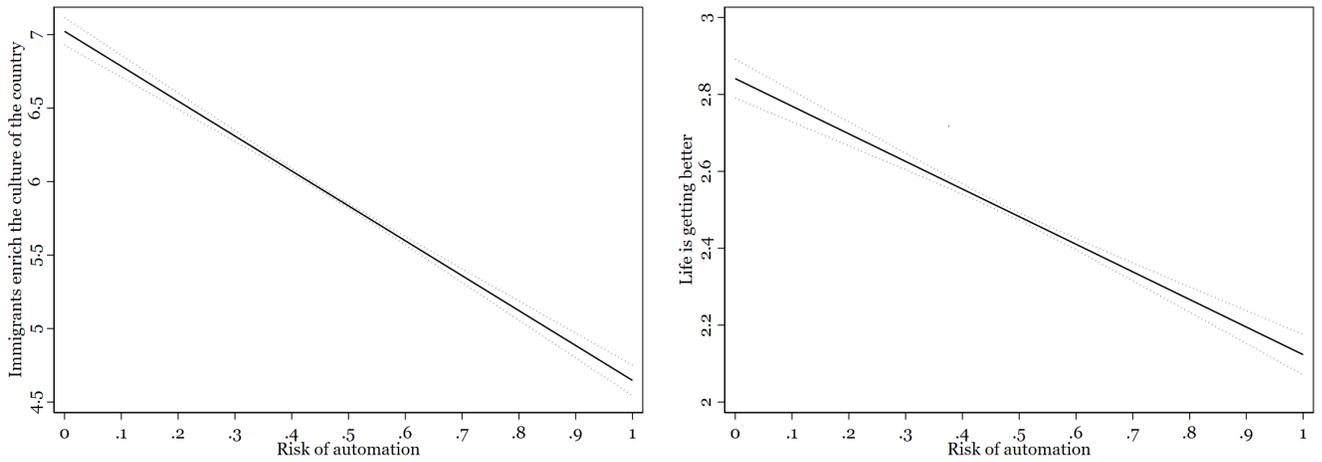
Source: ISSP (1997, 2005 and 2015)

Figure 4: Marginal effects of Automation on voting behavior



Source: ESS (1-7)

Figure 5: Marginal effects of automation on hostility toward immigrants and nostalgia



Source: ESS (1-7)

B Tables

B.1 Automation and cultural grievances

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radical Right	Turnout	Culture	Economy	Live	Life Better	Hopeful
Frey & Osborne	3.505*** (0.231)	-1.764*** (0.127)	-2.375*** (0.100)	-2.315*** (0.094)	-1.987*** (0.094)	-0.717*** (0.052)	-0.734*** (0.058)
Regional Δ robots	1.042* (0.589)	-0.204 (0.157)	-0.381** (0.168)	-0.333* (0.181)	-0.391** (0.155)	-0.259*** (0.088)	-0.213** (0.096)
Education (years)	-0.057*** (0.007)	0.088*** (0.004)	0.076*** (0.003)	0.074*** (0.003)	0.056*** (0.003)	0.008*** (0.002)	0.008*** (0.002)
Age	-0.011*** (0.001)	0.035*** (0.001)	-0.012*** (0.001)	-0.003*** (0.001)	-0.011*** (0.001)	-0.005*** (0.000)	-0.006*** (0.000)
Female	-0.426*** (0.037)	-0.100*** (0.017)	0.052*** (0.018)	-0.295*** (0.015)	-0.038** (0.016)	-0.105*** (0.010)	-0.080*** (0.011)
Country-Year FE	✓	✓	✓	✓	✓	✓	✓
NUTS FE	✓	✓	✓	✓	✓	✓	✓
Observations	64440	141092	151296	150778	151615	44674	44923
$R^2(p)$	0.175	0.103	0.162	0.116	0.136	0.294	0.134
AIC	2.7e+04	1.3e+05	6.7e+05	6.6e+05	6.5e+05	1.2e+05	1.3e+05

Standard errors clustered by region-year in parentheses

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

Table 2: Individual and regional exposure to automation, cultural attitudes, and vote choices.

Dependent variable: A) Support for populist radical right; B) Turnout; C) level of agreement with immigration as better for culture, economy and life. Answers range from “Not like me at all” (= 1) to “Very much like me” (= 10). D) level of agreement with “life is getting worse” and “hard to have hope about the future.” Answers range from “Agree strongly” (= 1) to “Disagree strongly” (= 5). Source: ESS (1-7) data.

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1) Radical Right	(2) Turnout	(3) Culture	(4) Economy	(5) Live	(6) Life Better	(7) Hopeful
Frey & Osborne	3.640*** (0.282)	-1.705*** (0.138)	-2.298*** (0.111)	-2.339*** (0.104)	-1.944*** (0.107)	-0.800*** (0.059)	-0.757*** (0.063)
Regional Δ robots	-0.100 (0.739)	-0.101 (0.172)	-0.408** (0.174)	-0.440** (0.179)	-0.506*** (0.151)	-0.242*** (0.081)	-0.117 (0.125)
Education (years)	-0.064*** (0.008)	0.084*** (0.005)	0.083*** (0.004)	0.081*** (0.004)	0.065*** (0.003)	0.014*** (0.003)	0.011*** (0.002)
Age	-0.012*** (0.002)	0.031*** (0.001)	-0.008*** (0.001)	0.001 (0.001)	-0.006*** (0.001)	-0.004*** (0.000)	-0.007*** (0.000)
Female	-0.404*** (0.044)	-0.025 (0.020)	0.082*** (0.020)	-0.312*** (0.017)	-0.044** (0.019)	-0.114*** (0.011)	-0.085*** (0.012)
Urban	-0.087* (0.053)	-0.093*** (0.024)	0.164*** (0.021)	0.133*** (0.022)	0.132*** (0.018)	-0.006 (0.016)	-0.018 (0.016)
Union Member	-0.096 (0.060)	0.280*** (0.023)	0.124*** (0.021)	0.057** (0.022)	0.055*** (0.019)	-0.069*** (0.015)	-0.055*** (0.014)
Unemployed	0.334** (0.145)	-0.465*** (0.047)	-0.217*** (0.044)	-0.413*** (0.042)	-0.311*** (0.041)	-0.206*** (0.034)	-0.206*** (0.037)
Ethnic minority	0.678*** (0.201)	0.191*** (0.053)	-0.436*** (0.052)	-0.360*** (0.047)	-0.480*** (0.045)	0.044 (0.029)	0.076** (0.033)
Foreign Born	-0.326*** (0.112)	-1.087*** (0.048)	0.483*** (0.043)	0.608*** (0.040)	0.702*** (0.036)	0.083*** (0.024)	0.007 (0.028)
Precarious emp. contract	-0.064 (0.073)	-0.256*** (0.032)	0.054** (0.024)	0.055** (0.022)	0.073*** (0.020)	-0.010 (0.015)	-0.062*** (0.018)
Reg. Immigrant Exposure	0.135 (1.489)	1.306** (0.620)	2.366*** (0.589)	-0.066 (0.482)	0.720 (0.540)	-0.807 (0.851)	-1.767*** (0.679)
Reg. Unemployment	8.605*** (3.282)	0.684 (0.867)	0.381 (0.971)	-0.364 (0.961)	0.635 (0.901)	1.762 (1.254)	2.027 (1.289)
Country-Year FE	✓	✓	✓	✓	✓	✓	✓
NUTS FE	✓	✓	✓	✓	✓	✓	✓
Observations	48186	103367	108641	108113	108561	31401	31567
$R^2(p)$	0.180	0.126	0.178	0.136	0.158	0.294	0.141
AIC	2.0e+04	8.7e+04	4.8e+05	4.7e+05	4.6e+05	8.0e+04	8.8e+04

Standard errors clustered by region-year in parentheses

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

Table 3: Individual and regional exposure to automation, cultural attitudes, and vote choices (with additional control variables).

Dependent variable: A) Support for populist radical right; B) Turnout; C) level of agreement with immigration as better for culture, economy and life. Answers range from “Not like me at all” (= 1) to “Very much like me” (= 10). D) level of agreement with “life is getting worse” and “hard to have hope about the future.” Answers range from “Agree strongly” (= 1) to “Disagree strongly” (= 5). Source: ESS (1-7) data.

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radical Right	Turnout	Culture	Economy	Live	Life Better	Hopeful
Sd Individual Exposure	0.857*** (0.112)	-0.321*** (0.051)	-0.314*** (0.042)	-0.332*** (0.042)	-0.261*** (0.039)	-0.144*** (0.022)	-0.125*** (0.024)
Education (years)	-0.101*** (0.008)	0.111*** (0.004)	0.116*** (0.004)	0.111*** (0.004)	0.089*** (0.003)	0.019*** (0.002)	0.020*** (0.002)
Age	-0.013*** (0.002)	0.037*** (0.001)	-0.009*** (0.001)	-0.001 (0.001)	-0.008*** (0.001)	-0.004*** (0.000)	-0.006*** (0.000)
Female	-0.427*** (0.038)	-0.096*** (0.017)	0.063*** (0.018)	-0.285*** (0.015)	-0.028* (0.017)	-0.102*** (0.010)	-0.076*** (0.011)
Country-Year FE	✓	✓	✓	✓	✓	✓	✓
NUTS FE	✓	✓	✓	✓	✓	✓	✓
Observations	64440	141092	151296	150778	151615	44674	44923
$R^2(p)$	0.168	0.101	0.155	0.109	0.130	0.291	0.130
AIC	2.8e+04	1.3e+05	6.7e+05	6.7e+05	6.5e+05	1.2e+05	1.3e+05

Standard errors clustered by region-year in parentheses

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

Table 4: Automation, cultural attitudes, and vote choices. Using alternative proxy automation.

Independent variable: Standardized individual-level robot exposure proposed by (Anelli, Colantone, and Stanig, 2021). Dependent variable: A) Support for populist radical right; B) Turnout; C) level of agreement with immigration as better for culture, economy and life. Answers range from “Not like me at all” (= 1) to “Very much like me” (= 10). D) level of agreement with “life is getting worse” and “hard to have hope about the future.” Answers range from “Agree strongly” (= 1) to “Disagree strongly” (= 5). Source: ESS (1-7) data.

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radical Right	Turnout	Culture	Economy	Live	Life Better	Hopeful
Sd Individual Exposure	0.908*** (0.137)	-0.318*** (0.051)	-0.269*** (0.045)	-0.306*** (0.046)	-0.238*** (0.042)	-0.135*** (0.025)	-0.127*** (0.026)
Education (years)	-0.111*** (0.008)	0.107*** (0.005)	0.124*** (0.004)	0.122*** (0.004)	0.099*** (0.004)	0.027*** (0.003)	0.023*** (0.002)
Age	-0.014*** (0.002)	0.032*** (0.001)	-0.006*** (0.001)	0.003*** (0.001)	-0.004*** (0.001)	-0.004*** (0.000)	-0.006*** (0.000)
Female	-0.413*** (0.044)	-0.019 (0.020)	0.100*** (0.020)	-0.295*** (0.017)	-0.029 (0.019)	-0.108*** (0.011)	-0.079*** (0.012)
Urban	-0.104* (0.055)	-0.092*** (0.024)	0.169*** (0.021)	0.137*** (0.023)	0.135*** (0.018)	-0.008 (0.016)	-0.019 (0.016)
Union Member	-0.113* (0.065)	0.290*** (0.023)	0.138*** (0.023)	0.070*** (0.023)	0.066*** (0.020)	-0.065*** (0.015)	-0.051*** (0.015)
Unemployed	0.345** (0.144)	-0.476*** (0.047)	-0.233*** (0.044)	-0.430*** (0.042)	-0.325*** (0.041)	-0.211*** (0.034)	-0.211*** (0.038)
Ethnic minority	0.655*** (0.201)	0.187*** (0.053)	-0.438*** (0.052)	-0.364*** (0.048)	-0.483*** (0.046)	0.040 (0.029)	0.073** (0.033)
Foreign Born	-0.317*** (0.112)	-1.084*** (0.048)	0.490*** (0.043)	0.615*** (0.040)	0.708*** (0.036)	0.088*** (0.024)	0.012 (0.028)
Precarious emp. contract	-0.032 (0.073)	-0.263*** (0.031)	0.037 (0.024)	0.038* (0.022)	0.059*** (0.020)	-0.016 (0.015)	-0.067*** (0.018)
Reg. Immigrant Exposure	0.055 (1.544)	1.463** (0.616)	2.503*** (0.587)	0.088 (0.490)	0.861 (0.548)	-0.878 (0.829)	-1.802*** (0.672)
Reg. Unemployment	9.073*** (3.366)	0.581 (0.879)	0.135 (1.007)	-0.618 (0.992)	0.402 (0.926)	1.759 (1.217)	2.024 (1.254)
Country-Year FE	✓	✓	✓	✓	✓	✓	✓
NUTS FE	✓	✓	✓	✓	✓	✓	✓
Observations	48186	103367	108641	108113	108561	31401	31567
$R^2(p)$	0.173	0.124	0.171	0.128	0.152	0.290	0.138
AIC	2.1e+04	8.7e+04	4.8e+05	4.7e+05	4.6e+05	8.1e+04	8.8e+04

Standard errors clustered by region-year in parentheses

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

Table 5: Automation, cultural attitudes, and vote choices. Using alternative proxy for automation (with additional control variables).

Independent variable: Standardized individual-level robot exposure proposed by (Anelli, Colantone, and Stanig, 2021). Dependent variable: A) Support for populist radical right; B) Turnout; C) level of agreement with immigration as better for culture, economy and life. Answers range from “Not like me at all” (= 1) to “Very much like me” (= 10). D) level of agreement with “life is getting worse” and “hard to have hope about the future.” Answers range from “Agree strongly” (= 1) to “Disagree strongly” (= 5). Source: ESS (1-7) data.

B.2 Voting behavior explained by culture and automation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life	est7
DV: Support for Radical Right							
Frey & Osborne	3.587*** (0.337)	3.587*** (0.337)	2.829*** (0.359)	2.817*** (0.363)	2.991*** (0.356)	3.905*** (0.814)	4.100*** (0.793)
Pro-Immigration Culture			-0.361*** (0.017)				
Pro-Immigration Economy				-0.343*** (0.019)			
Pro-Immigration General					-0.415*** (0.022)		
Non-Nostalgic: Life Getting Better						-0.476*** (0.064)	
Non-Nostalgic: Hopeful Future							-0.137*** (0.044)
Demographics	✓	✓	✓	✓	✓	✓	✓
NU FE	✓	✓	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓	✓	✓
Observations	21889	21889	21675	21592	21633	8655	8696
R_p^2	0.131	0.131	0.207	0.196	0.211	0.169	0.153
AIC	1.0e+04	1.0e+04	9271.058	9383.128	9219.355	3967.830	4060.569

Standard errors clustered by region-year in parentheses

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

Table 6: Regression estimates of the determinants on support for a radical-right party. Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life	est7
DV: Turnout							
Frey & Osborne	-1.871***	-1.871***	-1.793***	-1.742***	-1.755***	-2.146***	-2.164***
	(0.217)	(0.217)	(0.215)	(0.206)	(0.211)	(0.316)	(0.317)
Pro-Immigration Culture			0.039***				
			(0.008)				
Pro-Immigration Economy				0.066***			
				(0.010)			
Pro-Immigration General					0.051***		
					(0.009)		
Non-Nostalgic: Life Getting Better						0.106***	
						(0.029)	
Non-Nostalgic: Hopeful Future							0.115***
							(0.023)
Demographics	✓	✓	✓	✓	✓	✓	✓
NU FE	✓	✓	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓	✓	✓
Observations	40737	40737	40039	39928	40049	20448	20477
R_p^2	0.107	0.107	0.110	0.113	0.111	0.115	0.116
AIC	3.7e+04	3.7e+04	3.6e+04	3.6e+04	3.6e+04	1.8e+04	1.8e+04

Standard errors clustered by region-year in parentheses

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

Table 7: Regression estimates of the determinants on participation in national elections.

Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
DV: Support for Radical Right						
Sd Individual Exposure	0.028*** (0.007)	0.016** (0.006)	0.018*** (0.007)	0.018*** (0.007)	0.028** (0.011)	0.034*** (0.011)
Pro-Immigration Culture		-0.015*** (0.001)				
Pro-Immigration Economy			-0.013*** (0.001)			
Pro-Immigration General				-0.015*** (0.001)		
Non-Nostalgic: Life Getting Better					-0.016*** (0.002)	
Non-Nostalgic: Hopeful Future						-0.004*** (0.001)
Demographics	✓	✓	✓	✓	✓	✓
NU FE	✓	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓	✓
Observations	97035	94081	93716	94199	27866	27963
R^2	0.108	0.131	0.127	0.129	0.111	0.107
AIC	-3.4e+04	-3.6e+04	-3.5e+04	-3.6e+04	-1.3e+04	-1.2e+04

Standard errors in parentheses

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

Table 8: IV Regression estimates of the impact of a one-SD increase in regional-level robot exposure on voting for a radical-right party.

Independent variable: IV comes from (Anelli, Colantone, and Stanig, 2021). Source: ESS (1-7).

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
DV: Turnout						
Sd Individual Exposure	-0.062*** (0.008)	-0.055*** (0.008)	-0.053*** (0.008)	-0.056*** (0.008)	-0.084*** (0.019)	-0.086*** (0.019)
Pro-Immigration Culture		0.008*** (0.001)				
Pro-Immigration Economy			0.010*** (0.001)			
Pro-Immigration General				0.009*** (0.001)		
Non-Nostalgic: Life Getting Better					0.019*** (0.003)	
Non-Nostalgic: Hopeful Future						0.017*** (0.002)
Demographics	✓	✓	✓	✓	✓	✓
NU FE	✓	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓	✓
Observations	141097	137135	136697	137538	40695	40853
R^2	0.095	0.098	0.099	0.098	0.101	0.102
AIC	1.3e+05	1.2e+05	1.2e+05	1.3e+05	3.7e+04	3.7e+04

Standard errors in parentheses

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

Table 9: IV Regression estimates of the impact of a one-SD increase in regional-level robot exposure on turnout.

Independent variable: IV comes from (Anelli, Colantone, and Stanig, 2021). Source: ESS (1-7).

B.3 Causal mediation analysis

B.3.1 Automation proxied as Frey & Osborne

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Frey & Osborne	0.094*** (0.015)	0.096*** (0.015)	0.097*** (0.016)	0.117*** (0.023)	0.106*** (0.021)
Demographics	✓	✓	✓	✓	✓
NU FE	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓
Observations	28810	28698	28763	14587	14551
R^2	0.109	0.106	0.110	0.097	0.102
AIC	-4.9e+03	-4.6e+03	-4.8e+03	-5.4e+03	-5.5e+03

Standard errors clustered by region-year in parentheses

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

Table 10: Mediated effects of Risk of automation on electoral support for the radical right (2nd stage). Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Frey & Osborne	-0.213*** (0.029)	-0.202*** (0.028)	-0.211*** (0.028)	-0.241*** (0.037)	0.106*** (0.021)
Demographics	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes
NUTS FE	Yes	Yes	Yes	Yes	Yes
Observations	40058	39947	40068	20496	14551
R^2	0.098	0.101	0.099	0.105	0.102
AIC	3.6e+04	3.6e+04	3.6e+04	1.8e+04	-5.5e+03

Standard errors clustered by region-year in parentheses

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

Table 11: Mediated effects of Risk of automation on turnout (2nd stage). Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Frey & Osborne	0.097*** (0.016)	0.097*** (0.016)	0.099*** (0.017)	0.126*** (0.024)	0.112*** (0.023)
Regional Δ robots	-0.088** (0.037)	-0.094*** (0.035)	-0.079** (0.038)	0.047** (0.023)	0.030 (0.023)
Education (years)	-0.001*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.003*** (0.001)	-0.003*** (0.001)
Age	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Female	-0.020*** (0.005)	-0.028*** (0.005)	-0.023*** (0.005)	-0.025*** (0.006)	-0.026*** (0.006)
Urban	-0.005 (0.004)	-0.006 (0.005)	-0.008* (0.005)	-0.010 (0.006)	-0.010* (0.006)
Union Member	0.001 (0.004)	-0.002 (0.004)	-0.000 (0.004)	0.000 (0.005)	-0.000 (0.005)
Unemployed	0.009 (0.010)	0.004 (0.010)	0.005 (0.010)	-0.000 (0.011)	-0.001 (0.011)
Ethnic minority	0.026*** (0.009)	0.028*** (0.010)	0.026*** (0.009)	0.028** (0.011)	0.028*** (0.011)
Foreign Born	-0.004 (0.006)	-0.003 (0.006)	-0.001 (0.006)	-0.003 (0.007)	-0.000 (0.007)
Precarious employment contract	-0.005 (0.006)	-0.005 (0.006)	-0.003 (0.006)	-0.003 (0.008)	-0.005 (0.009)
Regional Immigrant Exposure	-0.018 (0.184)	-0.045 (0.187)	-0.019 (0.180)	-0.039 (0.123)	-0.167 (0.141)
Regional Unemployment	-0.158 (0.257)	-0.244 (0.270)	-0.229 (0.256)	0.237 (0.162)	0.285 (0.175)
NU FE	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓
Observations	21863	21763	21791	10540	10505
R^2	0.112	0.109	0.112	0.091	0.098
AIC	-2.4e+03	-2.3e+03	-2.4e+03	-2.7e+03	-2.8e+03

Standard errors clustered by region-year in parentheses

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

Table 12: Mediated effects of Risk of automation on electoral support for the radical right (2nd stage, with additional control variables).

Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Frey & Osborne	-0.187*** (0.027)	-0.171*** (0.026)	-0.181*** (0.027)	-0.220*** (0.038)	-0.213*** (0.038)
Regional Δ robots	0.056 (0.048)	0.071 (0.047)	0.061 (0.046)	0.091 (0.117)	0.126 (0.120)
Education (years)	0.009*** (0.001)	0.009*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.011*** (0.001)
Age	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)
Female	-0.011** (0.005)	-0.004 (0.005)	-0.009** (0.005)	-0.006 (0.006)	-0.005 (0.006)
Urban	-0.017*** (0.006)	-0.014** (0.006)	-0.016*** (0.006)	-0.012 (0.008)	-0.012 (0.008)
Union Member	0.035*** (0.005)	0.037*** (0.005)	0.037*** (0.005)	0.039*** (0.008)	0.040*** (0.008)
Unemployed	-0.085*** (0.015)	-0.081*** (0.016)	-0.082*** (0.015)	-0.101*** (0.021)	-0.103*** (0.021)
Ethnic minority	0.033** (0.016)	0.035** (0.016)	0.034** (0.016)	0.028 (0.021)	0.031 (0.020)
Foreign Born	-0.196*** (0.015)	-0.198*** (0.015)	-0.198*** (0.015)	-0.176*** (0.017)	-0.177*** (0.016)
Precarious employment contract	-0.026*** (0.008)	-0.026*** (0.007)	-0.027*** (0.007)	-0.015 (0.010)	-0.017* (0.010)
Regional Immigrant Exposure	-0.361 (0.223)	-0.266 (0.232)	-0.287 (0.224)	-1.264* (0.650)	-1.268* (0.648)
Regional Unemployment	-0.401 (0.408)	-0.293 (0.400)	-0.256 (0.402)	-1.240 (1.016)	-1.363 (0.963)
NU FE	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓
Observations	29867	29759	29809	14400	14363
R^2	0.124	0.127	0.125	0.128	0.128
AIC	2.5e+04	2.5e+04	2.5e+04	1.2e+04	1.2e+04

Standard errors clustered by region-year in parentheses

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

Table 13: Mediated effects of Risk of automation on turnout (2nd stage, with additional control variables).
Source: ESS (6-7).

B.3.2 Automation proxied as Anelli, et al

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Individual Exposure	0.499** (0.206)	0.510** (0.204)	0.576*** (0.214)	0.448* (0.256)	0.840*** (0.214)
Demographics	✓	✓	✓	✓	✓
NU FE	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓
Observations	28810	28698	28763	14587	14603
R^2	0.108	0.105	0.109	0.094	0.092
AIC	-4.8e+03	-4.6e+03	-4.8e+03	-5.3e+03	-5.3e+03

Standard errors clustered by region-year in parentheses

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

Table 14: Mediated effects of Risk of automation on electoral support for the radical right (2nd stage). Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Individual Exposure	-0.929*** (0.289)	-0.848*** (0.278)	-0.912*** (0.284)	-0.691* (0.388)	-2.505*** (0.544)
Demographics	✓	✓	✓	✓	✓
NU FE	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓
Observations	40058	39947	40068	20496	20466
R^2	0.096	0.099	0.096	0.102	0.080
AIC	3.6e+04	3.6e+04	3.6e+04	1.8e+04	1.9e+04

Standard errors clustered by region-year in parentheses

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

Table 15: Mediated effects of Risk of automation on turnout (2nd stage). Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Individual Exposure	0.818*** (0.208)	0.506** (0.221)	0.569** (0.230)	1.032*** (0.274)	0.916*** (0.259)
Age	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.001*** (0.000)
Female	-0.022*** (0.005)	-0.030*** (0.005)	-0.025*** (0.005)	-0.028*** (0.006)	-0.029*** (0.007)
Urban	-0.007 (0.005)	-0.006 (0.005)	-0.008* (0.005)	-0.015** (0.007)	-0.015** (0.007)
Union Member	-0.000 (0.004)	-0.002 (0.004)	-0.001 (0.004)	-0.004 (0.005)	-0.004 (0.005)
Unemployed	0.011 (0.010)	0.005 (0.010)	0.005 (0.010)	-0.000 (0.012)	-0.001 (0.011)
Ethnic minority	0.026*** (0.009)	0.029*** (0.010)	0.027*** (0.009)	0.027** (0.011)	0.028*** (0.011)
Foreign Born	-0.004 (0.006)	-0.003 (0.006)	-0.001 (0.006)	-0.003 (0.007)	-0.000 (0.007)
Precarious employment contract	-0.004 (0.006)	-0.004 (0.006)	-0.002 (0.006)	-0.001 (0.008)	-0.004 (0.009)
Regional Immigrant Exposure	0.035 (0.179)	0.021 (0.181)	0.039 (0.173)	-0.077 (0.173)	-0.201 (0.153)
Regional Unemployment	-0.209 (0.271)	-0.286 (0.285)	-0.264 (0.270)	0.200 (0.171)	0.228 (0.171)
NU FE	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓
Observations	21863	21763	21791	10562	10528
R^2	0.109	0.108	0.111	0.081	0.089
AIC	-2.4e+03	-2.3e+03	-2.4e+03	-2.6e+03	-2.7e+03

Standard errors clustered by region-year in parentheses

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

Table 16: Mediated effects of Risk of automation on electoral support for the radical right (2nd stage, with additional control variables).

Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Individual Exposure	-0.807*** (0.288)	-0.740*** (0.280)	-0.756** (0.291)	-0.763* (0.427)	-0.702* (0.421)
Education (years)	0.013*** (0.001)	0.012*** (0.001)	0.013*** (0.001)	0.015*** (0.001)	0.015*** (0.001)
Age	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)
Female	-0.009* (0.005)	-0.002 (0.005)	-0.007 (0.005)	-0.002 (0.006)	-0.002 (0.006)
Urban	-0.016*** (0.006)	-0.014** (0.006)	-0.016*** (0.006)	-0.012 (0.008)	-0.011 (0.008)
Union Member	0.036*** (0.005)	0.038*** (0.005)	0.039*** (0.005)	0.040*** (0.008)	0.041*** (0.008)
Unemployed	-0.086*** (0.016)	-0.083*** (0.016)	-0.083*** (0.016)	-0.103*** (0.022)	-0.104*** (0.022)
Ethnic minority	0.032** (0.016)	0.034** (0.016)	0.033** (0.016)	0.026 (0.021)	0.030 (0.020)
Foreign Born	-0.195*** (0.015)	-0.197*** (0.015)	-0.198*** (0.015)	-0.175*** (0.017)	-0.176*** (0.016)
Precarious employment contract	-0.029*** (0.008)	-0.028*** (0.008)	-0.029*** (0.008)	-0.018* (0.010)	-0.019* (0.010)
Regional Immigrant Exposure	-0.409* (0.225)	-0.318 (0.236)	-0.336 (0.228)	-1.512** (0.732)	-1.572** (0.727)
Regional Unemployment	-0.401 (0.411)	-0.285 (0.403)	-0.252 (0.403)	-1.178 (0.942)	-1.262 (0.884)
NU FE	✓	✓	✓	✓	✓
Country-Year FE	✓	✓	✓	✓	✓
Observations	29867	29759	29809	14400	14363
R^2	0.123	0.126	0.124	0.126	0.126
AIC	2.5e+04	2.5e+04	2.5e+04	1.2e+04	1.2e+04

Standard errors clustered by region-year in parentheses

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

Table 17: Mediated effects of Risk of automation on turnout (2nd stage, with additional control variables). Source: ESS (6-7).

B.3.3 Sensitivity Analysis

		Support for Radical Right	Turnout
		ρ	ρ
Immigration	Country's cultural life	-0.4	0.2
	Worsening economy	-0.4	0.2
	Worsening living in the country	-0.4	0.2
Nostalgia	Life is getting worse	-0.1	0.1
	Lack of hope for the future	-0.1	0.2

Table 18: Sensitivity analyses. Estimated using the “Medsens” statistical package in Stata (Hicks and Tingley, 2011).