

Automation, Culture, and Vote Choice

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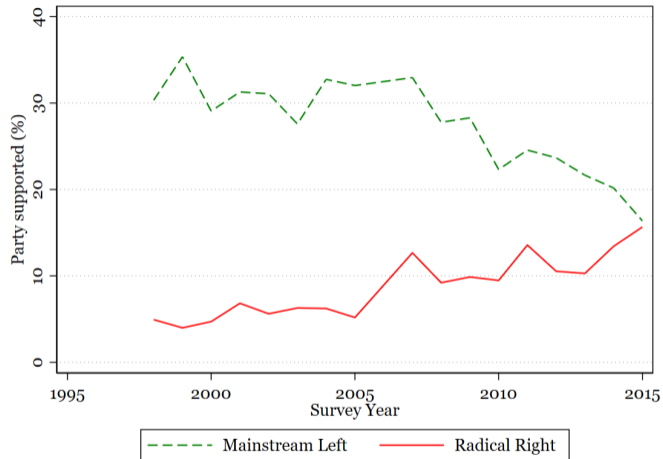
October 28, 2022

The Robots Are Coming. Prepare for Trouble

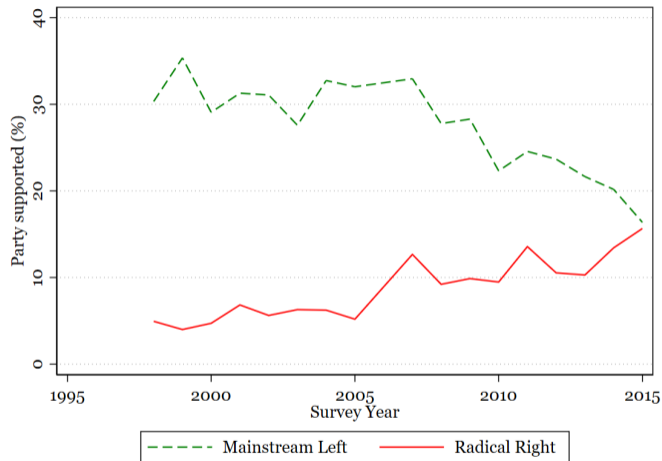


(NYT, 01/30/20, 03/06/21)

Political support of at-risk workers



Political support of at-risk workers



Source: Author's elaboration using ISSP data.

(Anelli et al., 2021; Frey et al., 2017; Im et al., 2019; Milner, 2021; Owen, 2019)

Does the threat of automation increase support the for far right and decrease turnout?

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12 percentage points (pp) more likely to support far right

25 pp less likely to vote.

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- Effect of automation risk is **mediated by cultural grievances**.

Outgroup threat mediates 30% of the effect of automation on far-right support
(8% for turnout)

Nostalgia mediates 12% of the effect of automation on far-right support
(5% for turnout)

Definitions

Automation

- Increase of tasks that can be done by capital (Acemoglu & Restrepo, 2018)
- Probability of computerization (Frey & Osborne, 2017)
 - low / e.g, computer engineer, management directors
 - high / e.g, accounts clerks, tax preparers, and telemarketing

Occupations' characteristics determine vulnerability to automation.

Telemarketers

41-9041.00

Updated 2022

Solicit donations or orders for goods or services over the telephone.

Sample of reported job titles: Telemarketer, Telemarketing Sales Representative, Telephone Sales Representative (TSR), Telephone Service Representative (TSR), Telesales Representative, Telesales Specialist

Summary

Details

Custom

Easy Read

Veterans

Español

Contents

Occupation-Specific Information

Tasks

5 of 12 displayed

- Deliver prepared sales talks, reading from scripts that describe products or services, to persuade potential customers to purchase a product or service or to make a donation.
- Contact businesses or private individuals by telephone to solicit sales for goods or services, or to request donations for charitable causes.
- Explain products or services and prices, and answer questions from customers.
- Obtain customer information such as name, address, and payment method, and enter orders into computers.

Argument

Interplay between automation and cultural grievances

Automation Risk

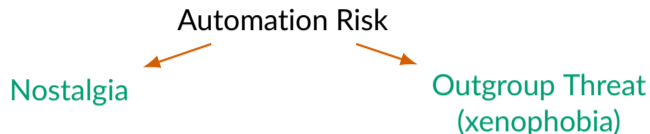
Interplay between automation and cultural grievances



Psych. Barauskaitė et al. (2022); Davis (1979); Hirsch (1992)

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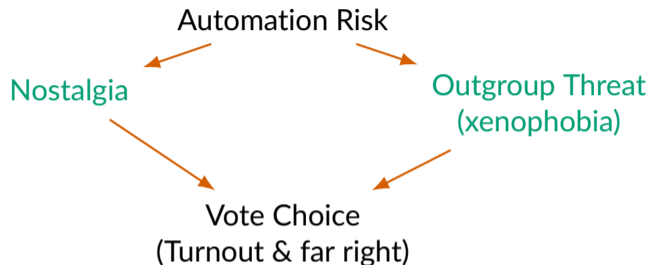
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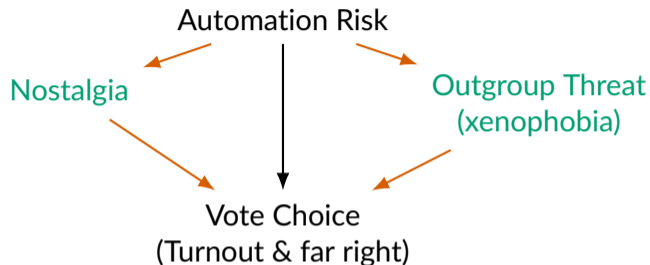
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Populist Rhetoric Lammers and Baldwin (2020); Steenvoorden and Hartevelt (2018); van Prooijen et al. (2022)

Political efficacy Beesley and Bastiaens (2020); Marx and Nguyen (2016)

Interplay between automation and cultural grievances



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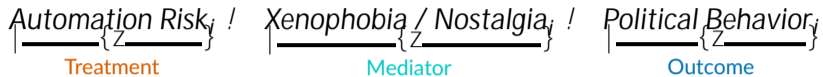
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Hypotheses

- H.I Risk from automation **increases** xenophobic attitudes.
- H.II Risk from automation **increases** nostalgic sentiments.
- H.III Effects of automation risks on support for far right are **mediated** by cultural beliefs.
- H.IV Effects of automation risks on turnout are **mediated** by cultural beliefs.

Research Design

Empirical Analysis



Empirical Analysis



1. Automation Risk ! Political Behavior
2. Automation Risk ! Cultural Grievances
3. Mediation analysis (Imai et al., 2011; Keele et al., 2015)

Empirical Analysis



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- Data: European Social Survey (2002-2016), 13 European countries

Empirical Analysis



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- Data: European Social Survey (2002-2016), 13 European countries
- **Treatment**: probability of computerisation Frey and Osborne (2017) & Anelli et al. (2021).
- **Outcome**: support of far right parties & turnout
- **Mediators**:
 - **Xenophobia**: respondents' evaluations of immigration regarding i) country's cultural life ii) worsening economy, iii) worsening the country overall.
 - **Nostalgia**: respondents' positions regarding i) life is getting worse, ii) lack of hope about the future.

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 - **Xenophobia**: respondents' evaluations of immigration regarding i) country's cultural life ii) worsening economy, iii) worsening the country overall.
 - **Nostalgia**: respondents' positions regarding i) life is getting worse, ii) lack of hope about the future.
- Controls:
 - Individual: education, age, gender, ethnic minority, foreign born, unemployed, unionized.
 - Region: regional robots, immigrants, unemployment rate, regional & country-year FE

Results

Results - Automation Risks and Cultural Beliefs

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radical Right	Turnout	Culture	Economy	Live	Life Better	Hopeful
Automation Risk							
Demographic							
Country-Year FE							
NUTS FE							
Observations							
R^2							

Standard errors clustered by region-year in parentheses

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

Automation risks ⇒ less tolerance toward immigrants, less hope about the future, more likely to support radical right, and less likely to vote. ▶ ▶

Results - Automation Risks and Cultural Beliefs

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1) Radical Right	(2) Turnout	(3) Culture	(4) Economy	(5) Live	(6) Life Better	(7) Hopeful
Automation Risk	3.503*** (0.231)	-1.764*** (0.127)					
Demographic	×	×					
Country-Year FE	×	×					
NUTS FE	×	×					
Observations		141092					
R^2	0.174	0.103					

Standard errors clustered by region-year in parentheses

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

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Results - Automation Risks and Cultural Beliefs

	Political Behavior		Immigration (Hyp. I)			Nostalgia (Hyp. II)	
	(1) Radical Right	(2) Turnout	(3) Culture	(4) Economy	(5) Live	(6) Life Better	(7) Hopeful
Automation Risk	3.503*** (0.231)	-1.764*** (0.127)	-2.376*** (0.100)	-2.315*** (0.094)	-1.987*** (0.095)		
Demographic	×	×	×	×	×		
Country-Year FE	×	×	×	×	×		
NUTS FE	×	×	×	×	×		
Observations	64440	141092	151296	150778	151615		
R^2	0.174	0.103	0.162	0.116	0.136		

Standard errors clustered by region-year in parentheses

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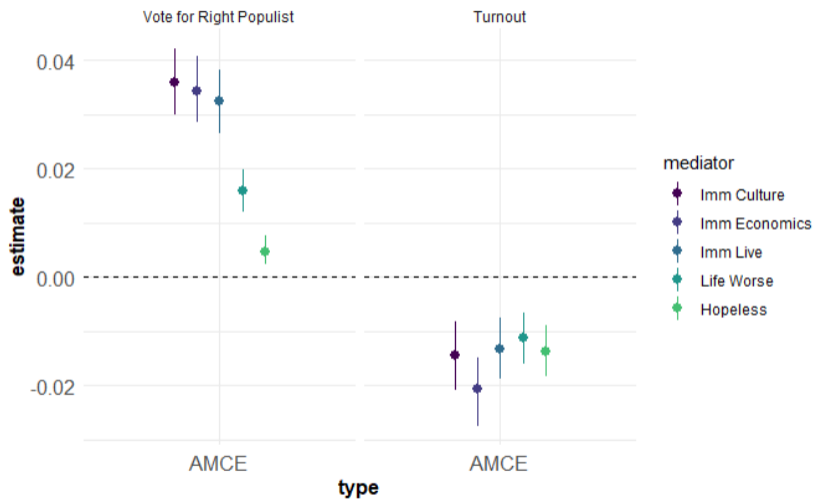
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Automation Risk	3.503*** (0.231)	-1.764*** (0.127)	-2.376*** (0.100)	-2.315*** (0.094)	-1.987*** (0.095)	-0.718*** (0.052)	-0.735*** (0.058)
Demographic	×	×	×	×	×	×	×
Country-Year FE	×	×	×	×	×	×	×
NUTS FE	×	×	×	×	×	×	×
Observations	64440	141092	151296	150778	151615	44674	44923
R^2	0.174	0.103	0.162	0.116	0.136	0.294	0.134

Standard errors clustered by region-year in parentheses

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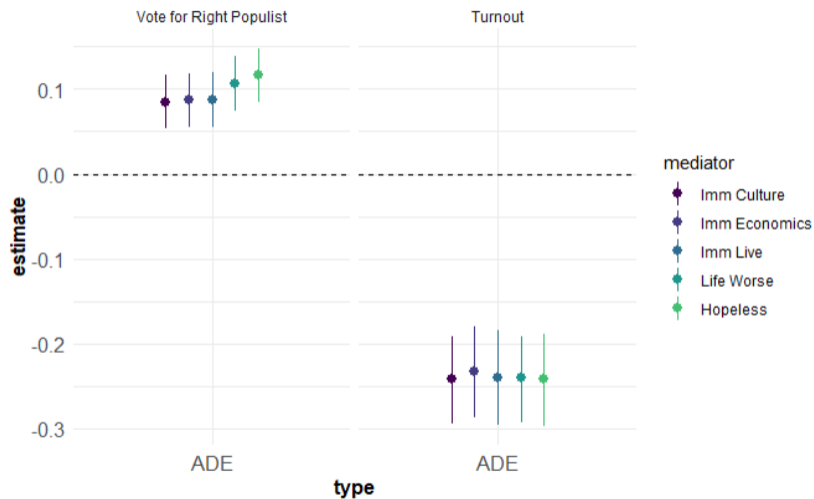
Automation risks ⇒ less tolerance toward immigrants, less hope about the future, more likely to support radical right, and less likely to vote. ▶ ▶

Results - Automation / Cultural Beliefs / Political Behavior



Far right: total effect " probability 12 pp, mediated 3.5 pp for xenophobia, and 1 pp for nostalgia
 Turnout: total effect # probability 25 pp, mediated 1.5 pp for xenophobia & nostalgia ▶ ▶

Results - Automation / Cultural Beliefs / Political Behavior



Far right: total effect # probability 12 pp, mediated 3.5 pp for xenophobia, and 1 pp for nostalgia
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Implications

Challenges and Further Work

Key findings

Implications

Challenges and future steps

Challenges and Further Work

Key findings

- Automation affects politics through triggering xenophobia and nostalgia.

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- What are the policy strategies to mitigate this?

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Key findings

- Automation affects politics through **triggering xenophobia and nostalgia**.

Implications

- **What are the policy strategies to mitigate this?**

Challenges and future steps

- Observational study ! leverage causality using **survey experiment**.
- Unpack when an individual decide to **abstain vs support far-right populist**.

Challenges and Further Work

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- Observational study ! leverage causality using **survey experiment**.
- Unpack when an individual decide to **abstain vs support far-right populist**.

Thank you!



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Supplementary Slides

Appendix - Index

- Countries in the sample ▶
- Question wording ▶
- Robustness control variables ▶
- Robustness Anelli et al. (2021) ▶
- Robustness industrial robots ▶
- IV ▶
- Culture & Populism ▶
- Culture & Turnout ▶
- Public opinion ▶
- Mediated Analysis Populism Right ▶
- Mediated Analysis Turnout ▶
- Mediated Analysis alternative operationalization: populism right turnout ▶
- Mediated w/ additional control variables ▶ ▶
- Sensitivity analysis ▶
- Hollowing out the middle ▶ job satisfaction ▶ robots incorporation ▶

Countries in sample [▶ Ind](#)

Austria, Belgium, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Question wording ▶ Ind

Attitudes toward immigration

- Cultural: “country’s cultural life undermined or enriched by immigrants” (*imueclt*)
 - Economy: whether immigration is “bad or good for the country’s economy” (*imbgeco*)
 - Overall: “make the country worse or better place to live” (*imwbcnt*).
- ! 11-point scales. 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).

Nostalgic feelings

- Hope: whether it is hard “to be hopeful about the future of the world” (*nhpftr*)
 - Life: “For most people in this country, life is getting worse” (*lfwrs*).
- ! from (1) ‘agree strongly’ to (5) ‘disagree strongly.’

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radical Right	Turnout	Culture	Economy	Live	Life Better	Hopeful
▶ Back ▶ Ind							
Frey & Osborne	3.501 (0.310)	-1.502 (0.174)	-2.139 (0.130)	-2.235 (0.120)	-1.760 (0.119)	-0.754 (0.094)	-0.563 (0.098)
Education (years)	-0.060 (0.010)	0.076 (0.006)	0.089 (0.005)	0.083 (0.005)	0.067 (0.004)	0.011 (0.004)	0.012 (0.003)
Age	-0.016 (0.002)	0.034 (0.002)	-0.004 (0.001)	0.004 (0.001)	-0.003 (0.001)	-0.005 (0.001)	-0.006 (0.001)
Female	-0.448 (0.059)	-0.016 (0.029)	0.094 (0.027)	-0.311 (0.023)	-0.038 (0.027)	-0.089 (0.017)	-0.081 (0.017)
Urban	-0.164 (0.070)	-0.034 (0.035)	0.209 (0.027)	0.166 (0.028)	0.159 (0.025)	0.013 (0.023)	0.010 (0.020)
Union Member	0.027 (0.073)	0.234 (0.033)	0.101 (0.029)	-0.003 (0.030)	0.033 (0.027)	-0.069 (0.020)	-0.048 (0.021)
Unemployed	0.203 (0.172)	-0.268 (0.072)	-0.163 (0.063)	-0.260 (0.060)	-0.282 (0.061)	-0.181 (0.046)	-0.114 (0.057)
Ethnic minority	0.891 (0.255)	0.203 (0.067)	-0.398 (0.072)	-0.267 (0.059)	-0.405 (0.060)	0.023 (0.035)	0.032 (0.050)
Foreign Born	-0.276 (0.136)	-1.101 (0.070)	0.440 (0.059)	0.547 (0.051)	0.673 (0.047)	0.071 (0.032)	-0.036 (0.038)
Precarious employment contract	-0.149 (0.097)	-0.105 (0.042)	0.101 (0.034)	0.117 (0.031)	0.125 (0.031)	0.022 (0.023)	-0.004 (0.027)
Income	-0.058 (0.011)	0.107 (0.006)	0.055 (0.005)	0.065 (0.005)	0.046 (0.005)	0.025 (0.004)	0.048 (0.005)
Regional controls	X	X	X	X	X	X	X
Country-Year FE	X	X	X	X	X	X	X
NUTS FE	X	X	X	X	X	X	X
Observations	28559	50711	53612	53435	53512	13396	13434
R ²	0.163	0.143	0.184	0.153	0.153	0.345	0.162
A/C	1.2e+04	4.1e+04	2.4e+05	2.3e+05	2.3e+05	3.3e+04	3.7e+04

Table: Robustness checks. Standard errors clustered by region-year in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

	Immigration (Hyp. I)			Nostalgia (Hyp. II)		Political Behavior	
	(1) Culture	(2) Economy	(3) Live	(4) Life Better	(5) Hopeful	(6) Radical Right	(7) Turnout
Automation risks	-0.314 (0.042)	-0.332 (0.042)	-0.261 (0.039)	-0.144 (0.022)	-0.125 (0.024)	0.011 (0.005)	-0.033 (0.006)
Demographic	×	×	×	×	×	×	×
Country-Year FE	×	×	×	×	×	×	×
NUTS FE	×	×	×	×	×	×	×
Observations	151296	150778	151615	44674	44923	97035	141097
R^2	0.155	0.109	0.130	0.291	0.130	0.108	0.096
AIC	6.7e+05	6.7e+05	6.5e+05	1.2e+05	1.3e+05	-3.4e+04	1.3e+05

Table: Standard errors clustered by region-year in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Dependent variable: A) 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). B) 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.

Robustness - Industrial robots [▶ Back](#) [▶ Ind](#)

	Immigration (Hyp. I)			Nostalgia (Hyp. II)		Political Behavior	
	(1) Culture	(2) Economy	(3) Live	(4) Worse Life	(5) Hopeless	(6) Radical Right	(7) Turnout
Frey & Osborne	-2.310 (0.199)	-2.354 (0.183)	-2.056 (0.175)	-0.451 (0.127)	-0.726 (0.103)	0.162 (0.028)	-0.234 (0.035)
IV D robots	-0.544 (1.440)	0.323 (1.319)	0.570 (1.247)	-2.832 (1.119)	-0.095 (0.780)	-0.434 (0.214)	0.266 (0.241)
Demographic	×	×	×	×	×	×	×
Country-Year FE	×	×	×	×	×	×	×
NUTS FE	×	×	×	×	×	×	×
Observations	151296	150778	151615	44674	44923	97035	141097
R^2	0.162	0.116	0.136	0.294	0.134	0.111	0.097
AIC	6.7e+05	6.6e+05	6.5e+05	1.1e+05	1.3e+05	-3.4e+04	1.3e+05

Standard errors in parentheses

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

Table: IV Regional exposure to industrial robots per worker and support for radical right and turnout.

Dependent variable: Support for immigration as they enrich cultural life (1), are better for the economy (2), and make the country a better place to live (3). Answers range from "Very much like me" (= 0) to "Not like me at all" (= 10). Nostalgia: Life is getting worse (4), hard to be hopeful about the future of the world (5). Answers range from "Very much like me" (= 1) to "Not like me at all" (= 5). Source: ESS (1-7) data.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Radical Right	Turnout	Culture	Economy	Live	Life Better	Hopeful
Automation Risk	0.028 (0.007)	-0.062 (0.008)	-0.806 (0.069)	-0.768 (0.064)	-0.653 (0.059)	-0.371 (0.048)	-0.321 (0.040)
Demographics	×	×	×	×	×	×	×
NU FE	×	×	×	×	×	×	×
Country-Year FE	×	×	×	×	×	×	×
Observations	97035	141097	151296	150778	151615	44674	44923
R^2	0.108	0.095	0.151	0.106	0.127	0.288	0.128
AIC	-3.4e+04	1.3e+05	6.7e+05	6.7e+05	6.5e+05	1.2e+05	1.3e+05

Standard errors in parentheses

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

Table: Automation risk is instrumented using robot adoption in other countries. Individual vulnerability is then weighted by the average percentage change in the stock of operational robots across other Western European countries in previous three years. Measure comes from (Anelli et al., 2021).

Cultural Beliefs & Support for Radical Right [▶ Back](#) [▶ Ind](#)

Regional Exposure to D Robots

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Automation Risk	0.028 (0.007)	0.016 (0.006)	0.018 (0.007)	0.018 (0.007)	0.028 (0.011)	0.034 (0.011)
Culture		-0.015 (0.001)				
Economy			-0.013 (0.001)			
Live				-0.015 (0.001)		
Worse Life					-0.016 (0.002)	
Hopeless						-0.004 (0.001)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
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: Regression estimates of the impact of a one-SD increase in regional-level robot exposure on voting for a radical-right party (Anelli et al., 2021). DV: Support for radical right parties. Source: ESS (1-7).

Cultural Beliefs & Turnout [▶ Back](#) [▶ Ind](#)

Regional Exposure to D Robots

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Automation Risk	-0.062 (0.008)	-0.055 (0.008)	-0.053 (0.008)	-0.056 (0.008)	-0.084 (0.019)	-0.086 (0.019)
Culture		0.008 (0.001)				
Economy			0.010 (0.001)			
Live				0.009 (0.001)		
Worse Life					0.019 (0.003)	
Hopeless						0.017 (0.002)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
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: Regression estimates of the impact of a one-SD increase in regional-level robot exposure on voting for a radical-right party (Anelli et al., 2021). DV: Turnout Source: ESS (1-7).

Automation Risk (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	Yes	Yes	Yes	Yes	Yes
NU FE	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes
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 in parentheses

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

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

Automation Risk (Frey & Osborne)

	(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)	-0.205 (0.027)
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	40695
R^2	0.098	0.101	0.099	0.105	0.095
AIC	3.6e+04	3.6e+04	3.6e+04	1.8e+04	3.6e+04

Standard errors in parentheses

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

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

Mediated Analysis for Support for Populist Right (Hyp. III)

	(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: Mediated effects of Risk of automation on electoral support for the radical right (2nd stage). Automation risk operationalized using Anelli et al. (2021) approach. Source: ESS (6-7).

Mediated Analysis for Turnout (Hyp. IV) [▶ Back](#) [▶ Ind](#)

	(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: Mediated effects of Risk of automation on turnout (2nd stage). Automation risk operationalized using Anelli et al. (2021) approach. Source: ESS (6-7).

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Automation Risk	0.094	0.094	0.097	0.114	0.100
	(0.017)	(0.016)	(0.017)	(0.025)	(0.023)
Income	×	×	×	×	×
Individual Control variables	×	×	×	×	×
Regional Control variables	×	×	×	×	×
NU FE	×	×	×	×	×
Country-Year FE	×	×	×	×	×
Observations	20189	20088	20134	9581	9557
R^2	0.111	0.107	0.110	0.089	0.097
AIC	-2.3e+03	-2.1e+03	-2.3e+03	-2.3e+03	-2.4e+03

Standard errors in parentheses

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

Table: Mediated effects of Risk of automation on support for populist right (2nd stage). Automation risk operationalized using Frey and Osborne (2017) approach. Source: ESS (6-7).

Mediated Analysis for Turnout (w/control variables) [▶ Back](#) [▶ Ind](#)

	(1)	(2)	(3)	(4)	(5)
	Culture	Imm Eco	Imm Worse Life	Hopeless	Worse Life
Automation Risk	-0.141	-0.130	-0.138	-0.171	-0.165
	(0.028)	(0.027)	(0.027)	(0.040)	(0.040)
Income	×	×	×	×	×
Individual Control variables	×	×	×	×	×
Regional Control variables	×	×	×	×	×
NU FE	×	×	×	×	×
Country-Year FE	×	×	×	×	×
Observations	26811	26702	26764	12617	12590
R^2	0.133	0.136	0.134	0.139	0.139
AIC	2.1e+04	2.1e+04	2.1e+04	9461.946	9471.757

Standard errors in parentheses

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

Table: Mediated effects of Risk of automation on turnout (2nd stage). Automation risk operationalized using Frey and Osborne (2017) approach. Source: ESS (6-7).

		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: Sensitivity analyses, based on Hicks & Tingley (2011).

Robots Are Coming [▶ Back](#) [▶ Ind](#)

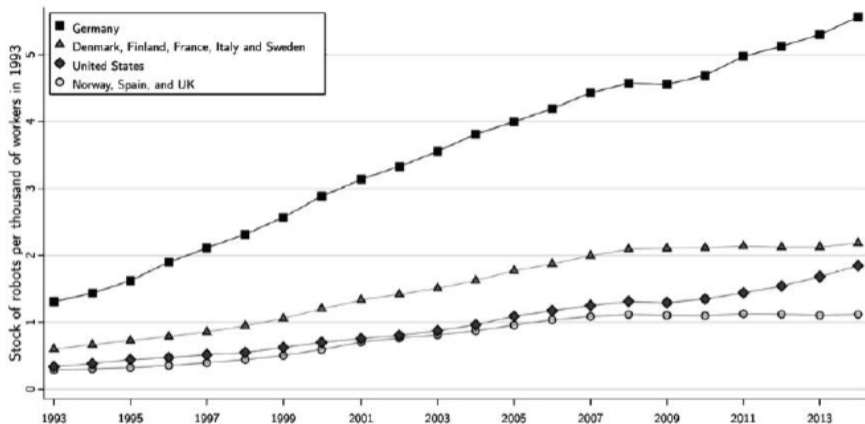
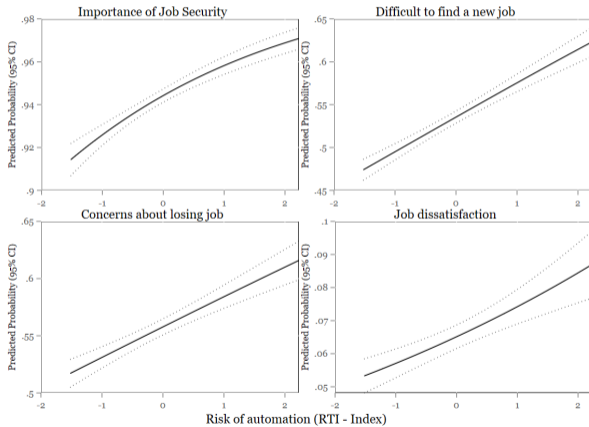


Figure: Industrial robots per thousand workers in the US and Europe

Figure comes from Acemoglu and Restrepo (2019)

Satisfaction and Routine vs. Non-Routine Workers [▶ Back](#) [▶ Ind](#)

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



Source: ISSP (1997, 2005 and 2015)

Hollowing out the Middle ▶ Ind



Figure: Relative Share of Labor Force 1995 to 2014

Countries included: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Italy, and United Kingdom. Source: Author's own calculation based on ISSP data.

Table: Public opinion and automation

Survey	Country Year	Question	Results
Special Eurobarometer	EU, 2017	Please tell me to what extent you agree or disagree with the following statement: Due to the use of robots and artificial intelligence, more jobs will disappear than new jobs will be created.	74% agree that more jobs will disappear rather than created due to automation
		Please tell me to what extent you agree or disagree with the following statement: Robots and artificial intelligence steal people's jobs	72% agree that robots steal people's jobs
		Do you think your current job could be done by a robot or by artificial intelligence in the future?	44% think that their current job could be at least partially automated

References

References I

- Acemoglu, D., & Restrepo, P. (2018, January). Artificial Intelligence, Automation, and Work. In *The Economics of Artificial Intelligence: An Agenda* (pp. 197–236). University of Chicago Press. Retrieved 2021-09-23, from <https://www.nber.org/books-and-chapters/economics-artificial-intelligence-agenda/artificial-intelligence-automation-and-work>
- Acemoglu, D., & Restrepo, P. (2019). *Automation and New Tasks: How Technology Displaces and Reinstates Labor* (Working Paper No. 25684). National Bureau of Economic Research. Retrieved 2020-02-03, from <http://www.nber.org/papers/w25684> doi: 10.3386/w25684

References II

- Anelli, M., Colantone, I., & Stanig, P. (2021, November). Individual vulnerability to industrial robot adoption increases support for the radical right. *Proceedings of the National Academy of Sciences*, 118(47), e2111611118. Retrieved 2022-01-08, from <http://www.pnas.org/lookup/doi/10.1073/pnas.2111611118> doi: 10.1073/pnas.2111611118
- Barauskaitė, D., Gineikienė, J., & Fennis, B. M. (2022). Saved by the past? Disease threat triggers nostalgic consumption. *Psychology & Marketing*, 39(8), 1433–1450. Retrieved 2022-09-27, from <https://onlinelibrary.wiley.com/doi/abs/10.1002/mar.21663> (_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/mar.21663>) doi: 10.1002/mar.21663

References III

- Beesley, C., & Bastiaens, I. (2020, November). Globalization and intention to vote: the interactive role of personal welfare and societal context. *Review of International Political Economy*, 0(0), 1–23. Retrieved 2022-01-05, from <https://doi.org/10.1080/09692290.2020.1842231> (Publisher: Routledge _eprint: <https://doi.org/10.1080/09692290.2020.1842231>) doi: 10.1080/09692290.2020.1842231
- Bukowski, M., de Lemus, S., Rodriguez-Bailón, R., & Willis, G. B. (2017, November). Who's to blame? Causal attributions of the economic crisis and personal control. *Group Processes & Intergroup Relations*, 20(6), 909–923. Retrieved 2022-09-13, from <https://doi.org/10.1177/1368430216638529> (Publisher: SAGE Publications Ltd) doi: 10.1177/1368430216638529
- Chaudoin, S., & Mangini, M.-D. (n.d.). Robots, Foreigners, and Foreign Robots: Policy Responses to Automation and Trade. , 70.
- Davis, F. (1979). *Yearning for Yesterday: A Sociology of Nostalgia*. New York.

References IV

- Frey, C. B., Berger, T., & Chen, C. (2017). Political machinery: Automation anxiety and the 2016 US presidential election. *University of Oxford*.
- Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280. Retrieved 2020-05-06, from <http://www.sciencedirect.com/science/article/pii/S0040162516302244> doi: 10.1016/j.techfore.2016.08.019
- Gamez-Djokic, M., & Waytz, A. (2020, August). Concerns About Automation and Negative Sentiment Toward Immigration. *Psychological Science*, 31(8), 987–1000. Retrieved 2022-09-13, from <https://doi.org/10.1177/0956797620929977> (Publisher: SAGE Publications Inc) doi: 10.1177/0956797620929977

References V

- Goldstein, J. L., & Peters, M. E. (2014, May). Nativism or Economic Threat: Attitudes Toward Immigrants During the Great Recession. *International Interactions*, 40(3), 376–401. Retrieved 2022-09-13, from <https://doi.org/10.1080/03050629.2014.899219> (Publisher: Routledge _eprint: <https://doi.org/10.1080/03050629.2014.899219>) doi: 10.1080/03050629.2014.899219
- Granulo, A., Fuchs, C., & Puntoni, S. (2019, October). Psychological reactions to human versus robotic job replacement. *Nature Human Behaviour*, 3(10), 1062–1069. Retrieved 2022-04-23, from <https://www.nature.com/articles/s41562-019-0670-y> (Number: 10 Publisher: Nature Publishing Group) doi: 10.1038/s41562-019-0670-y
- Hirsch, A. R. (1992). Nostalgia: a Neuropsychiatric Understanding. *ACR North American Advances*, NA-19. Retrieved 2022-10-09, from <https://www.acrwebsite.org/volumes/7326/volumes/v19/NA-19/full>

References VI

- Im, Z. J., Mayer, N., Palier, B., & Rovny, J. (2019). The “losers of automation”: A reservoir of votes for the radical right? *Research & Politics*, 6(1), 2053168018822395.
- Imai, K., Keele, L., Tingley, D., & Yamamoto, T. (2011, November). Unpacking the Black Box of Causality: Learning about Causal Mechanisms from Experimental and Observational Studies. *American Political Science Review*, 105(4), 765–789. Retrieved 2022-01-03, from <https://www.cambridge.org/core/journals/american-political-science-review/article/abs/unpacking-the-black-box-of-causality-learning-about-causal-mechanisms-from-experimental-and-observational-studies/9D2ACE9F784B99A30216D216FBF88553> (Publisher: Cambridge University Press) doi: 10.1017/S0003055411000414

References VII

- Kaihovaara, A., & Im, Z. J. (2020, August). Jobs at risk? Task routineness, offshorability, and attitudes toward immigration. *European Political Science Review*, 12(3), 327–345. Retrieved 2021-08-28, from <https://www.cambridge.org/core/journals/european-political-science-review/article/jobs-at-risk-task-routineness-offshorability-and-attitudes-toward-immigration/C11861728FDF6714631E69A053FE6D9B> (Publisher: Cambridge University Press) doi: 10.1017/S1755773920000144
- Keele, L., Tingley, D., & Yamamoto, T. (2015). Identifying Mechanisms Behind Policy Interventions Via Causal Mediation Analysis. *Journal of Policy Analysis and Management*, 34(4), 937–963. Retrieved 2022-01-03, from <https://onlinelibrary.wiley.com/doi/abs/10.1002/pam.21853> (_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/pam.21853>) doi: 10.1002/pam.21853

References VIII

- Lammers, J., & Baldwin, M. (2020). Make America gracious again: Collective nostalgia can increase and decrease support for right-wing populist rhetoric. *European Journal of Social Psychology*, 50(5), 943–954. Retrieved 2021-10-20, from <https://onlinelibrary.wiley.com/doi/abs/10.1002/ejsp.2673> (_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/ejsp.2673>) doi: 10.1002/ejsp.2673
- Marx, P., & Nguyen, C. (2016, October). Are the Unemployed Less Politically Involved? A Comparative Study of Internal Political Efficacy. *European Sociological Review*, 32(5), 634–648. Retrieved 2021-04-25, from <https://doi.org/10.1093/esr/jcw020> doi: 10.1093/esr/jcw020
- Milner, H. V. (2021). Voting for Populism in Europe: Globalization, Technological Change, and the Extreme Right. *Comparative Political Studies*, 0010414021997175. Retrieved 2021-03-21, from <https://doi.org/10.1177/0010414021997175> doi: 10.1177/0010414021997175

References IX

- Owen, E. (2019). *Firms vs. Workers? The Politics of Openness in an Era of Global Production and Automation*.
- Rindfleisch, A., Burroughs, J. E., & Wong, N. (2009, June). The Safety of Objects: Materialism, Existential Insecurity, and Brand Connection. *Journal of Consumer Research*, 36(1), 1–16. Retrieved 2022-10-09, from <https://doi.org/10.1086/595718> doi: 10.1086/595718
- Steenvoorden, E., & Hartevelde, E. (2018). The appeal of nostalgia: the influence of societal pessimism on support for populist radical right parties. *West European Politics*, 41(1), 28–52. Retrieved 2022-01-08, from <https://doi.org/10.1080/01402382.2017.1334138> (Publisher: Routledge _eprint: <https://doi.org/10.1080/01402382.2017.1334138>) doi: 10.1080/01402382.2017.1334138

References X

- van Prooijen, J.-W., Rosema, S., Chemke-Dreyfus, A., Trikaliti, K., & Hormigo, R. (2022). Make It Great Again: The Relationship Between Populist Attitudes and Nostalgia. *Political Psychology*, 43(5), 951–968. Retrieved 2022-09-29, from <https://onlinelibrary.wiley.com/doi/abs/10.1111/pops.12825> (_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/pops.12825>) doi: 10.1111/pops.12825
- Wu, N. (2022a). Misattributed blame? Attitudes toward globalization in the age of automation. *Political Science Research and Methods*, 10(3), 470–487. Retrieved 2022-09-13, from <https://www.cambridge.org/core/journals/political-science-research-and-methods/article/misattributed-blame-attitudes-toward-globalization-in-the-age-of-automation/29B08295CEAC4A4A89991E064D0284FF> (Publisher: Cambridge University Press) doi: 10.1017/psrm.2021.43

References XI

- Wu, N. (2022b). “Restrict foreigners, not robots”: Partisan responses to automation threat. *Economics & Politics*, n/a(n/a). Retrieved 2022-09-13, from <https://onlinelibrary.wiley.com/doi/abs/10.1111/ecpo.12225> (_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/ecpo.12225>) doi: 10.1111/ecpo.12225
- Zhou, L., Wang, T., Zhang, Q., & Mou, Y. (2013, December). Consumer insecurity and preference for nostalgic products: Evidence from China. *Journal of Business Research*, 66(12), 2406–2411. Retrieved 2022-09-27, from <https://www.sciencedirect.com/science/article/pii/S014829631300218X> doi: 10.1016/j.jbusres.2013.05.027