

# The Declining Middle: Political Reactions to Occupational Change

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This article investigates the political consequences of technology-induced occupational change and sheds light on the economic and cultural roots of populism. A growing body of research shows that the disadvantages of a transforming employment structure are strongly concentrated among semiskilled routine workers in the lower middle class. I argue that individual employment trajectories and *relative* shifts in societal position are key to understanding politics in the age of automation. It is a perception of relative economic decline among politically powerful groups — not their impoverishment — that drives support for conservative and, especially, right-wing populist parties. Individual-level panel data from three post-industrial democracies and an empirical strategy tailored to the estimation of dynamic causal effects demonstrate this relationship. The findings suggest that the often-stated answer of ‘more welfare’ will be an ineffective remedy against the ascent of nationalist populist movements.

Widespread political dissatisfaction, increasing anti-establishment rhetoric, and the rise of populist parties have disrupted the politics of many advanced capitalist democracies. Brexit and the election of Donald Trump are just the most visible signs of profoundly changing patterns of mass opinion that challenge basic pillars of the democratic system. This article asks about the structural economic determinants behind the observed disruptions and examines the political consequences of a changing occupational structure in post-industrial societies.

At least since the Industrial Revolution, pundits and the public alike have had a keen interest in the social and political consequences of economic modernization and the concomitant evolution of the employment structure. Karl Polanyi famously warned against the social dislocations created by the rise of an unregulated market economy, and accordingly predicted a backlash against the “liberal creed”.<sup>1</sup> Structural changes, such as deindustrialization and globalization, continued to transform the highly industrialized economies of Western Europe into post-industrial societies; and a vast literature has studied political implications of these processes.<sup>2</sup>

In recent years, the most important factor behind occupational change has been technology.<sup>3</sup> Rapid advances in automation and computerization push us into a new era where many existing skills and competencies become increasingly redundant. The disadvantages are not distributed uniformly, however, as contemporary innovations in technology affect distinct occupations in fundamentally different ways. While computers tend to complement workers in non-routine jobs, they substitute for routine tasks that can be accomplished by following a set of well-defined, explicit rules.<sup>4</sup> Accordingly, routine workers in the middle of the education and earnings distribution are particularly threatened by workplace automation. How do routine workers react to these unknown levels of vulnerability? And to what extent is the “hollowing of

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<sup>1</sup>Polanyi (1944)

<sup>2</sup>see, e.g., Kitschelt (1994); Iversen & Cusack (2000); Iversen & Soskice (2001); Kriesi, Grande, Lachat, Dolezal, Bornschieer & Frey (2006); Wren (2013); Rodrik (2017); Bornschieer (2018); Colantone & Stanig (2018)

<sup>3</sup>Oesch (2013); Goos, Manning & Salomons (2014); OECD (2017)

<sup>4</sup>Autor, Levy & Murnane (2003)

the middle” responsible for the political disruptions we currently observe in many post-industrial societies?

A key debate in the economic and sociological literature studying the impact of new technology on labor markets revolves around whether automation will create more jobs than it destroys. What such projections often ignore, however, is that a profound transformation of labor markets may intensify distributive conflicts despite a rise in overall welfare. Even if technological change generates a long-term net gain in aggregate employment, a significant part of the labor force will have to deal with increasing susceptibility to automation. At the same time, others, better equipped to face the challenges of transforming labor markets, will be thriving. Technological innovation creates winners and losers and while it undoubtedly opens up new opportunities for many, it also brings serious and sometimes existential threats to others.

Although observers have been quick to suggest that those “left behind” by economic modernization are at the root of widespread political dissatisfaction and rising anti-establishment rhetoric, we still lack a clear picture of the structural determinants behind current political disruptions.<sup>5</sup> Only recently have researchers begun to uncover how the technology-induced transformation of the employment structure shapes political attitudes. Oesch expects the winners of occupational change to generally endorse libertarian and universalistic values, while the losers rather embrace the culturally conservative positions of right-wing populist parties.<sup>6</sup> In a similar vein, district-level evidence of the past U.S. Presidential Election demonstrates a relationship between exposure to automation and the vote share of Donald Trump.<sup>7</sup> Thewissen and Rueda, on the other hand, show that routine workers, aware of their non-human competitors, support social security as a public insurance against potential future job loss resulting from technological change.<sup>8</sup> This latter finding adds to other individual-level studies that have difficulty revealing clear associations between material interests and support

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<sup>5</sup>see, e.g., Inglehart & Norris (2017); Gidron & Hall (2017); Mutz (2018)

<sup>6</sup>Oesch (2015)

<sup>7</sup>Frey, Berger & Chen (2017)

<sup>8</sup>Thewissen & Rueda (2017)

for nationalist populist parties and thus tend to conclude that non-economic motives might prevail over economic motives.<sup>9</sup>

As a result, contemporary research controversially discusses the cultural and economic roots of these profoundly changing patterns of mass opinion.<sup>10</sup> I contribute to this debate by studying routine workers' political reaction to increasingly bleak labor market prospects in the face of rapid technological progress. In contrast to existing work, this article is not primarily concerned with the usual indicators of absolute material hardship, e.g. low wages or unemployment, but instead brings *relative* shifts in economic well-being into the spotlight. Despite the risk of automation, many routine workers actually manage to cling to their jobs and maintain their standard of living.<sup>11</sup> Superficially considered, one might mistake their economic situation as stable. However, stability (or stagnation) in an increasingly hostile economic environment may be of limited satisfaction when other parts of society are thriving.

I contend that it is crucial to more carefully disentangle the political consequences of *fearing* as opposed to *experiencing* economic hardship. While routine workers all face similar initial threats from automation, the materialized occupational trajectories are diverse and strongly differ in their material implications. The following analysis is an attempt to reconcile the contradictions in existing research. On the side of the explanatory variables, I make an effort to differentiate between relative and absolute economic decline. Following individual employment biographies over time allows to accurately capture different occupational trajectories along with their economic implications. On the other side of the equation, I examine vote intention of individuals affected by technological change and also take into account the possibility of defecting and abstaining from the ballot box altogether. Both parts together, i.e. knowledge on the relative frequency of different occupational trajectories and the political reaction they produce, allow for an encompassing analysis of how the “declining middle”, no

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<sup>9</sup>Inglehart & Norris (2016)

<sup>10</sup>Gidron & Hall (2017); Inglehart & Norris (2016); Rooduijn & Burgoon (2017)

<sup>11</sup>Kurer & Gallego (2018)

longer protected from the vagaries of economic modernization, reacts to increasingly bleak labor market prospects.

With that aim, I leverage individual-level panel data from Germany, Switzerland and the United Kingdom to analyze the effect of differential employment trajectories on routine workers' political behavior. The analysis employs an empirical strategy tailored to the investigation of dynamic processes such as repeated occupational transitions, so called marginal structural models, to estimate the causal effect of three distinct paths out of routine work. Tracing employment histories over time demonstrates that “surviving” in a shrinking job environment (relative decline) increases the demand for identity politics, while actually losing a job in routine work (absolute decline) prompts an economic response and increases abstention. The core result of this paper demonstrates that it is a perception of relative decline and concomitant anxiety about one's position in society — not poverty or acute material hardship — that drives support for nationalist populist movements.

The presented theoretical argument and empirical findings provide a novel and more nuanced reading of the economic roots as well as the future prospects of populism. The results have important implications for the debate about the adequate policy reaction to recent political disruptions since they suggest that the often-stated remedy of ‘more welfare’ will be an insufficient response to satisfy exposed workers and hence an ineffective remedy against the ascent of nationalist populist movements.

## Occupational trajectories of routine workers

The theoretical framework of this paper follows influential work in labor economics, which builds on a simplified model economy with three task groups.<sup>12</sup> As *routineness* is the defining feature of susceptibility to automation<sup>13</sup>, I focus on the characteristics of an occupation in terms of tasks rather than skill level. We assume a continuum of

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<sup>12</sup>Autor et al. (2003); Spitz-Oener (2006); Jung & Mercenier (2014); Cortes (2016)

<sup>13</sup>Autor et al. (2003)

workers who differ in skill level and sort into one of three distinct occupational task groups labeled as non-routine manual ( $M$ ), routine ( $R$ ) and non-routine cognitive ( $C$ ).

<sup>14</sup> The group at the center of interest is the group of routine workers. The performed tasks are of repetitive nature, be they manual or cognitive, but not necessarily undemanding as they require a certain amount of training. Most blue-collar jobs belong to this category but also a significantly large part of basic white-collar work in administration and back offices. Two fundamentally different kinds of non-routine groups exist alongside the group of routine workers. On the one hand, non-routine cognitive work is characterized by non-repetitive, abstract and cognitively demanding analytical and interactive tasks usually requiring higher education. Think of managerial and complex professional jobs, for example business managers, higher education teachers or civil engineers. On the other hand, non-routine manual jobs represent the other end of the skill spectrum and are characterized by relatively simple tasks, which cannot be automated, oftentimes because they require personal interaction or “hand-eye coordination”.<sup>15</sup> Most of these jobs are associated with low-skill service employment like taxi driving, food preparation, cleaning or sales.<sup>16</sup>

Table 1 presents some descriptive information from the three countries analyzed below in order to confirm the notion of routine workers being a sizable group in the “middle” of the labor force. Compared to non-routine manual ( $M$ ) work, routine ( $R$ ) jobs are characterized by more demanding educational requirements and, correspondingly, higher median wages. At the same time, non-routine cognitive ( $C$ ) work is associated with even higher job quality as it clearly outperforms routine work in terms of both indicators. The two last columns in Table 1 lend support to the classification of occu-

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<sup>14</sup>Cortes (2016) Acemoglu and Autor (2011), in contrast, consider a setting with a continuum of tasks and three skill groups. Subsequent research has argued for the alternative setting used in this paper, not least because it avoids creating “arbitrary distinctions” (Cortes, 2016, p. 69) between skill-groups. Boundaries between task groups are easier to define by relying on detailed occupational codes, which most often allow for a clear differentiation in terms of their task content.

<sup>15</sup>Manning (2003)

<sup>16</sup>Many of those low-skilled jobs in the service sector will be threatened by automation in coming years, too. The focus of this study, however, is on the past and contemporary impact of technological change. The rather bleak forward-looking perspective, e.g. given by Frey and Osborne (2017), allows for interesting speculation about further political repercussions in the future but not for empirical analysis of the political consequences observed up to now.

pations with regard to the level of routineness and associated degree of susceptibility to automation. As expected, routine occupations are strongly dominated by routine tasks as indicated by positive values in the Routine Task Intensity index (RTI, see Autor and Dorn (2013)), whereas both non-routine groups — irrespective of skill requirements — have negative average values. In line with the idea that computers are especially successful in substituting routine work, the prevalence of repetitive tasks in the middle group goes hand in hand with a distinctively higher probability of being replaced by computers in the near future.<sup>17</sup> Recent research has established that individuals are aware of these varying degrees of vulnerability to automation. Those in economic positions more likely to be threatened by technological progress appear to be more afraid of competition by robots.<sup>18</sup>

TABLE 1: Descriptive Statistics per Country and Task Group

Country	Task Group	Share of Labor Force	Share Unskilled	Share Female	Median Income	RTI	Pr (Automation)
CH	C	48.3	4.6	41.5	5670	-0.656	0.222
	R	22.6	15.4	56.7	3683	1.519	0.841
	M	29.1	19.0	69.5	2492	-0.172	0.612
DE	C	35.0	5.9	43.7	2556	-0.654	0.251
	R	31.2	19.7	49.0	1600	1.157	0.788
	M	33.8	25.7	66.5	1100	-0.192	0.613
UK	C	33.7	5.8	44.2	1720	-0.744	0.231
	R	23.8	16.0	52.7	1051	1.547	0.842
	M	42.5	25.2	68.5	598	-0.071	0.621

Source: Country-specific panel data, pooled over time (see Table 2 for details on the underlying sample). Task Groups: NRC = Non-routine cognitive, RT = Routine, NRM = Non-routine manual. Median Income is in domestic currency. RTI is average value of the Routine Task Index (Autor & Dorn, 2013; Goos et al., 2014). RTI has been merged to individuals on the basis of occupation (ISCO88 2-digit). Prob. of Automation is the average value of the estimated probability of an occupation being replaced due to computerization (see Frey & Osborne, 2017). Correspondence tables have been used to merge these values, originally calculated for occupational groups based on the US Labor Department’s Standard Occupational Classification (SOC), with European classifications of occupations (ISCO88 4-digit).

Based on this theoretical framework, the spectrum of possible occupational transitions for routine workers is clearly defined. The three task groups and the additional

<sup>17</sup>Frey & Osborne (2017)

<sup>18</sup>Dekker, Salomons & van der Waal (2017)

possibility of becoming unemployed yield the following four different occupational trajectories.

- Upgrading: Switch from routine job to non-routine cognitive job
- Surviving: Remain in routine job
- Downgrading: Switch from routine job to non-routine manual job
- Dropout: Lose routine job and unable to find a new job

Although routine workers face similar (initial) threats from automation, they vary in their exit options, that is, their capabilities to escape the contracting job opportunities in the middle. In the best case, now-redundant workers in routine jobs will be able to upgrade to non-routine cognitive jobs, which will be accompanied by higher wages, higher prestige and an increase in job security. At the same time, others will be forced to downgrade to non-routine manual occupations<sup>19</sup>, which is most likely related to a decrease in terms of status and wage. Furthermore, some of the shrinking job opportunities in the middle cannot be absorbed by labor markets and will result in higher unemployment rates among routine workers.<sup>20</sup> Losing a job outrightly eliminates both the financial and the psychological benefits of employment.<sup>21</sup>

## Political reactions to occupational transitions

Technological progress fundamentally changes the relative demand of different occupations and tasks. The downsides of these shifts are heavily concentrated on routine workers who are particularly exposed to non-human competition by robots and smart software. This tension gives rise to two related but distinct notions of losing out. The first, economic insecurity, is concerned with the consequences of joblessness in a narrow sense and deals with the material implications of being made redundant. The second, status insecurity, is related to the feeling of being on the unfavorable side of

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<sup>19</sup>Cortes (2016); Cortes, Jaimovich & Siu (2016)

<sup>20</sup>Jung & Mercenier (2014)

<sup>21</sup>Jahoda (1982)



modernization. In a series of publications, Marie Jahoda (1979; 1982) advanced the idea that jobs have meaning beyond the income they provide. As an “unintended though inevitable”<sup>22</sup> consequence of its main purpose, employment is also a source of psychological well-being by offering collective purpose and social status. People strongly care about being valued by others and social status is known as a powerful motive behind individual behavior.<sup>23</sup> It stands to reason that the psychological benefit someone derives from a job strongly varies with its quality and esteem. Technological change severely alters the employment structure and the relative importance of and value attached to different kinds of work. Being traditionally respected members of the lower middle class, routine workers increasingly find themselves in an environment of structural decline. As a consequence of a rapidly decreasing demand for routine jobs, the importance and esteem of this kind of work has strongly suffered in the age of automation, not least indicated by stagnating or even declining “returns to experience”.<sup>24</sup> The familiar sense of linear progress in the past clashes with insecure future prospects and shatters the idea of ever-ongoing social upward mobility.<sup>25</sup>

The changes associated with technological progress and modernization even reach beyond the world of work, further contributing to increasing status insecurity among routine workers. Influential theorists of a risk society<sup>26</sup> have forcefully described the transition from a predictable industrial modernity characterized by traditional family arrangements, lifetime employment and secure retirement to a post-industrial age characterized by the “vicissitudes of detraditionalization”.<sup>27</sup> While for some, the liberation of the more rigid social and economic rules might be empowering, for others, the departure from inherited traditions and beginning of a new era of technological innovation rather creates a sense of isolation, alienation and discomfort.<sup>28</sup>

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<sup>22</sup>Jahoda (1982, p. 39)

<sup>23</sup>Ridgeway (2014)

<sup>24</sup>Case & Deaton (2017)

<sup>25</sup>Mau (2015); Nachtwey (2016)

<sup>26</sup>Beck (1986)

<sup>27</sup>Ekberg (2007, p. 346)

<sup>28</sup>Ekberg (2007)

Consequently, routine workers have to cope with parallel challenges to both their material and psychological well-being. Which political reaction should we expect? Crucially, the two notions of insecurity suggest different policy responses. Economic insecurity is best addressed by providing insurance against income loss, i.e. an expansion of the social safety net and a more encompassing and more generous welfare state.<sup>29</sup> Status insecurity, in contrast, is not mainly related to economic or welfare demands but rather to identity politics.<sup>30</sup> Status anxiety is not primarily a fear of fading into poverty but rather a fear of societal insignificance. Structural downward pressure is expected to fuel a desire for the status quo ante and a return of the old-established values of a long-gone time preceding the individualistic post-industrial age.<sup>31</sup> The point of the matter, however, is that political remedies against these two distinct notions of insecurity are rarely on the same menu. Parties that offer credible policy reactions in the domain of identity politics, e.g. right-wing populist parties with an emphasis on the values and virtues of an idealized past<sup>32</sup>, have limited leeway in the domain of welfare state spending. As center-right parties are the only feasible coalition partner, right-wing populists have strong incentives to promote a moderate welfare program in order to facilitate cooperation and thereby gain leverage in the electoral arena.<sup>33</sup> In addition, Hartevelde (2016) demonstrated that the combination of economically left and culturally conservative policy stances is problematic for vote-seeking parties. Emphasizing social security issues might attract more voters in precarious positions but at the same time deters well-trained and educated voters — a strategically undesirable outcome.<sup>34</sup>

As a consequence, there is no single party that offers credible and satisfying remedies against the parallel challenges routine workers face in times of automation. Instead,

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<sup>29</sup>Baldwin (1990); Iversen & Soskice (2001)

<sup>30</sup>Gidron & Hall (2017); Mutz (2018)

<sup>31</sup>Rydgren (2013); Oesch (2015); Gest, Reny & Mayer (2017)

<sup>32</sup>Andersen & Bjørklund (1990)

<sup>33</sup>Afonso (2015)

<sup>34</sup>While so called welfare chauvinism might fit into this pattern, it seems unlikely for voters with a primary demand in a strong welfare state to support such parties. The left is still a much more credible supporter of a generous social safety net. If, however, voters have a *secondary* preference for social security beyond their primary desire for a status quo ante, welfare chauvinist parties offer a very attractive policy package.

they have to balance and *prioritize* demands with respect to economic insecurity and status anxiety. The main argument of this paper is that occupational trajectories are key to understand the relative salience of these two demands.

Survivors are the group threatened but not (yet) hit by transforming labor markets: they manage to remain in middle-range routine jobs and therefore largely safeguard the economic benefits of employment. In purely economic terms, they are clearly not the worst-off social segment in post-industrial society.<sup>35</sup> However, due to the structural pressure on routine work, survivors experience *relative* economic decline, which diminishes the psychological benefits of work. Adverse relative shifts in societal standing and the dwindling esteem of routine jobs give rise to a continued loss of social status. As a consequence, their most pressing needs are not related to economic standing but rather to social status. “Surviving” in an environment of structural decline highlights status insecurity and makes identity politics salient.

Right-wing populist parties are commonly seen as the most successful political actor appealing to these sentiments of regretting bygone times.<sup>36</sup> What they offer is not primarily relief from economic stress but remedies against status anxiety by promoting the values of an idealized past where routine workers were a valued and crucial pillar of society. These are attractive propositions for those “uncomfortable with cultural modernity”.<sup>37</sup> In that sense, right-wing populists might provide a political coping strategy for deep discontent with politics and societal life in general.<sup>38</sup>

H1a: *Right-wing populist parties primarily attract survivors in routine work and transitions out of routine work reduce the probability to vote for this party family.*

In countries with a less diverse party-supply side, I expect traditional conservative parties to act as a second-best option for routine workers. Although not promoting the restoration of traditional order as aggressively as right-wing populists, conservative

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<sup>35</sup>See also Bornschieer & Kriesi (2013)

<sup>36</sup>See, e.g., Bornschieer (2010); Oesch (2008); Gidron & Hall (2017); Gest et al. (2017)

<sup>37</sup>Bornschieer & Kriesi (2013, p. 11)

<sup>38</sup>Spruyt, Keppens & Van Droogenbroeck (2016)

parties are credible advocates of old-established values and expected to be an attractive choice for routine workers with an interest in the status quo ante.

Indeed, a positional mapping of the party families of interest underlines that — in the absence right-wing populists — conservative parties are by far the fiercest defendants of traditional values (see Figure A1 in the Appendix). By implication, the hypothesis of a second-best option yields the expectation that conservative parties' attempts to rally routine workers are unsuccessful when competing with even more pronounced demands from right-wing populists. Only in the absence of a right-wing populist party should transitions out of routine work result in changing support for conservative parties.

H1b: *In the absence of a right-wing populist party, mainstream conservative parties attract survivors in routine work and transitions out of routine work reduce the probability to vote for this party family.*

H1c: *In the presence of a right-wing populist party, transitions out of routine work are unrelated to the support for mainstream conservative parties.*

These hypotheses imply that it is relative rather than absolute decline that determines support for culturally conservative parties. What about actual decline, then? While downgraders at least manage to find a job in lower-paid non-routine occupations, presumably in the service sector, dropouts end up unemployed after leaving or losing a routine job. Fear of social decline is thus no longer the primary motive to vote as the threats of contracting employment opportunities have indeed materialized. Fear turned into experience, which drastically alters the most pressing needs of these individuals. Once unemployed, actual scarcity of material resources rather than status anxiety is the main problem. Dropouts become dependent on social security benefits. I expect them to react with an economic response, thus moving away from right-wing populists and instead supporting left parties who traditionally and credibly promote a generous social safety net. The primacy of economic policy in the face of falling into unemployment has solid theoretical ground: Unemployment induces both finan-

cial and psychological deprivation, but the first is felt immediately while the latter develops in full force only over a longer time span.<sup>39</sup>

A second likely response is political abstention. As material resources are a well-known prerequisite for political participation, now-unemployed dropouts might also increasingly stay away from the ballot box. In the light of adverse economic conditions resulting from the loss of labor income, individuals might prefer to spend their scarce resources on “holding body and soul together” than on “remote concerns like politics”.<sup>40</sup>

H2a: *Dropouts have a higher probability of supporting left parties than survivors.*

H2b: *Dropouts have a higher probability of political abstention than survivors.*

Much in contrast to dropouts, upgraders were able to escape the squeeze in the middle for the better and find safer and presumably better-paid work in non-routine cognitive occupations. This subgroup therefore experienced the bright side of a market-based allocation of jobs and is hypothesized to increasingly vote for parties promoting free markets and limited government interventions.<sup>41</sup>

H3: *Upgraders have a higher probability of supporting market-liberal parties than survivors.*

The political reactions of downgraders are the most difficult to anticipate. On the one hand, they experienced a certain decline in status and, most likely, material resources. On the other hand, they were able to remain in the labor force and uphold at least some labor income and economic independence. I have no strong theoretical priors as to whether the experience of partial economic degradation or fear of further social decline dominates their political response. In the light of literature on psychological underpinnings of conservative ideology, where fear and uncertainty figures very promi-

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<sup>39</sup>Jahoda (1982)

<sup>40</sup>Rosenstone (1982, p. 26)

<sup>41</sup>The Liberal Democrats in the UK clearly differ from the continental pro-market party in their economic profile with a moderate position relatively close to the parties of the Left (see Figure A1). Upgraders in the United Kingdom thus might rather opt for the Conservative Party in search for market-liberal policies.

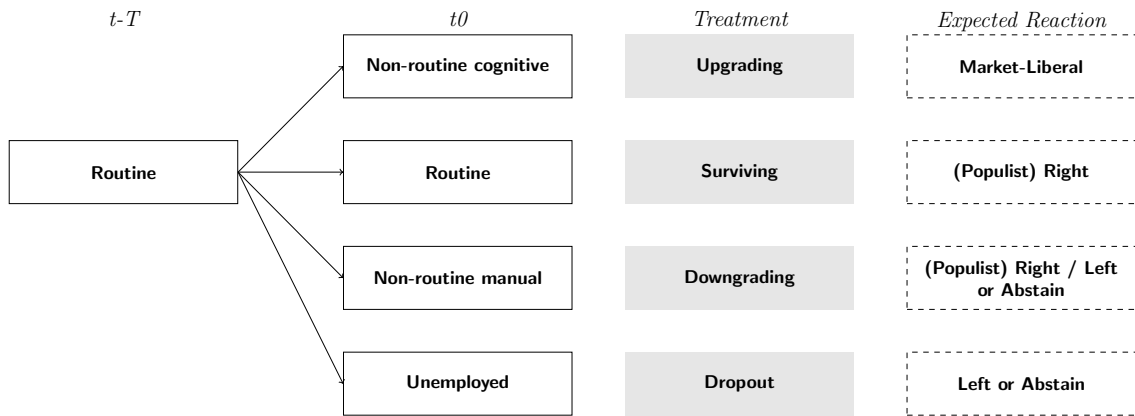


FIGURE 1: Theoretical Framework

nently,<sup>42</sup> one might still expect downgraders to remain likely supporters of (far-)right parties.

## Empirical Strategy

### Data, Operationalization and Sample

Panel data with detailed information on respondents' occupation spanning over a reasonably long time period are an essential prerequisite to study the question at hand. The availability of such data thus determines the case selection for this study. For the following analysis, I collected longitudinal data from the Swiss Household Survey, the German Socio-Economic Panel and the British Household Panel Survey as well as its successor the United Kingdom Household Longitudinal Study.

The most important variable for the present analysis, individual occupational transitions, is based on the classification proposed by Cortes<sup>43</sup>, which builds on the influential Autor-Levy-Murnane model<sup>44</sup> and related work in labor economics.<sup>45</sup> On the basis of

<sup>42</sup>For an overview, see Jost, Glaser, Kruglanski & Sulloway (2003)

<sup>43</sup>Cortes' (2016) classification is based on US Census Occupation Codes (COC) and has been translated to an analogous grouping based on ISCO codes (four digit version). The coding largely resembles Oesch's (2013, p. 156) grouping. See Table A1 for the detailed classification.

<sup>44</sup>Autor et al. (2003)

<sup>45</sup>Spitz-Oener (2006); Acemoglu & Autor (2011); Jung & Mercenier (2014)

the main activities required to perform a job, occupations are classified into three task categories  $j \in \{C, R, M\}$ , i.e. non-routine cognitive, routine and non-routine manual.

This simple grouping into three task groups  $j \in \{C, R, M\}$  plus the additional option of unemployment  $U$  yields a straightforward analytical framework to study occupational transitions (see Figure 1). A “survivor” in routine work is a respondent with  $j_{i,t} = j_{i,t-T} = R$ , where  $T$  is equal to the most proximate previous observation. Accordingly, upgraders are individuals who have been classified as routine worker  $R$  in  $t-T$  but fall into the category of non-routine cognitive work  $C$  in  $t$ . The same logic applies to downgraders and dropouts. From these individual occupational transitions, I create the central explanatory variable, a multi-valued treatment  $D_{i,t}$ .

$$D_{i,t} = \begin{cases} 0, & \text{if } j_{i,t} = R \wedge j_{i,t-T} = R \\ 1, & \text{if } j_{i,t} = C \wedge j_{i,t-T} = R \\ 2, & \text{if } j_{i,t} = M \wedge j_{i,t-T} = R \\ 3, & \text{if } j_{i,t} = U \wedge j_{i,t-T} = R \end{cases}$$

The dependent variable, vote intention, varies between countries and is created from the specific items in the respective data source (see Table A2 in Appendix). It should be noted that the independent questionnaires of the three data sources result in slightly differing operationalizations of the dependent variable, in particular with respect to abstention.

Given the focus of this study, the sample is restricted to those individuals who at some point in their employment history hold a routine job. The restriction to (initial) routine workers has the convenient side-effect of reducing potential confounding by selection of individuals with politically relevant character traits into specific occupations.<sup>46</sup> The resulting sample consists of individuals who have been in routine work in  $t-T$  and who are in one of the four previously defined occupational states  $j \in \{C, R, M, U\}$  in  $t$ . An individual can contribute multiple observations to the sample, especially if s/he remains in routine work. The sample is restricted to individuals of age 18 or more

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<sup>46</sup>See Kitschelt & Rehm (2014)

but younger than 65 who are eligible to vote (i.e. have citizenship of the respective country).

TABLE 2: Data Sources and Final Sample Size

Country	Data Source	Time Span	Sample
Switzerland	Swiss Household Panel (SHP)	1999 - 2014	8'871
Germany	Socio-Economic Panel (soeplong)	1989 - 2013	22'481
UK	British Household Panel Survey (BHPS)	1991 - 2008	24'481
	Understanding Society (UKHLS)	2009 - 2015	

## Identification

Individual occupational transitions are not determined by chance. Personal and contextual characteristics determine the likelihood and direction of a transition out of routine work. The standard approach to correct for selection is controlling for confounders. However, applied to dynamic processes like occupational trajectories, controlling itself introduces bias if confounders change over time and are potentially affected by previous treatment. For example, losing a routine job and becoming unemployed is more likely in some regions than in others. Insofar, region is a *predictor* of occupational transitions. However, unemployment then perhaps force this person to move to another region of the country, which means that region is also a *consequence* of an occupational transition and the new place of residence is likely to influence both future occupational transitions as well as future political preferences. In essence, in a longitudinal analysis, such time-varying confounders are pre-treatment and post-treatment variables *at the same time*.<sup>47</sup>

With conventional (fixed-effects) regression or matching methods, the researcher is left with an uncomfortable trade-off: either conditioning on the time-varying confounder, thus getting rid of omitted variable bias at the cost of potential post-treatment bias, or dropping the confounder, which avoids post-treatment bias but induces omitted

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<sup>47</sup>Blackwell (2013)



variable bias. Building on influential work in biostatistics and epidemiology<sup>48</sup>, marginal structural models (MSM) have been suggested as a hedge against this dilemma.<sup>49</sup>

Three steps are involved in the estimation of an MSM<sup>5051</sup> The first step is concerned with the treatment model. How likely is an individual to get, e.g., treatment A or B, that is to upgrade or downgrade in the occupational structure? As we are dealing with observational data, individual probabilities of treatment are unknown and have to be estimated empirically. Treatment assignment at each time point is modeled conditional on theoretically derived covariates (i.e. known determinants of treatment assignment) and the observed past, including the treatment history of a respondent.

Second, for every respondent in the sample, we create a weighting variable for each time point  $t$  that is equal to the inverse product of the calculated conditional probabilities at  $t$ . Re-weighting observations with the inverse individual probability of receiving treatment at  $t$  creates a pseudo-population where dynamic selection is eliminated, i.e. where treatment assignment is unaffected by confounding.<sup>52</sup> A person living in a region with high unemployment risk at  $t$  has a higher probability to get treatment C, i.e. losing a routine job. Weighting these respondents by the inverse of a high probability will downweight their influence and help achieve balance in the sample, that is, reduce confounding based on place of residence.

As a last step, we run the outcome model: To estimate the causal parameter of a MSM, we perform a weighted regression of the dependent variable, vote intention, on the multi-valued treatment variable capturing occupational transitions out of routine work. Importantly, this model avoids conditioning on time-varying covariates as confounding is accounted for via weighting instead of controlling. In contrast to (fixed-effects) regression or matching, we never explicitly condition on confounders in the outcome

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<sup>48</sup>Robins (2000); Robins, Hernan & Brumback (2000)

<sup>49</sup>Blackwell (2013); Bacak & Kennedy (2015); Imai & Ratkovic (2015)

<sup>50</sup>cf. Bacak & Kennedy (2015)

<sup>51</sup>For a formal discussion of the various stages involved in setting up a marginal structural model see the seminal contribution by Robins and colleagues (2000; 2000). Blackwell (2013) provides a theoretical and substantive introduction to political science contexts.

<sup>52</sup>Robins et al. (2000); Blackwell (2013); Bacak & Kennedy (2015)

model and thereby eliminate the threat of introducing post-treatment bias due to covariates that dynamically evolve over time.<sup>53</sup>

For the specification of the treatment model (step 1), expert knowledge on the determinants of occupational transitions is key. Studies in labor economics and sociology yield clear guidance with regard to the most important covariates. First of all, studies on local labor markets have emphasized a strong spatial component with regard to occupational change, driven separately by globalization and technological progress.<sup>54</sup> Regarding individual traits, Cortes (2016) shows that the sorting mechanism out of routine work depends on ability and skills: Especially routine workers with remarkable cognitive resources face a realistic chance of an occupational upgrade. Furthermore, women appear to be much more likely than men to leave declining routine jobs but often end up in usually lower-paid non-routine service jobs.<sup>55</sup> Age also matters: Especially young routine workers climb the occupational ladder while prime age and older workers remain in the contracting occupations of routine employment.<sup>56</sup> In addition, unions are likely to play a role regarding occupational transitions and employment protection. Members of a trade union might be less vulnerable to unemployment and potentially more stably embedded in their current job, thus making transitions less likely. Hence, the five most important determinants of the sorting mechanism appear to be region, education, gender, age and union membership. This is the core of the treatment model. Variable selection is justified by model fit (AIC), which is best in the full treatment model, i.e. better than in any specification omitting any of the core variables.

In addition, MSMs exploit the longitudinal data structure and take into account the entire treatment history of an individual. I rely on a combination of a one-period lagged treatment variable and the cumulative treatment history (share of years treated) of each respondent. Year dummies are included to adjust for period effects. A multi-

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<sup>53</sup>Blackwell (2013)

<sup>54</sup>Autor, Dorn & Hanson (2013)

<sup>55</sup>Murphy (2014)

<sup>56</sup>Autor & Dorn (2009)

nomial model then regresses the multi-valued treatment  $D_{i,t}$  on the covariates and treatment history in order to generate individual, dynamic weights for each respondent.<sup>57</sup>

MSMs properly adjust for both selection into treatment and measured confounding if the treatment model satisfies the following four assumptions: consistency, exchangeability, positivity and no misspecification.<sup>58</sup> A discussion of the validity of these assumption is provided in the supplementary material. Those assumptions that are, at least partly, empirically verifiable are examined in the sensitivity analysis of the baseline model (see Supplementary Material).

## Results

### Occupational Transition Patterns

The first part of the empirical section exploits the richness of the comparative longitudinal data to report some descriptive evidence on country-specific patterns of occupational change and the relative frequency of routine worker's distinct employment trajectories. Figure 2 describes country-specific patterns of occupational change and reveals remarkably distinct employment structures with one striking commonality: The decline of routine jobs. Switzerland has long been characterized by a strong concentration of jobs in highly skilled and specialized non-routine cognitive occupations, a trend that has been reinforced during the last decade. Routine jobs have been less important already at the beginning of the observed period but continued to decline over time. The longer time span available for Germany, in comparison, reveals the dominant position of routine jobs in the 1980s — as well as its remarkable demise over time. At the same time, Switzerland and Germany display a strong and persis-

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<sup>57</sup>As recommended by the literature, weights are stabilized by treatment history and time-invariant covariates (van der Wal & Geskus, 2011). The sensitivity analysis in the supplementary material demonstrates the superiority of this approach to non-stabilized weights.

<sup>58</sup>Cole & Hernán (2008)

tent trend of occupational upgrading evidenced by an ever-increasing share of work in demanding analytical and/or interactive occupations.<sup>59</sup>

The employment structure in the United Kingdom has evolved rather differently. A similar decrease in routine work and a moderate increase in high-skilled jobs is accompanied by enduring job growth at the lower end of the skill spectrum. These patterns reflect earlier findings, which concluded that Britain’s hollowing of the middle goes hand in hand with a persistent growth of “lousy jobs”<sup>60</sup> in the service sector, leading to a pronounced polarization of the employment structure.

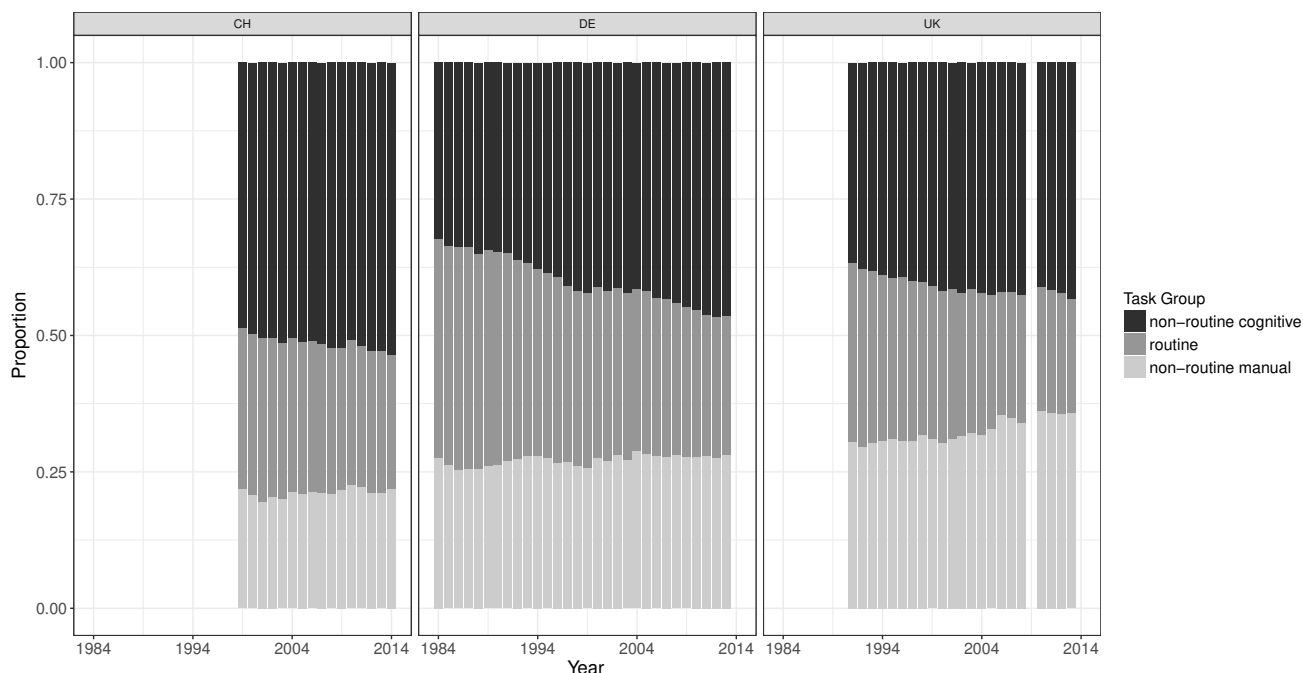


FIGURE 2: Relative Share of Task Groups over Time

Long-term changes in the employment structure are heavily influenced by compositional effects. Parts of the decline in routine work is certainly driven by reduced rates of entry from non-employment or higher exit rates into non-employment due to retirement or disability.<sup>61</sup> Yet, this article focuses on individual occupational trajectories among the active working age population. Table 3 displays effective transition rates of (former) routine workers in the sample. Re-iterating the underlying coding

<sup>59</sup>See also Oesch & Rodriguez-Menes (2011); Oesch (2013)

<sup>60</sup>Goos & Manning (2007)

<sup>61</sup>Cortes (2016)

puts the numerical dominance of remaining in routine work into perspective: An individual who has been working in routine work for five years and then upgrades to non-routine cognitive work will contribute four observations to the survivor category and one observation to the upgrader category.

TABLE 3: Occupational Transition Patterns

	<b>CH</b>	<b>DE</b>	<b>UK</b>
	%	%	%
Upgraders	4.5	5.1	10.2
Survivors	90.8	87.0	77.5
Downgraders	3.2	4.1	8.8
Dropouts	1.4	3.8	3.4

Table 3 supports the conjecture that a good part of the decline in routine jobs is due to composition effects. A large majority of routine workers in the active working population was still employed in routine occupations in the consecutive survey. Still, between roughly 10 and 20 percent of (former) routine workers switched into either non-routine cognitive or non-routine manual jobs — or ended up unemployed. Transitions are relatively rare in Switzerland but more frequent in Germany and, most of all, in the UK’s more flexible labor market.

In terms of the transition’s direction, the general patterns in the three countries reveal both similarity and interesting variance. Upgrading into more sophisticated non-routine cognitive jobs is by no means an impossible exit route for routine workers — despite different requirements with regard to skills and, often, formal education. To the contrary, it is the most frequent transition in all three countries. Downward transitions into non-routine manual jobs occur only slightly less often. The least frequent trajectory for routine workers is to become unemployed. Country-specific patterns of occupational transitions mirror the expectations of seminal theoretical contributions in both economics<sup>62</sup> and political science.<sup>63</sup> Unemployment seems to be a more likely route in the more-regulated labor market of Germany than in the UK, where former

<sup>62</sup>For example, Krugman (1994)

<sup>63</sup>For example, Hall & Soskice (2001)

routine workers are much more frequently absorbed by low-pay jobs in the service sector.

## Employment Trajectories and Vote Intention

The next step is to link these different occupational trajectories to individual political responses. Switzerland provides the largest number of parties and is characterized by the presence of a strong right-wing populist party throughout the entire time period under study. Furthermore, the so-called consensus system traditionally involves all large parties, which makes preference-based vote choice plausible and reduces the probability of vote choice based on non-ideological patterns of retrospective economic voting. This context facilitates a thorough examination of the above-formulated expectation that right-wing populists primarily attract “survivors” but less so those individuals who leave routine work for better or worse.

The United Kingdom has long been dominated by two large parties, facilitated by its majoritarian model of democracy, which implies distinct strategic considerations for voters. However, the recent rise of UKIP allows for additional testing of the hypothesis regarding right-wing populist parties based on a limited sample since 2013.

The party system in Germany, too, offers various political options to voters with one crucial difference: the absence of a right-wing populist party.<sup>64</sup> Just as the UK before 2013, this constellation will allow to test whether conservative parties indeed serve as second-best option for voters in the increasingly gloomy occupational environment of routine work (H1b).

Tables 4-6 report average treatment effects of the three potential transitions out of routine work. The intercepts can be interpreted as a potential outcomes mean and give the probability of a survivor in routine work to support the party specified (or

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<sup>64</sup>This situation is changing rapidly with the the rise of the *Alternative fuer Deutschland* (AfD). Unfortunately, H1a still cannot be tested in Germany due to inadequate data availability. The German AfD has only been founded in April 2013 and has therefore not been covered by SOEP v30, on which this analysis is based on.

to abstain) in the top row of each of the four models. The results in Table 4 confirm the well-established finding that right-wing populist parties (RPP) are indeed successful in mobilizing routine workers.<sup>65</sup> Although large parts of routine work belong to the traditional core constituency of the Left, RPPs have been proved a very strong competitor for these votes.<sup>66</sup> This is represented by very similar probabilities to vote for the Left or for the RPP. In the presence of an influential right-wing populist party, the traditional preserve of the Left turns into a “contested stronghold”<sup>67</sup> Evidently, conservative parties are less successful in mobilizing among the former core constituency of the Left. This result, fully in line with the realignment literature, can be read from comparing the baseline probabilities of the two parties in Switzerland but also from the intercepts (Cons. vs. Left) in Tables 5 and 6, which display the mobilization success in countries without a long-established right-wing populist party. Despite the attraction of conservative parties, routine workers in Germany and the UK still support left parties in clearly larger numbers. With respect to alternative political options, market-liberal parties are a much less likely choice for routine workers and self-reported abstention is comparatively rare in Switzerland and Germany, while British data seem to produce more realistic estimates of nonvoting.<sup>68</sup>

How do transitions out of routine work affect vote intention? The coefficients in the following tables report the change in the probability to vote for the specific party of the respective model if an individual switches from the reference category, routine work, into one of the three above-defined alternatives. The most important finding is that a transition from routine work into unemployment results in a strong and consistent decline in support for the most conservative party in all three countries. The results for Switzerland and the UK provide consistent evidence that it is indeed primarily “surviving” in routine work that fuels support for RPPs, while materialized economic hardship, i.e. a transition into unemployment, immediately and substantially reduces

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<sup>65</sup>Oesch (2008)

<sup>66</sup>See, e.g., Gingrich & Häusermann (2015)

<sup>67</sup>Oesch & Rennwald (2018)

<sup>68</sup>The operationalization of abstention with Swiss data is sub-optimal as the household survey does not report turnout directly, see Table A2. Instead, claiming that a respondent did not vote for any party has been coded as abstention.

this support. Former routine workers’ probability to vote for the Swiss Peoples Party or the United Kingdom Independence Party, respectively, declines substantially once they lose their job and are unable to find another one. Similarly, leaving the squeezed middle for the better also tends to reduce status anxiety and, thus, support for right-wing populist parties. Upgrader’s probability to vote for the Swiss Peoples Party is lowered by a precisely estimated ten percentage points.

In the absence of a RPP, the results show similar patterns of voting behavior with respect to conservative parties. Support among now-unemployed routine workers decreases substantially in Germany as well as in the UK, where the Conservative Party has not faced competition from the Right until 2013. Insofar, conservative parties seem to act as a second-best solution to satisfy routine workers’ desire for the status-quo ante. The voting behavior of dropouts strongly supports the main claim of this paper: It is fear of social decline rather than the actual experience of economic hardship, which drives support for parties who seek to “turn back the clock”<sup>69</sup> and promote traditionalist values.

TABLE 4: Average Treatment Effects of Occupational Transition Patterns, Switzerland

<b>Switzerland</b>					
DV: Vote Choice	RPP	Cons.	Left	Liberal	Abstain
Surviver (Routine)	0.231*** (0.011)	0.103*** (0.008)	0.257*** (0.012)	0.147*** (0.008)	0.136*** (0.007)
Upgrade	-0.101*** (0.025)	-0.034 (0.021)	0.073* (0.034)	0.018 (0.027)	-0.000 (0.021)
Downgrade	-0.002 (0.037)	0.026 (0.030)	0.003 (0.040)	-0.063** (0.023)	-0.010 (0.025)
Dropout	-0.124** (0.044)	-0.038 (0.026)	0.153 (0.087)	0.022 (0.056)	0.082 (0.048)
N	8871	8871	8871	8871	10313

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

Results from a Marginal Structural Model based on stabilized inverse-probability of treatment weights. Treatment model covariates beyond individual treatment history are region, education, age, gender, union member and year dummies. Robust standard errors clustered by individual in parentheses. Data source: Swiss Household Panel (SHP), pooled data between 1999 and 2014. Regression tables are extracted from R using `texreg` (Leifeld, 2013).

<sup>69</sup>Gest et al. (2017)



TABLE 5: Average Treatment Effects of Occupational Transition Patterns, United Kingdom

United Kingdom					
DV: Vote Choice	RPP	Cons.	Left	LibDem	Abstain
Surviver (Routine)	0.092*** (0.006)	0.293*** (0.008)	0.498*** (0.009)	0.112*** (0.005)	0.269*** (0.006)
Upgrade	-0.018 (0.019)	0.051*** (0.015)	-0.044** (0.016)	0.029** (0.010)	-0.019 (0.011)
Downgrade	0.011 (0.034)	-0.034* (0.017)	0.033 (0.018)	0.009 (0.011)	0.016 (0.012)
Dropout	-0.049* (0.020)	-0.074*** (0.022)	0.084** (0.026)	-0.027 (0.014)	0.061** (0.019)
N	5101	24'487	24'487	24'487	35'032

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

Results from a Marginal Structural Model based on stabilized inverse-probability of treatment weights. Treatment model covariates beyond individual treatment history are region, education, age, gender, union member and year dummies. Robust standard errors clustered by individual in parentheses. Data source: British Household Panel Survey (BHPS), 1991-2008, Understanding Society (UKHLS), 2010-2015, data merged and pooled. RPP model (UKIP) is based on years 2013 onward only.

TABLE 6: Average Treatment Effects of Occupational Transition Patterns, Germany

Germany				
DV: Vote Choice	Cons.	Left	Liberal	Abstain
Surviver (Routine)	0.387*** (0.010)	0.518*** (0.011)	0.029*** (0.003)	0.135*** (0.006)
Upgrade	-0.019 (0.022)	-0.007 (0.022)	0.018 (0.009)	-0.002 (0.035)
Downgrade	-0.024 (0.027)	-0.001 (0.029)	0.002 (0.011)	0.057 (0.040)
Dropout	-0.071** (0.022)	0.072** (0.023)	-0.011* (0.005)	0.147*** (0.029)
N	22'481	22'481	22'481	4'639

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

Results from a Marginal Structural Model based on stabilized inverse-probability of treatment weights. Treatment model covariates beyond individual treatment history are region, education, age, gender, union member and year dummies. Robust standard errors clustered by individual in parentheses. Data source: German Socio-Economic Panel (SOEPlong), pooled data between 1983 and 2013. Abstention model is based on years 2005 and 2009 only.

While the first model offered evidence that transitions out of routine work indeed reduce support for right-wing populist or conservative parties, the following three models give an indication of which parties are supported instead. The picture with respect

to dropouts is very consistent: Compared to routine workers who remain in routine work, dropping out of the labor market leads to both strongly increasing support for left parties as well as growing political disenchantment.<sup>70</sup> As a consequence of becoming unemployed, abstention rates among former routine workers increase between 6.1 (UK), 8.2 (Switzerland) and almost 15 percentage points (Germany).

The results for upgraders and downgraders are less consistent and offer mixed evidence. Quite likely, this is also due to the political supply-side, which differs clearly between the three countries under examination. Upgraders in Switzerland increasingly support the Social Democrats, which might be explained by the strongly changing class basis of the Swiss Social Democratic Party, whose constituency is increasingly dominated by high-skilled and relatively well-off citizens.<sup>71</sup> In contrast, German and British upgraders instead increasingly support market-liberal parties, which is in line with the expectations. In the UK, they vote for both the conservatives as well as the Liberal Democrats, in Germany primarily for the FDP.

Finally, for downgraders the results are surprisingly weak. Apart from lower support for market-liberal parties in Switzerland and the conservatives in the UK, there is no systematic pattern that differentiates the voting behavior of routine workers who remain in routine work and those who are forced to downgrade into lower-skilled non-routine jobs. Despite the experience of an occupational downgrade, these individuals still largely share the political preferences of routine workers. This non-effect has substantive meaning: Continued support among downgraders might help explain an — at least at first sight — puzzling implication of the politics of occupational change. Right-wing populist parties enjoy ongoing or even increasing success in spite of the steadily shrinking electoral weight of routine workers. Downgraders seem to partly compensate for the decline among their core constituency: Displaced into lower skilled service jobs, former routine workers still support the same parties.

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<sup>70</sup>The effects for Switzerland with by far the lowest number of transitions into unemployment in the final model are less precisely estimated with p-values of 0.078 and 0.085, respectively.

<sup>71</sup>Rennwald (2014)

All in all, the presented results support the main conjecture of this paper. Culturally conservative parties find strong support among “survivors” in routine work, who share a bright past and bleak future prospects — but hold on to their dwindling position in the labor market. As soon as workers either manage to escape the squeezed middle for the better or lose their routine jobs and end up unemployed, support for these parties decreases substantially. The results hold irrespective of the electoral rules in a country, with the exception of upgraders in the UK still — or even more strongly — supporting the Conservative Party, an anticipated result given the strategic incentives of British voters.

Contrary to what is often assumed, absolute economic hardship does not appear as a driver of support for parties from the Right. Effectively dropping into unemployment rather increases the probability to vote for the Left or, even more likely, to abstain from the ballot box altogether. Interestingly, this finding squares nicely with a re-analysis of voting patterns in Germany during the 1930s, which questioned and corrected the allegedly commonsensical positive correlation between unemployment and support for the NSDAP.<sup>72</sup>

## **Robustness**

The presented results adjust for confounding and post-treatment bias under four assumptions of consistency, exchangeability, positivity and no misspecification. There is no empirical test to verify these assumptions, but credibility in the presented estimates can be increased by the means of sensitivity tests.<sup>73</sup> Particular emphasis is given to the specification of the treatment model. In the supplementary material, two aspects are examined more closely: the selected predictors of treatment assignment and the exact estimation of the inverse-probability weight, a particularly sensitive aspect of marginal structural models.<sup>74</sup> An extensive sensitivity analysis demonstrates the sta-

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<sup>72</sup>Falter, Link, Lohmöller, de Rijke & Schumann (1983)

<sup>73</sup>Cole & Hernán (2008)

<sup>74</sup>Imai & Ratkovic (2015)

bility of the estimates in the baseline model. The effect of becoming unemployed on voting for a right-wing populist party hardly at all changes across the different specifications examined in this sensitivity analysis. The size of the effect remains within a narrow range of about two percentage points and is strongly significant in each model. This clearly increases confidence that the presented changes in the probability to support a specific party are caused by individual occupational transitions out of routine work. In addition, Tables SM2-SM4 in the Supplementary Material demonstrate that the findings are robust to an end-of-study outcome model, perhaps the most frequent application of MSMs.

### **Validating the Mechanism: Status Anxiety**

The above analysis provides evidence that support for right-wing populist parties is not primarily driven by the experience of economic hardship. To the contrary, losing a routine job and becoming unemployed consistently *reduces* support for conservative and right-wing populist parties. I have argued that survivors in routine work experience relative rather than absolute economic decline, which increases the salience of identity politics vis-a-vis welfare state politics. A limitation of the analysis is that it does not directly assess the proposed mechanism, i.e. that status anxiety concomitant with relative economic decline fuels support for right-wing populist parties. The employed panel data are very limited with respect to items asking respondents about subjective perceptions and none of them provides questions about, e.g., perceived social status.

I address this shortcoming by providing illustrative evidence from additional data sources. The aim is to show (a) that routine workers' subjective social status systematically differs from non-routine workers, (b) that routine workers' social status has decreased over time relative to other occupational groups and (c) to demonstrate a relationship between social status and support for right-wing populist parties.

Figure 3 employs data from the International Social Survey Programme (ISSP) to show how subjective perceptions of social status have evolved over time between the

three task groups. This data set is available for all three countries under examination since 1987 and is thus particularly suited to examine broad long-term trends in perceived societal position. As expected, routine and non-routine manual workers have on average lower levels of subjective status compared to high-skilled non-routine cognitive workers. However, the interesting aspect of Figure 3 is how these perceptions change relative to each other over time. Whereas routine workers felt significantly closer towards the top of the societal scale than non-routine manual workers in 1987, this difference almost disappears in the following 30 years. Routine workers social status deteriorates compared to their own previous conditions as well as compared to both non-routine groups — but particularly relative to low-skilled workers.<sup>75</sup>

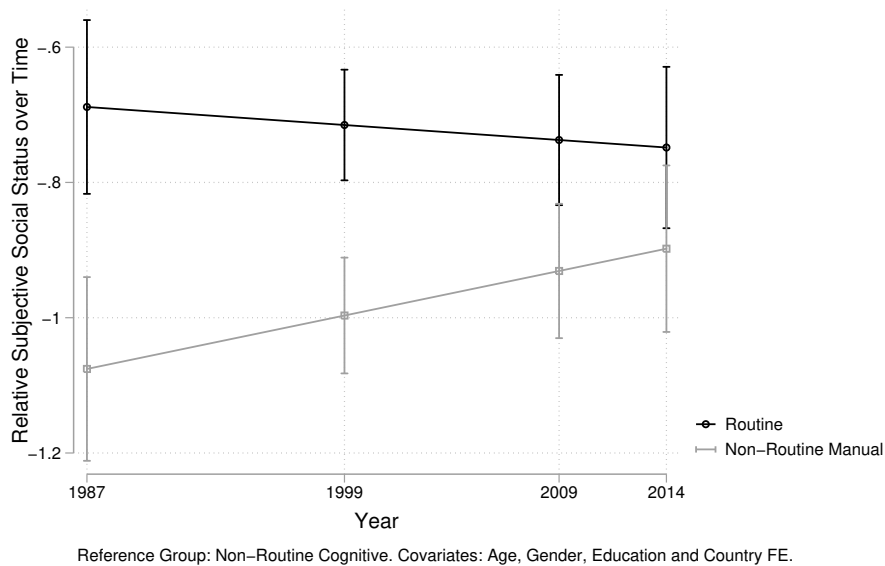


FIGURE 3: Marginal Effect of Task Group on Subjective Social Status over Time

Do such differences in subjective social status affect the individual propensity to support right-wing populist parties? To answer this question, I rely on data from the sixth wave of the European Social Survey (ESS) that includes various countries with such a party and entailed a question on subjective social status as well as consistent information on individual vote choice. The main result, very much in line with a recent evaluation by Gidron and Hall (2017), is an unambiguously negative relationship

<sup>75</sup>The full regression model is provided in Table SM6 in the Supplementary Material, along with a non-linear specification of the time trend.

between subjective social status and support for right-wing populist parties. The underlying logistic regression model controls for socio-demographics and is also robust to including objective unemployment risk calculated from EU-SILC data (see Table SM7).

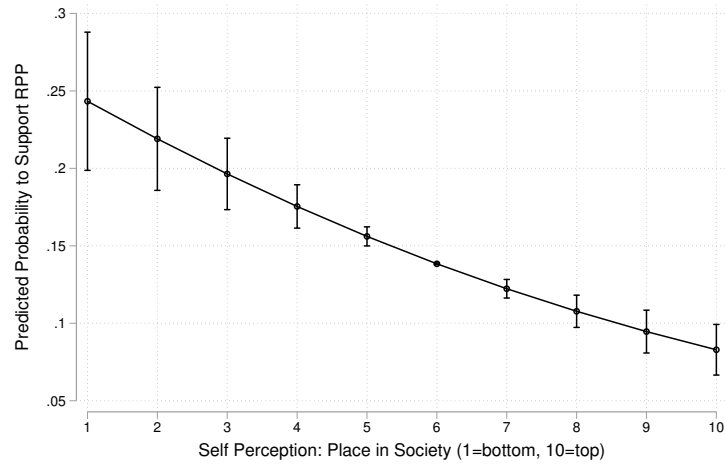


FIGURE 4: Subjective Social Status and Support for Right-Wing Populism

While this additional evidence from cross-national data is not directly linked to the above panel analysis and clearly has its limitations, it still offers some tentative insights into how occupational change, subjective social status and vote choice relate to each other. I conclude that (a) routine workers perceived status significantly differs from other occupational groups, (b) that routine workers social status has slightly decreased in absolute terms but especially in relative terms compared to lower-status groups and (c) that subjective status is a relevant predictor of voting for a right-wing populist parties. Taken together, this illustration enhances credence in the proposed underlying mechanism linking occupational change and vote choice.

## Discussion and Conclusion

Widespread political dissatisfaction and the rise of populist parties have disrupted the politics of many advanced capitalist democracies. Brexit and the election of Donald Trump are just the most visible signals of rapidly changing patterns of mass opinion.

This article examines to what extent occupational change and technological innovation are responsible for the political turmoil we currently observe. The core finding is that *relative* shifts in societal standing, an inevitable consequence of a changing employment structure, are key to understand contemporary politics: it is a perception of relative decline among politically powerful groups — not their impoverishment — that drives support for nationalist populist movements.

Right-wing populist parties benefit from widespread fear of social decline but not from actually experienced economic decline. While the uncertainty concomitant with the fundamental transformation of the employment structure provides fruitful ground for conservative and, in particular, right-wing populist parties, the structural trend of lower rates of entry and perpetual transitions out of routine jobs is not necessarily conducive to their electoral success. In a long-term perspective, the decline of the middle will be accompanied by an ever-growing number of high-skilled labor market entrants and some growth in low-skilled service jobs. The first certainly represent an attractive constituency for culturally and economically liberal parties. The jury is still out, however, on the mobilization potential among those individuals who downgrade into the new service proletariat — a growing and increasingly relevant share of the electorate in times of labor market polarization. The above analysis indicated that downgraders do not differ systematically from survivors with respect to political preferences. They might be receptive to the policy programs of parties from the Right and thereby substitute for the structurally diminishing vote share among the declining middle.

What is more, automation, computerization and machine learning techniques have undoubtedly not yet reached their peak and will continue to transform the world of work in the years to come. Technological change will affect sections of the labor force who have so far been spared from the threat of automation and thus constantly preserve or even enlarge the pool of voters who are receptive to policy programs addressing status anxiety. Given the structural roots of the presented findings, there is much reason to

expect right-wing populist parties to become a constant feature of the political arena in post-industrial democracy.

What makes this development so fascinating from a political science perspective is the sheer absence of adequate policy reactions. In contrast to other highly salient hot topics like immigration or free trade, national governments are extremely limited in their options to effectively counter the forces of technological progress. Since it is not actual economic adversity that drives the political reactions of the losers of occupational change, the often proposed policy reaction of “more welfare” in the traditional sense will not help alleviate grievances. Rather, these voters want their relative decline in societal status addressed. Right-wing populist have long recognized this. Their proposed policy reactions, whether politically feasible or not, should not be trivialized as mere populist seduction void of content but taken seriously as a programmatic answer to widespread threats to social status and psychological well-being. The powerlessness of domestic governments in the face of relentless technological progress and modernization renders advanced capitalist democracies vulnerable to political forces appealing to voters on the grounds of less tangible identity politics. It is therefore not surprising that the debate about an unconditional basic income has recently gained steam. In contrast to traditional policies of the welfare state, an unconditional basic income might more effectively mitigate status anxiety in the face of automation by weakening the relationship between employment and social status.

Further research will be needed to answer additional questions triggered by the results presented in the above. It might be a worthwhile avenue to look more closely into potentially heterogeneous effects of labor market transitions. This paper is based on an economic framework, which bundles different types of jobs and individuals within relatively broad task groups. Interesting questions for future research might include differences between blue- and white-collar routine workers or between male and female routine workers. Furthermore, questions of intergenerational mobility might also contribute to political reactions as the occupational path of life-long employment in routine work becomes increasingly unlikely. How individuals perceive an environment



of structural decline clearly depends on many individual and contextual characteristics. Studying these characteristics will further improve our understanding of the political fallout of technological change — a topic that will certainly concern post-industrial societies for some more years.

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# Appendix

TABLE A1: Occupation per Task Group

Task Group	ISCO-88
Non-Routine Cognitive	1000, 1120, 1130, 1141, 1142, 1143, 1200, 1210, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1235, 1236, 1237, 1239, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 2000, 2110, 2111, 2112, 2113, 2114, 2121, 2122, 2130, 2131, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2210, 2211, 2212, 2213, 2221, 2222, 2223, 2224, 2229, 2300, 2310, 2320, 2330, 2340, 2350, 2351, 2352, 2359, 2410, 2411, 2412, 2419, 2420, 2421, 2422, 2429, 2430, 2431, 2432, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2450, 2451, 2452, 2453, 2454, 2455, 2460, 2470, 3000, 3100, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3118, 3119, 3121, 3122, 3130, 3131, 3132, 3133, 3140, 3142, 3143, 3144, 3145, 3150, 3151, 3152, 3211, 3212, 3213, 3220, 3222, 3223, 3224, 3226, 3229, 3231, 3232, 3300, 3310, 3320, 3330, 3340, 3400, 3410, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3419, 3420, 3421, 3422, 3423, 3429, 3432, 3433, 3440, 3441, 3442, 3443, 3449, 3450, 3460, 3470, 3471, 3472, 3474, 3475, 3480
Routine	100, 3430, 3431, 4000, 4100, 4110, 4111, 4112, 4113, 4115, 4120, 4121, 4122, 4130, 4131, 4133, 4141, 4142, 4143, 4144, 4190, 4210, 4211, 4212, 4213, 4215, 4223, 6110, 6111, 6112, 6121, 6129, 6130, 6141, 6152, 6154, 7000, 7110, 7112, 7113, 7124, 7200, 7211, 7212, 7213, 7214, 7215, 7220, 7221, 7222, 7223, 7224, 7230, 7231, 7232, 7233, 7240, 7241, 7242, 7244, 7245, 7311, 7312, 7313, 7321, 7322, 7324, 7330, 7331, 7340, 7341, 7342, 7343, 7344, 7345, 7346, 7410, 7411, 7412, 7413, 7415, 7420, 7421, 7422, 7423, 7424, 7430, 7432, 7433, 7434, 7435, 7436, 7437, 7440, 7441, 7442, 8000, 8100, 8113, 8120, 8122, 8123, 8124, 8139, 8140, 8142, 8143, 8150, 8159, 8160, 8161, 8162, 8163, 8200, 8210, 8211, 8212, 8221, 8222, 8223, 8231, 8232, 8240, 8251, 8253, 8260, 8261, 8262, 8264, 8270, 8273, 8274, 8275, 8278, 8279, 8280, 8281, 8285, 8290, 8340, 9000, 9133, 9150, 9151, 9153, 9160, 9161, 9211, 9300, 9310, 9311
Non-Routine Manual	3221, 3225, 3227, 3228, 4221, 4222, 5000, 5100, 5110, 5111, 5112, 5113, 5120, 5121, 5122, 5123, 5130, 5131, 5132, 5133, 5139, 5140, 5141, 5142, 5143, 5149, 5160, 5161, 5162, 5163, 5169, 5210, 5220, 7120, 7121, 7122, 7123, 7129, 7130, 7131, 7132, 7133, 7134, 7135, 7136, 7137, 7139, 7141, 7143, 8310, 8311, 8312, 8320, 8322, 8323, 8324, 8330, 8332, 8333, 8334, 9100, 9113, 9130, 9132, 9140, 9141, 9142, 9152, 9162, 9312, 9313, 9320, 9330

TABLE A2: Dependent Variable: Operationalization

<b>Switzerland</b>		
<u>variable</u>	<u>pp19</u>	<i>Party choice in case of elections tomorrow</i>
operationalization	RPP	Schweizerische Volkspartei (SVP)
	Cons.	Christlich-Demokratische Volkspartei (CVP)
	Left	Sozialdemokratische Partei (SP); Gruene Partei (GPS); Partei der Arbeit (PdA); Alternative/Solidaritee
	Liberal	FDP.DieLiberalen; Gruenliberale Partei (GLP)
	Abstention	Vote for no party
<b>Germany</b>		
<u>variable</u>	<u>plh0012</u>	<i>Which political party do you support?</i>
operationalization	Cons	Christlich-Demokratische Union (CDU); Christlich-Soziale Union (CSU)
	Left	Sozialdemokratische Partei Deutschlands (SPD); Buendnis Gruene.90; Die Linke
	Liberal	Freie Demokraten (FDP)
<u>variable</u>	<u>plh0003</u>	<i>Voted in last Bundestagswahl (available 2005 and 2009)</i>
operationalization	Abstention	did not vote
<b>UK</b>		
<u>variable</u>	<u>vote3</u>	<i>Which party would you vote for tomorrow</i>
operationalization	RPP	United Kingdom Independence Party (from 2013)
	Cons	Conservative Party
	Left	Labour Party; Scottish National Party; Greens
	LibDem	Liberal Democrats
<u>variable</u>	<u>vote7</u>	<i>Did you vote in [month, year] UK general election? (unbalanced)</i>
operationalization	Abstention	did not vote (vote7==2) OR would not vote for any party tomorrow (vote3==95)



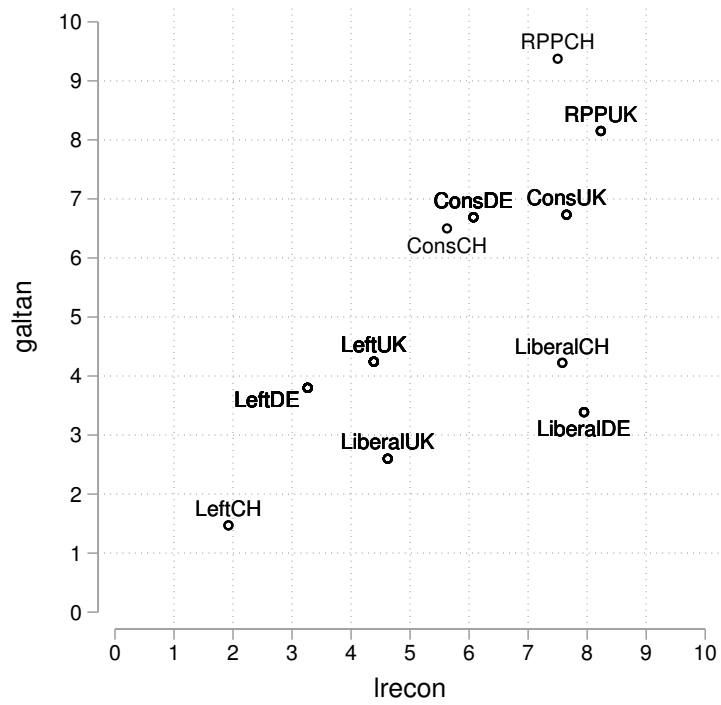


FIGURE A1: Ideological Mapping of Party Families (CHES, weighted by vote share)

## Supplementary Material

### Assumptions of the Marginal Structural Model

Marginal structural models (MSM) adjust for both selection into treatment and measured confounding if the treatment model satisfies the following four assumptions: consistency, exchangeability, positivity and no misspecification.<sup>76</sup>

Consistency (or stable treatment value assumption) requires that an outcome only depends on an individuals' own treatment, not on the treatment of others. This assumption might be critical if an individual who remains in routine work observes an exceptional accumulation of one-directional occupational transitions in his or her direct environment. Mass layoffs, for example, may be a case in point. However, as shown before, transition patterns follow a remarkably balanced pattern with similarly frequent positive and negative transitions out of routine work. This balanced pattern should reduce the risk of responses systematically influenced by treatment assigned to other individuals around the individual of interest.

Exchangeability implies no unmeasured confounding and relates to the conditional independence assumption. When exchangeability is achieved, there is no more remaining difference between those who receive treatment and those who do not, i.e. the two group become fully "exchangeable". As this assumption is not empirically verifiable, expert knowledge and an extensive set of covariates is key. As discussed above, occupational transitions have been extensively studied, which lends credence to the selection of the most important determinants. Still, as a robustness check, I made use of the wide range of available variables in the data and show that the results are robust to a more comprehensive set of covariates like, e.g., migration background or family situation, that have not explicitly been suggested by previous literature.

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<sup>76</sup>Cole & Hernán (2008)

The more covariates one adds to the treatment model, however, the more critical is the third assumption. Positivity (also called overlap or common support) requires that there are treated and untreated individuals at every level of confounders. Positivity is violated when “somebody cannot *possibly* be exposed at one or more levels of the confounders”.<sup>77</sup> At least in the case of the minimal set of covariates, positivity can easily be verified.

Lastly, the models required to fit an MSM have to be correctly specified, where particular attention is advisable with regard to the treatment model, which generates the inverse probability weights for the subsequent weighted regression of outcome on treatment. A necessary condition for a correctly specified treatment model is that the weights have a mean of one.<sup>78</sup> Furthermore, very small (close to zero) or very large weights can be problematic as the such weighted observations become disproportionately influential. Stabilization<sup>79</sup> and truncation<sup>80</sup> have been proposed to obtain well-behaved weights. A careful examination of the properties of estimated weights in different model specifications is highly recommended.<sup>81</sup> I present an extensive sensitivity analysis of the calculated weights below.

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<sup>77</sup>Cole & Hernán (2008, p. 658, emphasis in original)

<sup>78</sup>Cole & Hernán (2008)

<sup>79</sup>Robins et al. (2000)

<sup>80</sup>Cole & Hernán (2008)

<sup>81</sup>Cole & Hernán (2008)

## Sensitivity Analysis

The presented results adjust for confounding and post-treatment bias under four assumptions of consistency, exchangeability, positivity and no misspecification. There is no empirical test to verify these assumptions, but credibility in the presented estimates can be increased by the means of sensitivity tests.<sup>82</sup> Particular emphasis is given to the specification of the treatment model. Two aspects will be looked at more closely: the selected set of covariates controlling for treatment assignment and the exact estimation of the inverse-probability weight, a particularly sensitive aspect of marginal structural models.<sup>83</sup>

Extensive research on the determinants of occupational transitions in different disciplines offers solid ground for the selection of covariates in the treatment model. Yet, one might still object that, in addition to the individual treatment history, the controls for region, education, gender, age, union membership and year dummies might not suffice to fully model the treatment assignment mechanism. Hence, I make use of the broad range of available variables in the panel data sets and show that all findings are robust to the inclusion of additional potential determinants of occupational transitions. Migration background might be related to language ability and thus affect the probability of transitions beyond the variables already controlled for. Being married could serve as a private household safety net and enable more flexible occupational transitions. Having children, on the other hand, could be expected to have the contrary effect.

The second sensitive aspect is the calculation of the weights used to correct for selection. Estimated weights should have a mean close to one and remain within a reasonable range. Deviation from a mean of one or very large weights are indicators of nonpositivity or misspecification of the treatment model.<sup>84</sup> Furthermore, very large weights imply that these respondents will contribute disproportionately to the cre-

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<sup>82</sup>Cole & Hernán (2008)

<sup>83</sup>Imai & Ratkovic (2015)

<sup>84</sup>Cole & Hernán (2008)

ated pseudo-population and thus dominate the weighted analysis.<sup>85</sup> Mean, range and variance of the estimated weights should therefore be evaluated as these parameters, in case of well-behaved weights, increase our confidence in satisfied assumptions and, thus, in giving the presented results a causal interpretation.

As a first step, the properties of the weight in the baseline model are evaluated. The mean of the estimated stabilized weights amount to 1.004 and ranges from 0.18 to 5.7. These parameters seem largely in line with the criteria formulated above. In addition, Figure SM1 displays how the estimated weights evolve over time. Data for the Swiss Household Panel is available from 1999 until 2014. The maximal number of observations an individual can contribute to the sample is 14, since the first year necessarily drops due to definition of the explanatory variable (difference from  $t-T$  to  $t$ ). As follow-up time increases, observations get scarcer due to panel attrition and the variance of the weights increase slightly. One of the following sensitivity tests will address increasing deviations for individuals with ten and more observations. However, the mean remains very closely to the required value of 1 (log mean 0). The picture looks similar for the cases of Germany and UK, presented in Figure SM2 and SM3, which lends confidence to the behavior of weights.

All in all, the estimated weights of the baseline model seem to satisfy the main criteria. Nevertheless, in the following I will evaluate their sensitivity to different proposed remedies for sub-optimally behaving weights. The properties of the estimated weights as well as the resulting estimate of occupational transition on vote intention in the weighted regression are displayed in Table SM1. I show estimates for dropouts in the first model in Table 4, change in probability to vote for a right-wing populist party, noting that all the other estimates are similarly stable.

Table SM1 presents the results from six different specifications of the model and compares them to the parameters of the baseline model displayed in the top row. Model 2 uses a more fine-grained operationalization of formal education, arguably a central determinant of occupational transitions. A larger number categories of a variable

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<sup>85</sup>Robins et al. (2000)

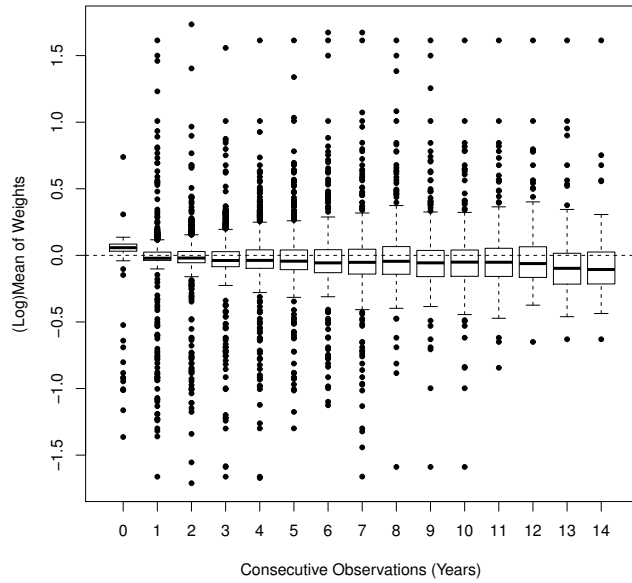


FIGURE SM1: Evolution of stabilized weights over time

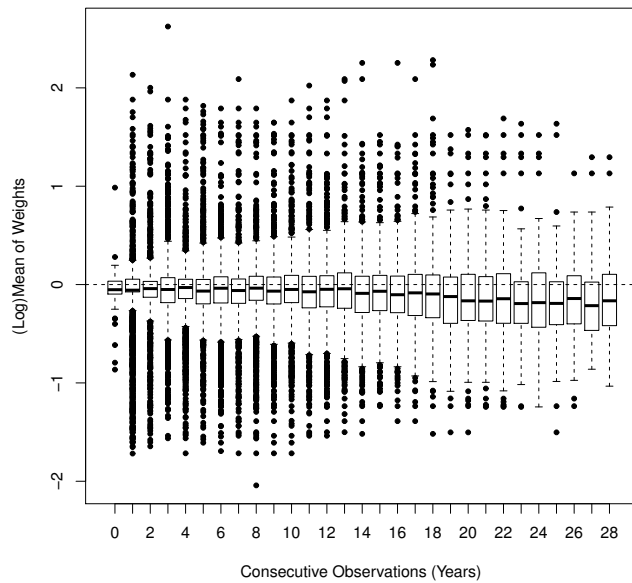


FIGURE SM2: Evolution of stabilized weights over time (Germany)

might improve exchangeability but at the same time reduces overlap.<sup>86</sup> Model 3 adds the before-mentioned additional covariates to the treatment model (migration and family background). Both alternative specification hardly change the estimated pa-

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<sup>86</sup>Cole & Hernán (2008)

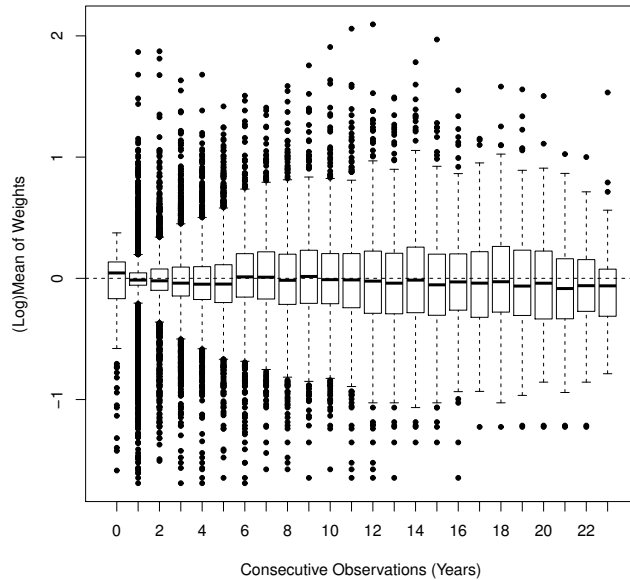


FIGURE SM3: Evolution of stabilized weights over time (United Kingdom)

rameters. If anything, the behavior of the estimated weights is slightly worse as the range marginally increases. Specification 4-8 deal with the calculation of the weights. Model 4 is based on a trimmed version of the estimated weights, a standard approach proposed to counteract disproportionate influence of observations with very small or large weights.<sup>87</sup> As expected, this procedure strongly narrows the range of the weights. Nevertheless, the estimated effect of a transition into unemployment on voting for a RPP is almost identical to the baseline specification. Model 5 is based on a reduced sample, where only a maximum of 10 consecutive observations per individuals are included because the behavior of the weights gets worse with increasing follow-up time (see Figure SM1). Finally, as a reaction cautionary voices against stabilization<sup>88</sup>, different ways of stabilizing the weights are tested. Model 6 and 7 show that the results do not depend on one specific stabilization of the weights.<sup>89</sup>

<sup>87</sup>Cole & Hernán (2008)

<sup>88</sup>Talbot, Atherton, Rossi, Bacon & Lefebvre (2015)

<sup>89</sup>Imai and Ratkovic's (2015) proposed generalization of the the covariate balancing propensity score currently only handles balanced panels, which prevents the implementation of this supposedly more robust method to estimating weights when using highly unbalanced real-world panel data.

TABLE SM1: Sensitivity Analysis (Change in Support of RPP among Swiss Dropouts)

Specification	Estimated Weights				Effect of Dropout		
	Mean	SD	Min	Max	Estimate	SE	p-value
1 Baseline model (see Table 4)	1.004	0.296	0.181	5.789	-0.124	0.044	0.005
2 Fine-grained education measure instead of ISCED codes	1.005	0.304	0.127	5.354	-0.128	0.042	0.002
3 Extended set of covariates in treatment model: country of birth, married, children	1.006	0.39	0.141	7.485	-0.120	0.049	0.015
4 Weights from baseline model, trimmed (percentile 1,99)	0.996	0.208	0.401	2.053	-0.116	0.046	0.011
5 Sample reduced to respondents with max. 10 consecutive observations	1.002	0.296	0.188	5.854	-0.129	0.04	0.001
6 Baseline model, unstabilized weights	0.997	0.337	0.007	7.175	-0.154	0.038	0.000
7 Baseline model, weights stabilized with treatment history and covariates	0.997	0.159	0.466	3.417	-0.132	0.041	0.001

The estimates of the baseline model presented in Table 4 are very stable. The effect of becoming unemployed on voting for a right-wing populist party hardly at all changes across the different specifications examined in this sensitivity analysis. The size of the effect remains within a narrow range of about two percentage points and is strongly significant in each model. This clearly increases confidence that the presented changes in the probability to support a specific party are caused by individual occupational transitions out of routine work.



## End-of-Study Outcome Model

Most applications of MSM focus on end-of-study outcomes, e.g. mortality rates at the end of medical treatment<sup>90</sup> or the vote share of candidates at the end of a campaign involving dynamic (negative) advertising.<sup>91</sup> Studying vote intention based on repeated observations from individual-level panel data does not provide a similarly natural endpoint. For this reason, the main models include potentially multiple outcomes per individual and standard errors are clustered accordingly to account for non-independence of observations. Tables SM2-SM4 demonstrate that the findings do not hinge on this decision and are robust to the end-of-study approach, which only uses the — somewhat arbitrary — last observed outcome of each individual. The sample size is smaller, which decreases precision of the estimates to some extent, in particular for those treatment-outcome combination with few observations. The negative effect of becoming unemployed on supporting UKIP, which can only be assessed from 2013 onward and is thus based on a small number of transitions into unemployment (N=84), has a p-value of 0.10.

TABLE SM2: End-of-Study Treatment Effects, Switzerland

Switzerland					
DV: Vote Choice	RPP	Cons.	Left	Liberal	Abstain
Survivor (Routine)	0.239*** (0.010)	0.088*** (0.007)	0.233*** (0.010)	0.162*** (0.009)	0.180*** (0.009)
Upgrade	-0.110*** (0.027)	-0.015 (0.019)	0.068* (0.028)	0.016 (0.024)	-0.059* (0.023)
Downgrade	-0.005 (0.036)	0.032 (0.025)	0.032 (0.037)	-0.087** (0.032)	-0.071* (0.030)
Dropout	-0.146* (0.064)	-0.014 (0.044)	0.194** (0.066)	0.069 (0.056)	0.111* (0.047)
N	2153	2153	2153	2153	2393

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

Results from a Marginal Structural Model based on stabilized inverse-probability of treatment weights. Treatment model covariates beyond individual treatment history are region, education, age, gender, union member and year dummies. Data source: Swiss Household Panel (SHP). Model includes last observation for each individual.

<sup>90</sup>Robins et al. (2000)

<sup>91</sup>Blackwell (2013)

TABLE SM3: End-of-Study Treatment Effects, UK

<b>United Kingdom</b>					
DV: Vote Choice	Cons.	Left	LibDem	UKIP	Abstain
Surviver (Routine)	0.300*** (0.007)	0.456*** (0.007)	0.086*** (0.004)	0.098*** (0.006)	0.253*** (0.006)
Upgrade	0.051*** (0.015)	-0.029 (0.016)	0.051*** (0.010)	-0.025 (0.017)	0.003 (0.012)
Downgrade	-0.041* (0.017)	0.061*** (0.018)	0.030** (0.011)	0.007 (0.022)	0.041** (0.014)
Dropout	-0.052* (0.024)	0.100*** (0.027)	-0.011 (0.016)	-0.047 (0.029)	0.086*** (0.020)
N	6916	6916	6916	2764	8495

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

Results from a Marginal Structural Model based on stabilized inverse-probability of treatment weights. Treatment model covariates beyond individual treatment history are region, education, age, gender, union member and year dummies. Data source: BHPS/UKHLS. Model includes last observation for each individual.

TABLE SM4: End-of-Study Treatment Effects, Germany

<b>Germany</b>				
DV: Vote Choice	Cons.	Left	Liberal	Abstain
Surviver (Routine)	0.403*** (0.008)	0.489*** (0.008)	0.040*** (0.003)	0.131*** (0.007)
Upgrade	-0.038* (0.018)	0.030 (0.018)	0.005 (0.007)	0.019 (0.023)
Downgrade	-0.019 (0.023)	0.007 (0.024)	-0.003 (0.009)	0.088** (0.031)
Dropout	-0.092*** (0.021)	0.098*** (0.022)	-0.016 (0.008)	0.146*** (0.022)
N	5687	5687	5687	3392

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

Results from a Marginal Structural Model based on stabilized inverse-probability of treatment weights. Treatment model covariates beyond individual treatment history are region, education, age, gender, union member and year dummies. Data source: SOEPLong. Model includes last observation for each individual.

## UK Results - BHPS sample only

The introduction of the UKHLS in 2009 created substantial changes in the UK sample underlying the above analysis. Instead of using all available observations for the regressions, a more conservative approach would be to reduce the post-2009 sample to those respondents that have already been part of the BHPS pre-2009. Table SM5 demonstrates that this approach, despite much smaller sample size, does not substantially change any of the main findings. To the contrary, the negative effects of dropping out on voting for UKIP even become larger.

TABLE SM5: Average Treatment Effects of Occupational Transition Patterns, United Kingdom

	Cons.	Left	LibDem	UKIP	Abstain
Surviver (Routine)	0.287*** (0.010)	0.505*** (0.010)	0.124*** (0.006)	0.101*** (0.011)	0.269*** (0.006)
Upgrade	0.047** (0.016)	-0.036* (0.017)	0.020 (0.011)	-0.008 (0.036)	-0.019 (0.011)
Downgrade	-0.038* (0.018)	0.041* (0.019)	0.010 (0.013)	-0.038 (0.033)	0.016 (0.012)
Dropout	-0.079*** (0.024)	0.082** (0.030)	-0.020 (0.017)	-0.082*** (0.022)	0.061** (0.019)
N	18'394	18'394	18'394	1'666	35'032

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

Results from a Marginal Structural Model based on stabilized inverse-probability of treatment weights. Treatment model covariates beyond individual treatment history are region, education, age, gender, union member and year dummies. Robust standard errors clustered by individual in parentheses. Data source: British Household Panel Survey (BHPS), 1991-2008, Understanding Society (UKHLS, BHPS sample only), 2010-2015, data merged and pooled.

# Validation of Mechanism - Tables

TABLE SM6: Relative Subjective Status over Time

	(1)	(2)
	linear	non-linear
Non-Routine Cognitive	ref. (.)	ref. (.)
Routine	3.723 (7.139)	-0.677** (0.069)
Non-Routine Manual	-14.162 (7.477)	-1.088** (0.073)
year	-0.008** (0.002)	
Routine × year	-0.002 (0.004)	
Non-Routine Manual × year	0.007 (0.004)	
Age	-0.000 (0.001)	-0.000 (0.001)
Gender (female)	-0.054 (0.033)	-0.056 (0.033)
Education (tertiary)	0.579** (0.046)	0.597** (0.046)
Switzerland	ref. (.)	ref. (.)
Germany	0.087* (0.039)	0.086* (0.040)
UK	0.077 (0.043)	0.059 (0.046)
year=1987		ref. (.)
year=1999		-0.157 (0.090)
year=2009		-0.106 (0.065)
year=2014		-0.305** (0.074)
Routine × year=1999		-0.032 (0.123)
Routine × year=2009		-0.049 (0.095)
Routine × year=2014		-0.084 (0.112)
Non-Routine Manual × year=1999		0.238 (0.133)
Non-Routine Manual × year=2009		0.104 (0.096)
Non-Routine Manual × year=2014		0.207 (0.122)
Constant	16.681** (4.907)	0.500** (0.071)
Observations	8892	8892
$R^2$	0.115	0.116

Linear Regression. Standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$

TABLE SM7: Relative Subjective Status and Voting for RPP

DV: Voted for RPP	(1)	(2)
Social Status	-0.156** (0.027)	-0.155** (0.029)
Education (ISCED=1)	ref. (.)	ref. (.)
Education (ISCED=2)	0.128 (0.161)	0.077 (0.188)
Education (ISCED=3)	-0.083 (0.149)	-0.116 (0.165)
Education (ISCED=4)	-0.567** (0.191)	-0.649** (0.201)
Education (ISCED=5)	-0.874** (0.247)	-0.898** (0.256)
Education (ISCED=6)	-1.519** (0.288)	-1.627** (0.342)
Education (ISCED=7)	-2.133** (0.314)	-2.205** (0.254)
Age	-0.018** (0.006)	-0.018** (0.005)
Gender (female)	-0.539** (0.107)	-0.759** (0.095)
Unemployment Risk		0.874* (0.444)
Country FE	yes	yes
Observations	6197	5925

Logistic Regression. Standard errors in parentheses.

\*  $p < 0.05$ , \*\*  $p < 0.01$