Welfare State Deservingness in the Era of Mass Higher Education

Sebastian Diessner[*] Niccolo Durazzi[†] Federico Filetti[‡]
David Hope[§] Hanna Kleider[¶] Julian Limberg[||] Simone Tonelli[**]

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Abstract

The educational composition of labour markets has changed dramatically in recent decades. In many advanced democracies, the majority of workers now possess a university education. We currently know very little about how this transformation has influenced perceptions of welfare state deservingness, which are closely linked to support for the welfare state. This article addresses that gap in the literature by carrying out an original survey with a representative sample of 3,916 respondents from the United States. The survey combines a conjoint experiment with an information provision experiment. We find causal evidence that people are less inclined to provide welfare state assistance to the university educated than the non-university educated. This is primarily driven by need-based considerations: the university educated are seen as less in need of support due to their strong labour market position in contemporary knowledge economies.

[*]Leiden University, email: s.diessner@fgga.leidenuniv.nl
[†]University of Modena & Reggio Emilia, email: ndurazzi@unimore.it
[‡]London School of Economics, email: f.d.filetti@lse.ac.uk
[§]King's College London, email: david.hope@kcl.ac.uk
[¶]King's College London, email: hanna.kleider@kcl.ac.uk
[||]King's College London, email: julian.limberg@kcl.ac.uk
[**]University of Bologna, email: simone.tonelli5@unibo.it

1 Introduction

The advanced democracies have seen a truly transformational expansion of tertiary education over the post-war period. In the 1950s, only a small fraction of the population went to university: less than 10% in most OECD countries. Now, enrolment levels often exceed 50%, with the majority of school leavers entering tertiary education. Put another way, there has been a common shift from 'elite models' to 'mass systems' of higher education (Ansell, 2010; Garritzmann, 2016, 2026). This has markedly altered the educational profile of workers in labour markets in the advanced democracies, with a rapid rise in the share of workers possessing a university education (OECD, 2024). While just 21% of the population aged 24-65 in the United States were tertiary educated in 1983, this figure had risen to over 50% by 2023.[1]

How has the dramatic change in educational composition of the workforce in the advanced democracies affected support for redistribution and the welfare state? Several recent contributions have examined how possessing higher levels of education affects individuals' redistributive preferences. This body of work typically finds that education reduces demand for redistribution, either through self-interest (e.g., education is linked to higher incomes, which gives people more to lose from redistribution) (Bullock, 2021; Marshall, 2016, 2019) or socialization (e.g., attending university makes people more economically conservative) (Gelepithis & Giani, 2022; Mendelberg, McCabe, & Thal, 2017). We know from the existing literature that support for the welfare state is also heavily influenced by other-regarding preferences. The university educated tend to have more socially liberal attitudes, which leads them to be more sympathetic towards welfare recipients (Attewell, 2022; McArthur, 2023; O'Grady, 2022).

What we currently know very little about, however, is whether public support for providing welfare state assistance to workers differs depending on the level of education of the recipients. In other words, are the public more or less inclined to provide welfare state support to university-educated workers? This is an important

[1]For data on the expansion in the share of the population with tertiary education in the OECD countries, see: https://www.oecd.org/en/data/indicators/population-with-tertiary-education.html.

question given that support for the welfare state depends crucially on whether welfare recipients are perceived as deserving or not (Attewell, 2020; Cavaillé, 2023; Laenen, 2020, 2025; Van Oorschot, 2000, 2006; Van Oorschot, Roosma, Meuleman, & Reeskens, 2017). It has also become an increasingly pertinent question given the move to mass systems of higher education has fundamentally altered the characteristics of unemployed workers. A much larger share are university educated today than in the past. The share of unemployed workers in the United States with a 4-year college degree stood at an all-time high of nearly 37% at the start of 2026 (Bloomberg, 2026).

To answer our research question, we conduct an online survey experiment with a representative sample of 3,916 respondents from the United States. We use a conjoint design to examine how different characteristics of workers affect people's attitudes towards providing them with support from the welfare state. We present respondents with two profiles of workers who have recently become unemployed and randomly vary four different dimensions (age, gender, parental background, and education level). We then ask them which individual they prefer to receive income assistance from the government. This allows us to isolate the causal effect of workers' level of education on support for providing them with welfare state assistance.

We find that people are less inclined to provide welfare state support to the university educated than the non-university educated. The effect is large: having a university education reduces the probability of an unemployed worker being chosen to receive greater income assistance from the government by 10 percentage points. We also find that these effects are larger for people that hold the belief that university-educated workers will find it easier to get another job when they become unemployed. This aligns with *need*-based considerations driving the main result that university-educated workers are seen as less deserving of welfare state support than non-university-educated workers.

Despite the supply of university-educated workers expanding so sharply in recent decades, the main results suggest that people still see them as having a privileged position in the labour market. This is likely due to the increase in demand for

university-educated workers with skills that are complementary to information and communications technologies (ICT) that has accompanied the transition to the knowledge economy (Acemoglu & Autor, 2011; Diessner et al., 2025; Hope & Martelli, 2019; Iversen & Soskice, 2019).

To probe this further, we embed an information provision experiment within our conjoint survey experiment by randomly splitting the sample and showing half of the respondents information about the effect of the diffusion of ICT on the relative labour market position and prospects of university-educated and non-university-educated workers. We then look at whether there are systematic differences in how the control and treatment groups answer the conjoint. The results show that the treated group are (even) less supportive of providing welfare state assistance to university-educated workers. This further supports our main theoretical expectation that university-educated workers are perceived as less in *need* of welfare state assistance, a reasoning that seems only reinforced in the context of technological change.

Overall, the article makes an important contribution to the literature on welfare state deservingness and support in advanced capitalist democracies. It provides new causal evidence on how the education levels of welfare state recipients influences support for providing them with welfare state assistance, as well as providing important insights on the future of the welfare state in contemporary knowledge economies.

The remainder of the article proceeds as follows. The next section reviews the existing literature and sets out our theoretical expectations. Section 3 describes the design of our survey experiment, which combines a conjoint experiment and an information provision experiment. Section 4 presents the results of the survey experiment, as well as a series of robustness tests. Lastly, we provide some concluding remarks in Section 5.

2 Literature review and theoretical expectations

In this section, we start by reviewing the existing literature on welfare state deservingness and setting out the criteria that people typically use to judge whether others are deserving of support from the welfare state. We also summarise the empirical literature that finds a strong link between people's perceptions of welfare beneficiaries and their overall support for the welfare state. In the next subsection, we turn to the question of whether workers' level of education affects support for providing them with welfare state assistance. In other words, are university-educated workers perceived as more or less deserving than non-university-educated workers? Existing research in this area is underdeveloped, but we draw on related work to set out the hypotheses to be tested in our survey experiment. In the final subsection, we review the literature on the rise of the knowledge economy in advanced capitalist democracies, with a focus on how it has altered the labor market position and prospects of university- and non-university-educated workers. This provides the background for the information provision part of the experiment.

2.1 Welfare state deservingness and welfare state support

The core contention of the welfare state deservingness literature is that people's support for the benefits and services provided by the welfare state is largely dictated by whether they perceive the beneficiaries as deserving or not (Van Oorschot, 2000, 2006). According to this approach, people rely on five criteria to adjudicate the deservingness of different target individuals and groups: Control, Attitude, Reciprocity, Identity, and Need (often referred to as the 'CARIN criteria') (Van Oorschot et al., 2017). These criteria (in order) posit that welfare recipients will be perceived as more deserving: the less control and responsibility they are perceived to have over their situation (e.g., an unexpected job loss); the more grateful and compliant they are perceived to be; the greater contribution to society they are perceived to have made in the past or are expected to make in the future (e.g., having a long employment history);

the more they are perceived to belong to the in-group (e.g., being a native); and the greater their perceived financial or health needs (Laenen, Rossetti, & van Oorschot, 2019).

A large body of work has emerged empirically testing the welfare state deservingness theory (Buss, 2019; Kallio & Kouvo, 2015; Kootstra, 2016; Laenen, 2020, 2025; Petersen, 2012; Van Oorschot, 2006; Van Oorschot et al., 2017). Most of these studies find that the CARIN criteria are crucial to understanding welfare state deservingness and social policy support. Van Oorschot's (2006) influential cross-country study into deservingness perceptions across European countries also finds evidence that there is a clear rank ordering of deservingness among target groups, with Europeans widely perceiving the elderly as the most deserving, followed by the sick and disabled, then the unemployed, and finally immigrants.

The degree to which people perceive welfare recipients to be deserving has also been closely linked to citizens' general support for the welfare state. Evidence from the United States has shown that white Americans' welfare views are strongly shaped by beliefs that African Americans are lazy and welfare recipients are undeserving (Alesina & Glaeser, 2004; Gilens, 1999). Similarly, in Europe, the middle class are supportive of means-tested benefits only in cases where the target groups are perceived as deserving (Mau, 2003). Empirical studies have also examined the role of deservingness perceptions in support for welfare state reform and retrenchment, finding that citizens are more supportive of cutting back on social benefits and services for groups that are perceived to be less deserving (e.g., the idle unemployed or non-natives) (Raven, Achterberg, & van der Veen, 2015; Slothuus, 2007).

2.2 Workers' education levels and welfare state deservingness

While the existing literature provides a wealth of evidence on how the characteristics of welfare state recipients (e.g., age, immigrant status, ethnicity etc.) influence deservingness perceptions, there is currently very little research into how workers' level of education affects the desire of others to provide them with welfare state assistance. In

other words, we presently have scant evidence on whether citizens are more or less inclined to provide university-educated workers with welfare state assistance relative to non-university-educated workers.

In Van Oorschot's (2000) seminal article on welfare state deservingness, he asks Dutch survey respondents the degree to which they think 29 different groups should have a right to financial support from society. While it is not the key focus of the analysis, the exercise finds that people see those with low levels of education as having more right to support than those with high levels of education. Although this evidence suggests that university-educated workers may be perceived as less deserving, it fails to account for confounding factors (e.g., respondents could simply be associating higher education levels with higher incomes). The survey questions also did not specify to respondents which qualifications constitute low and high educational levels. Lastly, and most importantly, the survey data are from 1995. This was prior to the widespread shift to mass systems of higher education in the advanced democracies. It is therefore crucial to revisit this question now that such a large share of the workforce possess a university education and the unemployed are becoming increasingly university educated.

In our conjoint experiment, we make a novel contribution by estimating the causal effect of a worker possessing a university education (holding everything else constant) on preferences for providing them with welfare state assistance. We know from the political economy literature that workers with high-level, general skills typically demand less insurance from the welfare state (e.g., unemployment benefits) as their transferable skills reduce the risk of a prolonged period of joblessness (Busemeyer, 2014; Iversen & Soskice, 2001). Indeed, unemployment rates for university-educated workers are typically lower than for non-university educated workers in the OECD countries (OECD, 2022). We expect this logic to feed through into other-regarding preferences for welfare state support such that citizens will perceive university-educated workers as less deserving of welfare state support. In the terminology of the welfare state deservingness literature (Van Oorschot et al., 2017),

we expect that university-educated workers are seen as less in *need* of assistance from the welfare state. This leads us to the main hypothesis tested in our survey experiment:

H1: People are less inclined to provide welfare state assistance to university-educated workers than non-university educated workers, as university-educated workers are seen as less in need of support.

Another deservingness criterion that could also feed into respondents' preferences for providing university and non-university educated workers with welfare state assistance is that of *control*. Respondents could believe that non-university educated workers have not invested in the skills needed in modern labour markets and therefore bear some responsibility should they become unemployed. This criterion could be particularly important in the context of the United States, where from the Clinton administration onward, higher education was strongly pushed as a way for people lower down the income distribution to open the door to high-wage employment and economic prosperity (O'Donovan, 2022). The US is also a country that believes strongly that who gets ahead in society is decided by hard work, and this belief in meritocracy has only hardened as inequality has risen in recent decades (Mijs, 2021). This line of reasoning could make non-university-educated workers appear less deserving of support from the welfare state, as obtaining more education was within their control. This leads us to the alternative hypothesis tested in our survey experiment:

Ha: People are less inclined to provide welfare state assistance to non-university-educated workers than university-educated workers, as non-university-educated workers chose not to invest in high-level skills.

The remaining deservingness criteria of *reciprocity*, *attitude*, and *identity*, seem less

directly relevant to adjudicating between the deservingness of university and non-university educated workers. Our experimental design also to some extent holds *reciprocity* and *attitude* constant, as the hypothetical workers in the conjoint experiment are all described as having been employed full-time on the same income before becoming unemployed. In the results section, we also look at sub-group effects by the education of the respondents to assess the role that the *identity* criterion could be playing in driving the main results. If respondents see people with different levels of education from their own as an out-group (Stubager, 2009; Zollinger, 2024), then we may expect to see university- and non-university-educated respondents answering the conjoint very differently.

2.3 The rise of knowledge economy, university-educated workers, and welfare state deservingness

Labour markets in advanced capitalist democracies have also been transformed by the transition to the knowledge economy in recent decades. The knowledge economy "should be understood as a mode of organization of the economy that is characterized by the co-production and co-deployment of technology and high-level skills" (Diessner et al., 2025, p. 2). The empirical evidence shows that the OECD countries have become substantially more knowledge-intensive since the 1990s (Diessner et al., 2025). This has manifested in a major shift in employment into ICT-intensive, high-end services, such as finance, professional services, technology and the creative industries, as well as into more advanced forms of manufacturing (Diessner, Durazzi, & Hope, 2022; Hope & Martelli, 2019; Wren, 2013).

This transition has affected the labour market position of workers with different levels of education (Acemoglu & Autor, 2011). The main beneficiaries have been university-educated workers with high-level general skills that are complementary to new ICT technologies (Autor, 2014; Durazzi, 2026; Iversen & Soskice, 2019). In contrast, non-university educated workers have typically lost out, as they more frequently work in routine jobs that can be more easily replicated by computers or machines (Au-

tor & Dorn, 2013; Goos, Manning, & Salomons, 2014).

In our information provision experiment, we inform respondents how university-educated workers have benefitted more than non-university educated during the transition to the knowledge economy. We are aiming to shock this belief in order to see how that influences welfare state deservingness perceptions of workers with different levels of education. It would provide further evidence for our main hypothesis if the information treatment leads respondents to be (even) less supportive of providing welfare state assistance to university-educated workers (as compared to non-university-educated workers). It would also suggest that an important factor in university-educated workers being seen as less in need of support from the welfare state is people perceiving that structural changes in the economy in recent decades have been advantageous to this group of workers.

As in the main conjoint experiment, we also test the alternative explanation based on the *control* criterion, which is that respondents will feel even more strongly that the non-university educated have not invested in the skills needed in modern labour markets after receiving the treatment, which would push respondents in the treatment group to be (even) more supportive of providing university-educated workers with welfare state assistance.

3 Experimental design

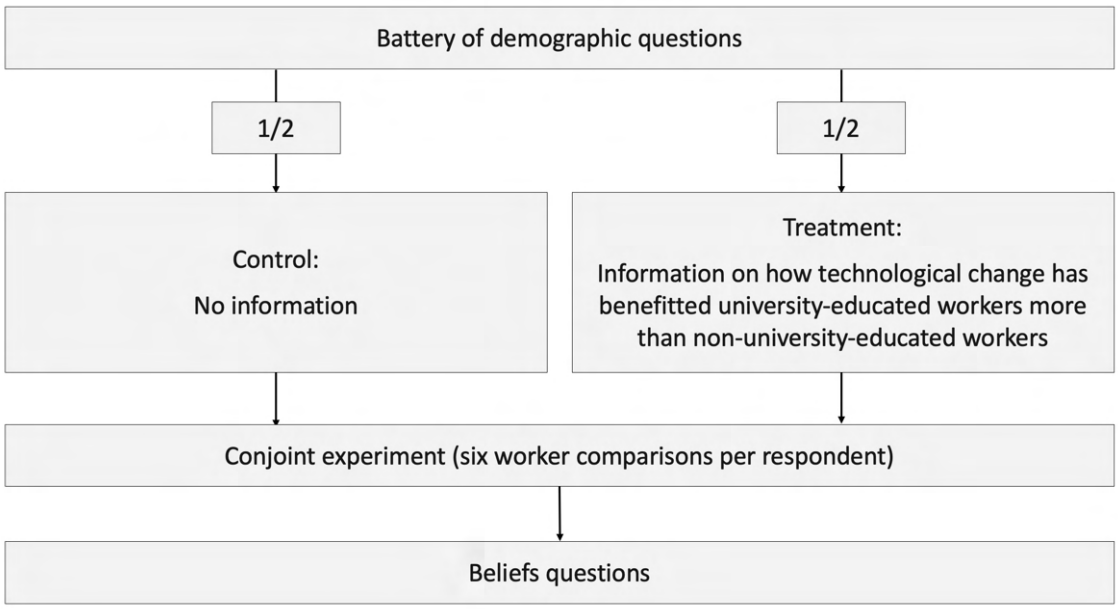
In order to explore our research questions, we carried out an original, online survey with a representative sample of 3,978 respondents from the United States between the 18th and 28th of October 2024. The survey combined a conjoint experiment and an information provision experiment. The survey was coded in Qualtrics and participants were recruited via Prolific using quota sampling (on sex, age, and political affiliation).[2] The average time to finish the survey was just under seven minutes. We exclude all speeders who took the survey in less than 3 minutes (1.5% of respondents)

[2]Our preanalysis plan is registered via the OSF Preregistration registry https://osf.io/c4923/?view_only=7ae270ec04814000a5cbc007e48c3be3. Ethical clearance for this project granted via the King's College London Minimal Risk Procedure (Reference number MRA-24/25-45736).

to ensure data quality. This leaves us with our final sample with a total of 3,916 respondents. Respondents were paid for the time it took them to complete the survey. Payments were equivalent to an hourly wage of £11.03 (on average). The full survey instrument is shown in Appendix A.

The survey is divided into the four parts. The experimental design is set out in figure 1. First, respondents are asked a battery of demographic questions. These cover, among others, age, gender, education, ethnicity, left-right placement, partisan affiliation, and household income.

Figure 1: Experimental Design



Second, respondents are randomly assigned to the treatment or control group (i.e., we use a between-subjects design). The treatment (shown in figure 2) consists of a short text which presents the respondents with information about how technological change has benefited university-educated workers and disadvantaged non-university-educated workers. Respondents in the control group do not receive any information.

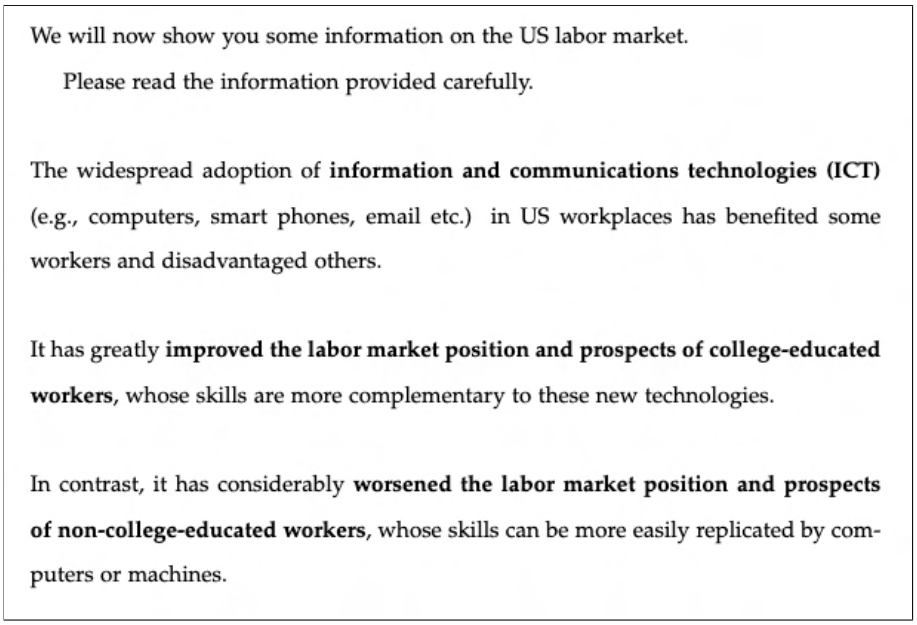
The treatment is aiming to shock respondents beliefs about which educational groups have won and lost from the technological change in recent decades. In other words, it seeks to emphasise the strengthening of the labour market position of university-educated workers that came with the transition to the knowledge economy.

It therefore specifically focuses on ICT, such as computers, email and smartphones, which transformed labour markets in the advanced democracies from the 1980s onwards. With this wave of technological change, there is also a broad consensus in the literature that university-educated workers were the main beneficiaries, whereas non-university-educated workers were typically disadvantaged (Acemoglu & Autor, 2011; Autor, 2014; Diessner et al., 2025; Hope & Martelli, 2019; Iversen & Soskice, 2019).

The treatment purposely does not include information on artificial intelligence, which is at a much earlier stage of diffusing through labour markets. There is much less consensus in the nascent empirical literature on the labour market effects of AI (Bloom, Prettner, Saadaoui, & Veruete, 2025; Humlum & Vestergaard, 2025; Teutloff et al., 2025). Leading AI researchers also argue that the labour market effects of AI will crucially depend on how firms choose to deploy AI technologies and how government policies influence that process (Acemoglu & Johnson, 2023; Autor, 2024; Capraro et al., 2024). It is also likely that beliefs about the winners and losers of technological change are sticky and will take time to adjust to any developments brought by new AI technologies (as shown by the widely-held belief in the control group that university-educated workers have benefited most from the spread of ICT in US workplaces; see right panel of figure 7). We return to the potential implications of the rise of AI for our findings in the concluding section of the article.

In the third part of the experiment, the respondents in both the treatment and control groups answer the conjoint experiment. This involves respondents being shown the profiles of two hypothetical workers side-by-side (see the survey instrument in Appendix A for an example of a worker comparison from the conjoint). The two workers have different attributes, but were both recently laid off. To isolate the effect of education and to ensure it is not conflated with income, all the hypothetical workers in the conjoint were previously working full-time earning around the median US annual salary—i.e., income is kept constant in all comparisons. The order in which the attributes are presented to each respondent is randomised. Respondents then have to decide which of the two workers they would prefer to receive greater

Figure 2: Information Provision Treatment


We will now show you some information on the US labor market.

Please read the information provided carefully.

The widespread adoption of **information and communications technologies (ICT)** (e.g., computers, smart phones, email etc.) in US workplaces has benefited some workers and disadvantaged others.

It has greatly **improved the labor market position and prospects of college-educated workers**, whose skills are more complementary to these new technologies.

In contrast, it has considerably **worsened the labor market position and prospects of non-college-educated workers**, whose skills can be more easily replicated by computers or machines.

income assistance from the government. We ask about government income assistance as we want to capture respondents' attitudes toward providing the unemployed with support from the welfare state in general rather than their support for a specific US government programme (that they may not be that familiar with or may not be accessible to all workers).

Table 1 shows the attributes and attribute levels for the conjoint experiment.[3] Each respondent sees six comparisons in total, with the last comparison showing the same workers as in the first comparison but in reverse order (to allow us to account for measurement error bias). In addition to the forced choice, respondents also rate how much they support each worker receiving income assistance from the government on an 11-point scale.

Table 1: Attributes and attribute levels for the conjoint experiment

Attribute	**Attribute levels**
Age	25; 40; 55
Gender	Male; Female
Education	No college degree; College degree
Parental background	Lower class; Middle class; Upper class

[3]As all the survey respondents are in the United States, we use 'college' in place of 'university' in the conjoint experiment and the wider survey, as this is the more commonly used term in the United States. The survey also uses American English spelling conventions.

Lastly, the survey respondents are asked a set of (post-treatment) questions about their beliefs. In line with our main hypothesis, they are asked the extent to which they agree that university-educated workers find it much easier than non-university-educated workers to get another job when they become unemployed. To test the alternative hypothesis, we ask the extent they agree with the statement that university-educated workers have invested much more in acquiring the skills needed in modern labor markets than non-university-educated workers. The order of these two questions is randomised. Finally, we include a more general question about the perceived winners and losers from technological change by asking respondents whether they think the widespread adoption of information and communications technologies (ICT) in US workplaces has mostly benefited workers with a university education or workers without a university education.

4 Results

In this section, we set out the results of our analysis.[4] We proceed in two steps. First, we present the results of our baseline conjoint experiment. To do this, we solely look at the control group to ensure our results are not influenced by the information treatment. We then present the results of the information provision experiment by looking at whether respondents in the control and treatment groups provide systematically different answers to the conjoint experiment and the post-treatment questions about their beliefs.

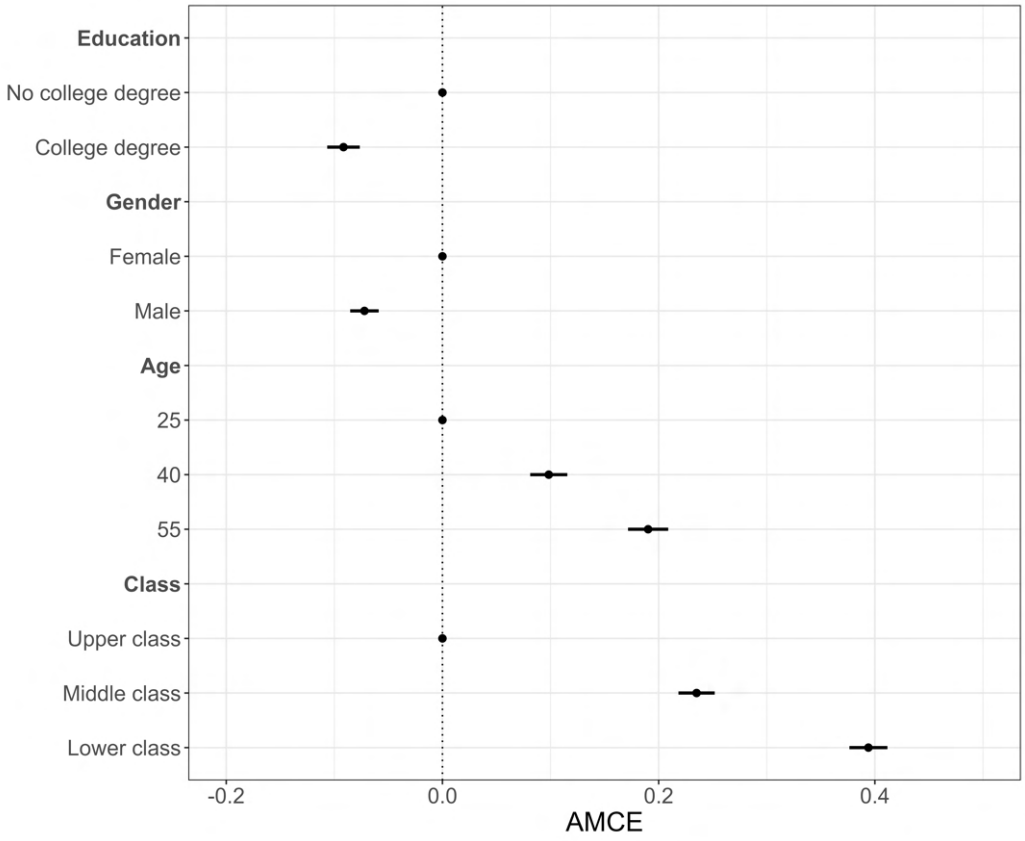
4.1 Conjoint experiment

The baseline conjoint experiment utilises all the respondents in the control group (around 2,000 people). We first calculate the Average Marginal Component Effects (AMCEs) (Hainmueller, Hopkins, & Yamamoto, 2014) to see whether respondents' support for providing government income assistance to a recently unemployed worker

[4] All analyses in the article are unweighted.

differs if the worker is university educated or non-university educated. Figure 3 shows the results. In line with our argument, the effect of a worker possessing a university education is negative and statistically significant. Thus, people are less inclined to provide unemployed workers with government assistance if the workers are university educated. The effects are also sizeable: having a university education reduces the probability of an unemployed worker being chosen for greater government assistance by 10 percentage points.

Figure 3: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker



Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. Points show estimates and bars show 95% confidence intervals.

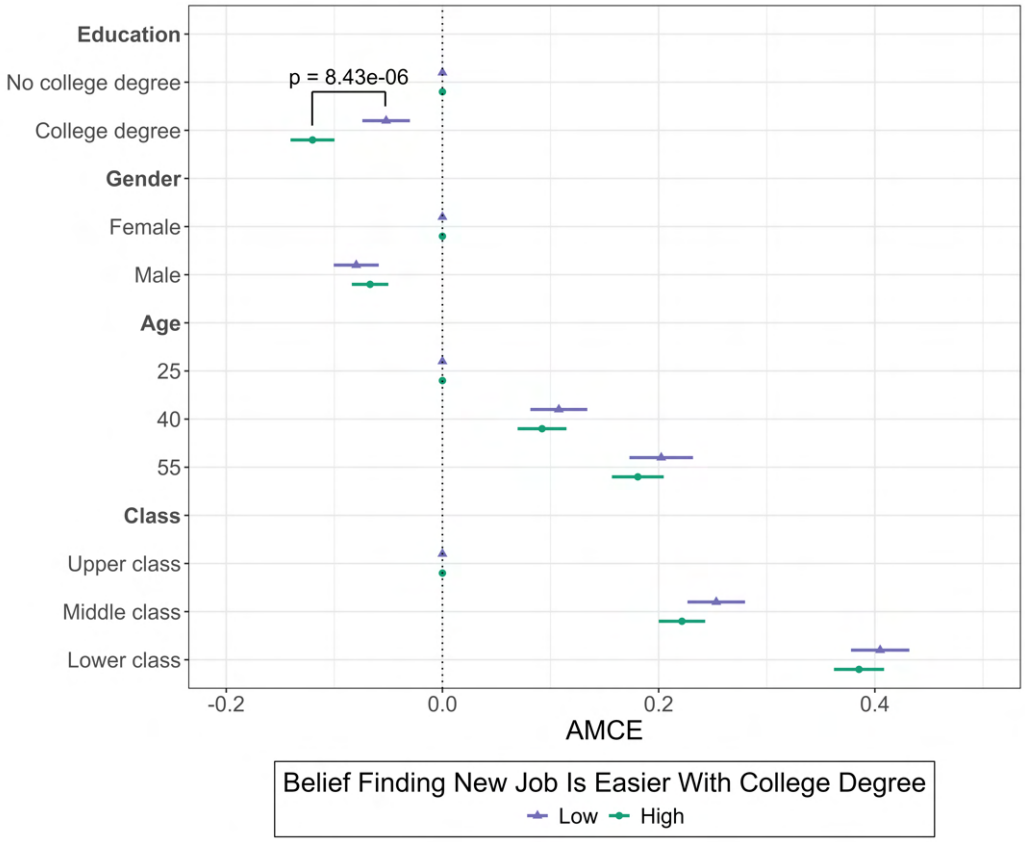
Looking at the other worker attributes in the conjoint, we see that men and younger people are seen as less deserving of government assistance. Furthermore, class differences have a strong effect: coming from a higher class parental background reduces the probability of being chosen for greater government assistance by around 20 per-

centage points compared to a worker from a middle class background and by around 40 percentage points compared to a worker from a lower class background.

Why are people less supportive of providing government assistance to unemployed workers when the workers are university educated as opposed to non-university educated? Based on the political economy literature that looks at workers with general vs. specific skills (Busemeyer, 2014; Iversen & Soskice, 2001), we have argued that this might be driven by people's beliefs that university-educated workers are perceived as less in need of support as they are in a stronger position in the labour market. To test this, we check whether the effect of university education in the conjoint varies by beliefs that people with a university degree will find it easier to get another job when they become unemployed. If this mechanism is at play, we would expect the AMCE of university education to be higher for those who hold these beliefs. We therefore perform a mean split for the beliefs question about the extent to which people agree that university-educated workers will find it much easier than non-university-educated workers to get another job when they become unemployed, and then calculate AMCEs for the two groups separately. Figure 4 presents the results. In line with our argument, the negative effect of university education is more than twice as big for people who strongly hold this belief. The difference is also highly statistically significant ($p<0.00001$). Overall, the baseline conjoint experiment provides evidence that closely aligns with our main hypothesis H1.

We perform a similar analysis for our alternative hypothesis Ha by carrying out a mean split for the beliefs question that asks respondents the extent to which they agree that university-educated workers have invested much more in acquiring the skills needed in modern labour markets than non-university-educated workers. Supplementary Material figure S1 shows the results. The effect of university education is slightly lower for people who strongly believe that university-educated workers have invested much more in acquiring the skills needed in modern labour markets, but it is still negative and statistical significant. Hence, while this alternative explanation may factor into people's deservingness perceptions, it seems to be heavily outweighed by

Figure 4: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker, By Belief that University-Educated Workers Find It Easier to Find a New Job



Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. We divided the sample by performing a mean-split (mean = 6.5) based on the answers to the question: "On a scale of 0-10, to what extent do you agree with the following statement: "College-educated workers find it much easier than non-college-educated workers to get another job when they become unemployed."' Points show estimates and bars show 95% confidence intervals.

more need-based considerations.

Next, we run subgroup analyses to see whether the results vary based on the characteristics of the respondents. We start by running a subgroup analysis that differentiates between respondents with and without a university degree (Supplementary Material figure S2). We find that the treatment effect of university education is higher for respondents who do not have a university degree. However, the effect is also negative and statistically significant for respondents who have a university education. Hence, the overall negative effect of university education in the conjoint is not just being driven by non-university-educated respondents seeing the university-educated as an out-group, as may be implied by the *identity* criterion. Indeed, it is clear from Supplementary Material figure S2 that university-educated respondents

also see university-educated workers as less deserving of welfare state support.

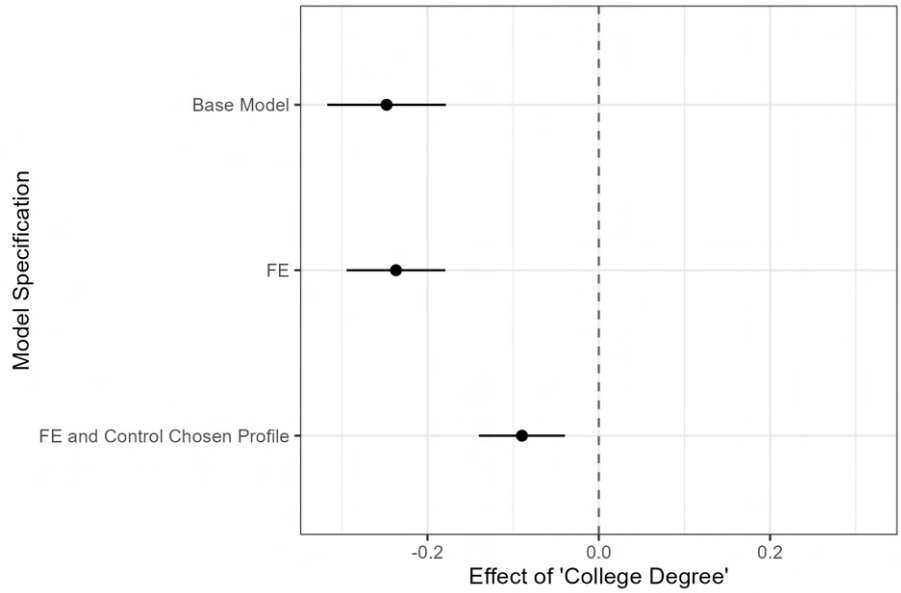
We also run subgroup analyses by the political ideology and ethnicity of the respondents. On the former, we find that the effect of university education is stronger for those who identify as Democrats (Supplementary Material figure S3). Since people with a university education are more likely to vote for the Democrats, this difference might be a conservative estimate. This finding highlights interesting variation by political ideology. Turning to ethnicity, we split the sample into respondents that self-identify as White and those that do not. We find that the effect of university education is negative and statistically significant for both groups, but it is slightly larger for White respondents (Supplementary Material figure S4). Again, respondents' ethnicity does not appear to be driving the main results of the conjoint, as both respondents that are White and those that are not are less inclined to provide welfare state assistance to the university educated than the non-university educated.

We also check the robustness of the findings by looking at marginal means instead of AMCEs. Supplementary Material figure S5 shows that the findings hold when using this alternative empirical approach. Furthermore, recent work has shown that random noise in forced choice designs can seriously bias conjoint analyses (Clayton, Horiuchi, Kaufman, King, & Komisarchik, 2025). To account for this measurement error bias, we make use of the sixth choice which shows the same workers as in the first comparison but in reverse order. We drop all respondents whose choices are inconsistent (i.e., respondents that don't pick the same worker when given the first comparison in reverse order) and recalculate the AMCEs as well as marginal means (Supplementary Material figures S6 and S7). The findings remain robust and the effect of university education even increases slightly.

While the results from the forced choice experiment allow us to make inferences about the relative importance of different attributes, we cannot draw conclusions regarding overall levels of support. In other words, we cannot ascertain whether a worker possessing a university education reduces perceived deservingness of government assistance in absolute terms (i.e., in the absence of a forced choice). To explore

this question, we make use of the ratings we elicited of each worker profile in the conjoint experiment (i.e., respondents support for providing each worker with income assistance from the government on a 0-10 scale). Figure 5 shows the effect of university education on the rating of a profile.

Figure 5: Effect of University Education on Profile Rating Across Model Specifications



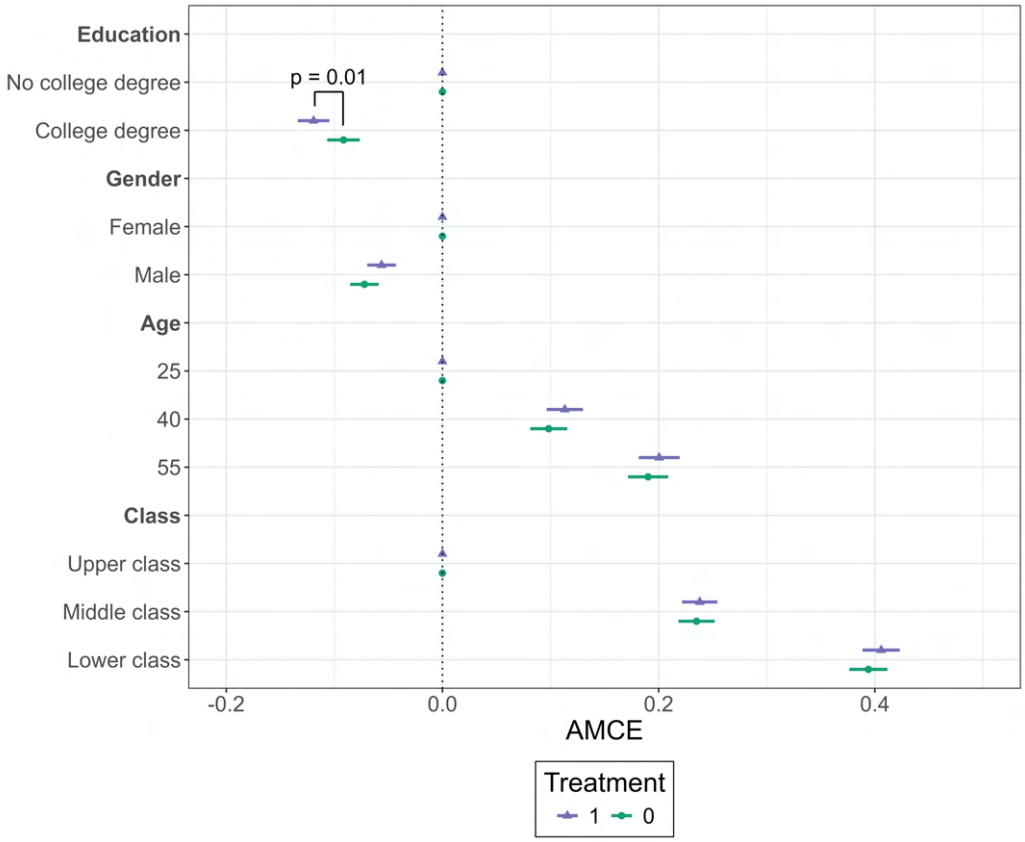
Note: The figure shows the effect of university education on the answering the question: "On a scale of 0-10, how much would you support Worker 1/2 receiving income assistance from the government?". The first model shows the baseline model with all attributes, the second model includes respondent fixed effects, and the third model additionally controls for whether a profile was chosen. Points show estimates and bars show 95% confidence intervals. Supplementary Material table S1 shows the full regression results.

In line with the findings from the forced choice experiment, respondents are less supportive of providing government assistance to unemployed workers with a university education. This finding holds when accounting for respondent fixed effects. We also run a model where we additionally control for whether a profile was chosen or not. This specification identifies the effect of a university education on perceived welfare state deservingness, net of its influence on actual profile selection in the forced-choice task. Hence, it constitutes a very conservative test. Even in this specification, university education has a negative and statistically significant effect on the rating of a profile. Thus, our main finding that people are less supportive of government assistance for workers with a university education holds when using both forced choice and ratings (i.e., in absolute terms).

4.2 Information provision experiment

For the information provision experiment, we use the full sample of 3,916 respondents. We start by looking at whether the AMCEs from the conjoint experiment differ between treatment and control group. This way, we test whether our treatment affects relative support for providing university-educated and non-university-educated workers with government income assistance upon becoming unemployed. Figure 6 shows the results. The treatment highlighting the winners and losers of technological change in recent decades increases the effect of having a university degree by a further 2.6 percentage points (i.e., respondents become even less inclined to provide government income assistance to the university educated relative to the non-university educated).

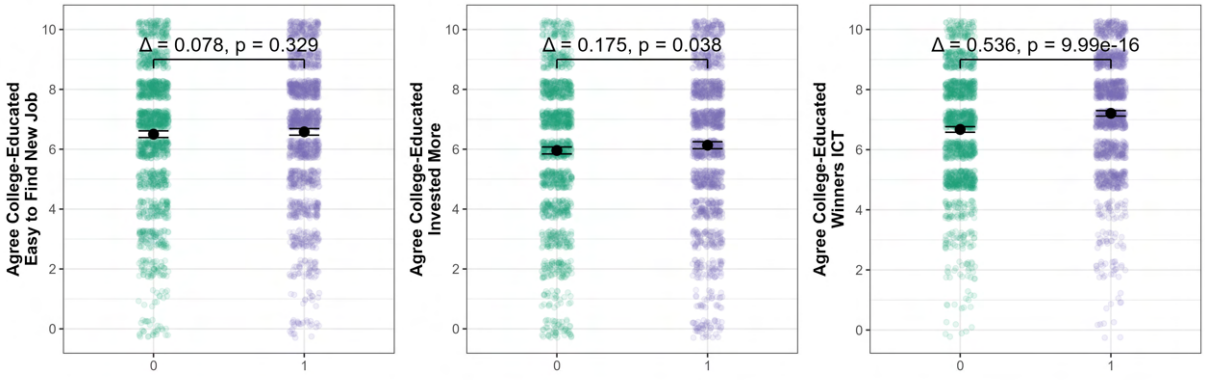
Figure 6: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker, By Treatment Group



Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. Sample divided into treatment and control group. Points show estimates and bars show 95% confidence intervals.

What lies behind this treatment effect? To probe the mechanisms that may be at work, we look at whether the treatment affects how respondents answer the post-treatment beliefs questions. The results are shown in figure 7. The treatment has a small positive effect on beliefs about how easy it is to find a new job for people with a university education (left panel) and whether they have invested more in the skills needed in modern labour markets (middle panel), but only the latter is statistically significant. The most sizeable and statistically significant effect of the treatment is on the belief that that the widespread adoption of ICT in US workplaces has mostly benefited workers with a university education (right panel)—i.e., respondents in the treatment group are more likely to think that the university-educated are in the strong labour market position in contemporary knowledge economies. This finding provides further evidence in line with our main hypothesis H1 that people are less inclined to provide welfare state assistance to university-educated workers than non-university-educated workers, as they are seen as less in need of support.

Figure 7: Effect of Treatment on Beliefs About College-Educated Workers



Note: The figure shows the effect of the information provision treatments on beliefs that college-educated workers find it much easier to find a new job (left panel), that college-educated workers have invested much more in acquiring the skills needed in modern labor markets (middle panel), and that the adoption of ICT has mostly benefited workers with a college education (right panel). Supplementary Material table S2 presents the regression results.

5 Conclusion

Recent decades have seen the advanced democracies move from 'elite models' to 'mass systems' of higher education (Ansell, 2010; Garritzmann, 2016, 2026). This has been

accompanied by a dramatic increase in the share of workers possessing a university education. This article explores how this transformation has influenced perceptions of welfare state deservingness. We take an innovative approach by carrying out an original, online survey with a representative sample of 3,916 respondents from the United States that combines a conjoint experiment with an information provision experiment. We find causal evidence that people are less inclined to provide welfare state assistance to the university educated than the non-university educated. Our findings suggest that this is likely driven by *need*-based considerations. The university-educated are seen as being in a privileged labour market position in the knowledge economy and are therefore perceived to be less in need of welfare state assistance.

Our study makes an important contribution to the literature on welfare state deservingness (Attewell, 2020, 2022; Cavaillé, 2023; Laenen, 2020, 2025; Van Oorschot, 2000, 2006; Van Oorschot et al., 2017) by providing new causal evidence that university-educated workers are perceived as less deserving of support from the welfare state than non-university educated workers. The results also highlight the need to focus more attention on workers' education levels in research in this area, which has up to this point put more emphasis on other worker attributes such as ethnicity and immigrant status. This is particularly the case given the increasing share of unemployed workers that now possess a university education (Bloomberg, 2026).

We also add to the growing body of literature examining the relationship between higher education and support for redistribution and the welfare state. Existing work mostly focuses on how the redistributive preferences of people with university education differ from those without a university education (Attewell, 2020, 2022; Bullock, 2021; Cavaillé, 2023; Gelepithis & Giani, 2022; Marshall, 2016, 2019; Mendelberg et al., 2017). We turn the spotlight onto whether welfare recipients are perceived differently depending on their level of education. We find evidence that people are less inclined to provide welfare state support to university-educated workers than non-university-educated workers. So, not only do university-educated workers think that they are less in need of welfare state assistance, their fellow citizens also think that. Lastly,

we contribute to the literature highlighting the changing demands for redistribution that have accompanied the transition to the knowledge economy. Up to this point, this research has mainly focused on reduced demands to tax workers at the very top of the income distribution (Hope & Limberg, 2022; Hope, Limberg, & Weber, 2025). Our findings suggest that support for welfare state spending may also be affected, as university-educated workers are seen as less deserving than non-university-educated workers of welfare state assistance in contemporary knowledge economies.

The article points to several interesting avenues that could be explored in future research. First, it is important to establish the extent to which the results generalise outside of the United States. While the rising share of university-educated workers in the labour market has been a common trend across the advanced democracies (OECD, 2024), it is possible that welfare state deservingness could have been affected differently in countries with different welfare state regimes and cultural norms around redistribution. We expect the findings would be most likely to apply to the other Anglo-Saxon liberal welfare states that tend to target welfare state benefits more towards lower-income households. It would therefore be particularly important for future work to establish whether the findings hold in the Continental European and Nordic countries, where welfare state benefits are typically more universal or earnings-based (Esping-Andersen, 1990; Esping-Andersen & Myles, 2011). Second, our results suggest there could be interdependence between social investment policies that up-skill the workforce, particularly those focusing on tertiary education, and support for passive welfare state transfers (e.g., unemployment benefits). Future work could build on the existing research into political contestation over social investment and social consumption policies (Busemeyer & Neimanns, 2017; Garritzmann, Busemeyer, & Neimanns, 2018) by exploring whether the expansion of social investment policies has undermined support for more traditional forms of welfare state assistance through the deservingness channel set out in this article. Third, our study would be nicely complemented by an observational study using panel data that examines whether the expansion in the share of the workforce with university edu-

cation has dampened overall support for the welfare state. Finally, future research could look more closely at generative-AI technologies and how they may start to alter perceptions of which workers have won out from technological change, and hence, the welfare state deservingness of different educational groups. If these new technologies are able to replicate the tasks currently carried out by workers higher up the skill distribution, then that may lead over time to citizens becoming more amendable to providing university-educated workers with assistance from the welfare state.

Appendix A: AAPOR-Required Disclosure Elements

First data source. Original online survey experiment conducted by the authors. The survey combined a conjoint experiment with an information provision experiment.

Data Collection Strategy. The data were collected via an online survey. Participants were recruited via Prolific and the survey was programmed and hosted in Qualtrics.

Research Sponsor and Conductor. The research was conducted by the authors. The research was funded by the Leverhulme Trust under Grant RPG-2022-151.

Measurement Tools/Instruments. The full survey instrument is reproduced below. The survey was administered in English.

The survey consisted of five parts, preceded by an introduction and consent section:

Introduction. Thank you for participating in this study. In the following, you will be asked a series of questions about your policy preferences and beliefs about society. Your answers will be used solely for academic research. The study is being carried out by nonpartisan academic researchers seeking to advance our knowledge of society. It is important for the research that you answer as accurately as you can, so please read the questions carefully.

Consent. This survey is being conducted on behalf of researchers at King's College London. The survey should take about 7 minutes to complete. Your participation in this study is completely voluntary. Your name will not be recorded. If you have any questions about this study, you may contact the researchers at K1927610@kcl.ac.uk. Do you consent to taking part in this study?

- Yes, I consent.
- No, I do not consent.

Prolific ID. What is your Prolific ID? *Please note that this response should auto-fill with the correct ID.*

Part I: Demographics. Respondents were asked the following demographic questions:

- **D1: Age.** How old are you?
- **D2: Gender.** What is your gender? (*Female; Male; Other; Prefer not to say*)
- **D3: Ethnicity.** To which of these groups do you consider you belong? You can choose more than one group. (*American Indian or Alaska Native; Asian; Black or African-American; Native Hawaiian or other Pacific Islander; Spanish, Hispanic or Latino; White; Other group; Prefer not to answer*)
- **D4: Children.** How many children do you have? (*I do not have children; 1; 2; 3; 4; 5 or more*)
- **D5: Education Level.** Which category best describes your highest level of education? (*Primary education or less; Some high school; High school degree/GED; Some college; 2-year college degree; 4-year college degree; Master's degree (e.g., MA, MSC, MPhil); Doctoral degree (e.g., PhD); Professional degree (e.g., JD, MD, MBA); Don't know*)
- **D6: Field of Education.** In which one of the following fields or subjects is your highest educational qualification? (*Teacher training, education; Arts, fine/applied; Humanities; Social studies/administration/media/culture; Personal care services; Science/mathematics/computing etc.; Medical/health services/nursing etc.; General education; Public order and safety; Law and legal services; Economics/commerce/business administration; Technical and engineering; Transport and telecommunications; Agriculture/forestry; Don't know*)
- **D7: Household Income.** What is your total (annual) household income before tax? (*Under $10,000; $10,000–$20,000; $20,001–$30,000; $30,001–$40,000; $40,001–$50,000; $50,001–$60,000; $60,001–$80,000; $80,001–$100,000; $100,001–$150,000; $150,001–$200,000; $200,001–$350,000; $350,001–$500,000; Above $500,000; Don't know*)

- **D8: Employment Status.** What is your current employment status? (*Full-time employee; Part-time employee; Business owner; Unemployed and looking for work; Student; Not currently working and not looking for work (e.g. full-time parent); Retiree; Other*)

- **D9: Social Class.** If you had to describe your social class, which one of the following three commonly-used terms would you choose? (*Lower class; Middle class; Upper class; Don't know*)

- **D10: Trust in Government.** How much of the time do you think you can trust the government to do what is right? [*Scale from 0 (Almost never) to 10 (Almost always).*]

- **D11: Political Orientation.** In politics people sometimes talk of left and right. Where would you place yourself on the following scale? [*Scale from 0 (Left) to 10 (Right).*]

- **D12: Party Affiliation.** Which party do you feel closest to? (*Democratic party; Republican party; Other; Don't know*)

- **D13: 2020 Vote.** Who did you vote for in the 2020 Presidential Election? (*Joe Biden; Donald Trump; Other candidate; Didn't vote; Don't know*)

Part II: Treatment & Control (Randomized).

Control: Respondents in this group were taken straight to Part III of the experiment (no information provided).

Treatment: Respondents were shown the following information:

> We will now show you some information on the US labor market. Please read the information provided carefully.
>
> The widespread adoption of **information and communications technologies (ICT)** (e.g., computers, smart phones, email etc.) in US workplaces has benefited some workers and disadvantaged others.

> It has greatly **improved the labor market position and prospects of college-educated workers**, whose skills are more complementary to these new technologies.
>
> In contrast, it has considerably **worsened the labor market position and prospects of non-college-educated workers**, whose skills can be more easily replicated by computers or machines.

Part III: Conjoint Experiment. Respondents in both the treatment and control groups answered the conjoint experiment. They were first shown the following instructions:

> Please read the information below very carefully. It contains the instructions for the next part of the survey.
>
> We will now show you several hypothetical workers who were **recently laid off**. We will always show you two workers in comparison. For each comparison, we would like to know which of these two workers you would personally prefer to receive greater income assistance from the government. In total, we will show you six comparisons.
>
> Please always take your time when reading the attributes of each individual. People have different opinions about this issue, and there are no right or wrong answers.
>
> The following table compares two hypothetical workers who were both **recently laid off** but were previously employed full-time, earning the median average US full-time salary of around **$60,000 per year**.

Respondents were then shown a table comparing two workers on four attributes (see table A1). The order in which the attributes were presented to each respondent was randomised. The values for each attribute were randomised between the different options shown in table A1. Each respondent saw six comparisons in total; the sixth and final comparison was a repeat of the first but with the order of the two workers reversed (to allow correction for measurement error bias). After each comparison, respondents answered three questions:

- **C1: Forced Choice.** If you had to choose between them, which of these two workers would you personally prefer to receive greater income assistance from the government? (*Worker 1; Worker 2*)

- **C2: Rating for Worker 1.** On a scale of 0–10, how much would you support Worker 1 receiving income assistance from the government? [*Scale from 0 (Strongly oppose) to 10 (Strongly support).*]

- **C3: Rating for Worker 2.** On a scale of 0–10, how much would you support Worker 2 receiving income assistance from the government? [*Scale from 0 (Strongly oppose) to 10 (Strongly support).*]

Table A1: Attributes and attribute levels for the conjoint experiment

Attribute	**Attribute levels**
Age	25; 40; 55
Gender	Male; Female
Education	No college degree; College degree
Parental background	Lower class; Middle class; Upper class

An example of a worker comparison as shown to respondents is provided in table A2.

Table A2: Example of a worker comparison in the conjoint experiment

	Worker 1	**Worker 2**
Age	25	40
Gender	Male	Female
Education	No college degree	College degree
Parental background	Lower class	Middle class

Part IV: Post-Treatment Beliefs. The order of P1 and P2 was randomised.

- **P1: Belief 1.** On a scale of 0–10, to what extent do you agree with the following statement: "College-educated workers find it much easier than non-college-educated workers to get another job when they become unemployed." [*Scale from 0 (Strongly disagree) to 10 (Strongly agree).*]

- **P2: Belief 2.** On a scale of 0–10, to what extent do you agree with the following statement: "College-educated workers have invested much more in acquiring the skills needed in modern labor markets than non-college-educated workers." [*Scale from 0 (Strongly disagree) to 10 (Strongly agree).*]

- **P3: Manipulation Check.** Do you think the widespread adoption of information and communications technologies (ICT) in US workplaces has mostly benefited workers with a college education or workers without a college education? [*Scale from 0 (Mostly benefited workers without a college education) to 10 (Mostly benefited workers with a college education).*]

Part V: Survey Feedback.

- **Feedback.** Do you have any feedback or impressions regarding this survey?

End of survey. Thanks again for participating in this study. If you have any further comments on the study, or if you would like any more information, please contact the researchers at K1927610@kcl.ac.uk. Please click the arrow in the bottom-right corner to submit your responses.

Population Under Study. The target population was adult residents of the United States aged 18 and over. All respondents were recruited from the United States.

Methods Used to Generate and Recruit the Sample. The sample was recruited via Prolific, a non-probability online panel. Quota sampling was used to ensure the sample was representative on three characteristics: sex, age, and political affiliation. Respondents were compensated for their participation at a rate equivalent to an hourly wage of £11.03 on average. Participation was voluntary and respondents could withdraw at any time. No eligibility screening beyond Prolific's standard US residency filter and the quota requirements was applied.

Method(s) and Mode(s) of Data Collection. The survey was self-administered online (web-based). It was programmed and hosted in Qualtrics. The survey was offered in English only. The average time to complete the survey was just under seven minutes.

Dates of Data Collection. Data were collected between 18 October 2024 and 28 October 2024.

Sample Sizes and Precision of Results. The sample size after exclusion of speeders is 3,916 respondents. Respondents were randomly assigned to the treatment group or the control group. The baseline conjoint analysis uses respondents in the control group only (each respondent completed 6 non-repeated choices, each generating two profiles, with the sixth choice pair being a reversed version of the first pair).

Whether and How the Data Were Weighted. The data were not post-stratification weighted beyond the quota sampling design imposed at recruitment (quotas on sex, age, and political affiliation via Prolific).

How the Data Were Processed and Procedures to Ensure Data Quality. Respondents who completed the survey in less than 3 minutes were excluded as speeders (approximately 1.5% of respondents). Prolific's standard data quality measures were in place to prevent duplicate responses. No data imputation was performed. All statistical analyses were conducted in R.

Panel Description. Participants were recruited through Prolific's online panel. Prolific manages its own panel; the survey team did not directly manage panel membership. Prolific ensures participants are genuine, human respondents and implements measures to prevent duplicate participation.

Screening Criteria and Process. No study-specific screening beyond Prolific's standard US residency requirement and the quota sampling criteria (sex, age, political affiliation) was applied.

Study Stimuli. The information provision treatment (shown to the treatment group in Part II of the survey) is reproduced above under "Part II: Treatment & Control." The conjoint experiment attributes, attribute levels, and an example worker comparison table are provided under "Part III: Conjoint Experiment" above.

Dispositions or Participation Rates. 4,068 participants, of which 90 did not finish the survey. Of the 3,978 participants who finished the survey, 62 speeders who took the survey in less than 3 minutes were excluded. The final analytical sample consists of 3,916 respondents (after exclusion of speeders).

Sample Sizes. The sample size after exclusion of speeders is 3,916 respondents.

Measurement and Model Specification. The primary outcome in the conjoint experiment is a binary forced-choice indicator equal to 1 if a given worker profile was chosen to receive greater income assistance. Average Marginal Component Effects (AMCEs) are estimated using the binary choice outcome on indicator variables for each attribute level. For the ratings outcome (0–10 scale), OLS regression is used with and without respondent fixed effects, and additionally controlling for whether the profile was chosen (see Supplementary Material table S1). Treatment effects on post-treatment beliefs are estimated via OLS regression of each belief outcome on a binary treatment indicator (see Supplementary Material table S2). Subgroup analyses split the sample by respondents' belief about university-educated workers finding new jobs more easily (mean split at 6.5), belief about skills investment (mean split at 5.98), respondent education (college/no college), partisan affiliation (Republican/Democrat), and ethnicity (White/other than White).

A General Statement Acknowledging Limitations of the Design and Data Collection. The sample was recruited from a non-probability online panel (Prolific) using quota sampling on sex, age, and political affiliation, and therefore may not be fully representative of the US adult population on other dimensions.

Supplementary Material

Supplementary Material is provided below, following the references.

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Data Availability

Replication data and documentation are available at POQ's Harvard Dataverse via: https://doi.org/10.7910/DVN/UQP5OG.

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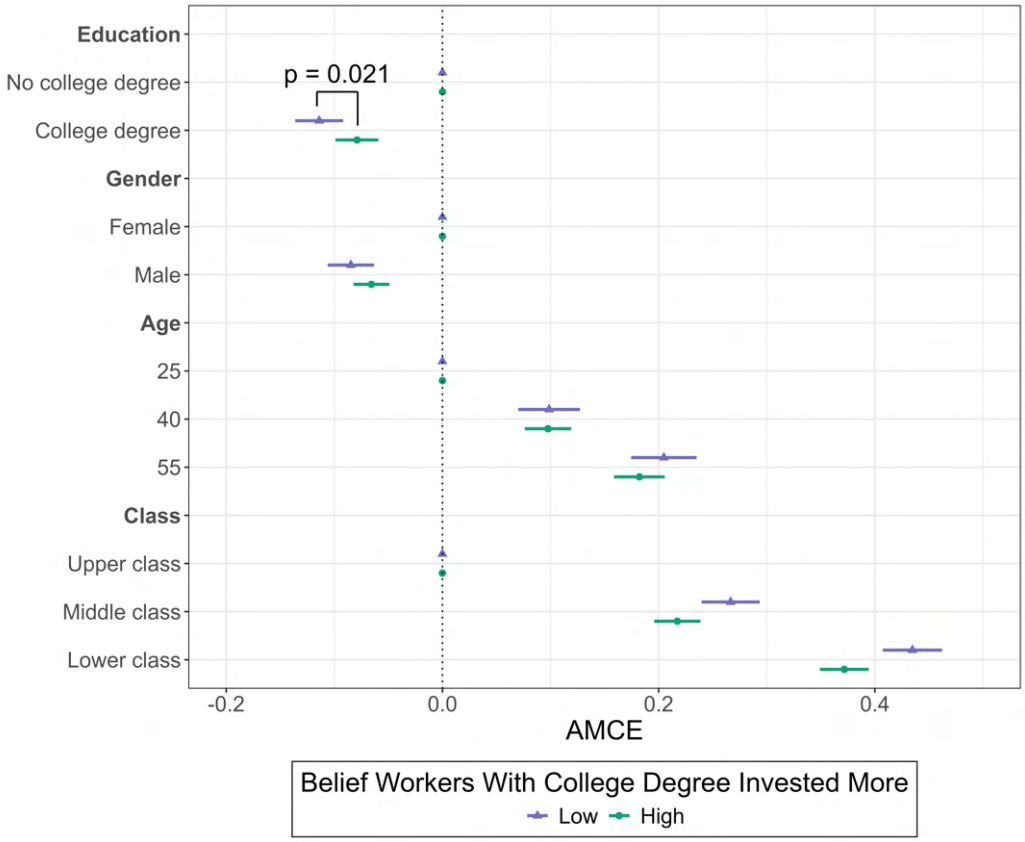
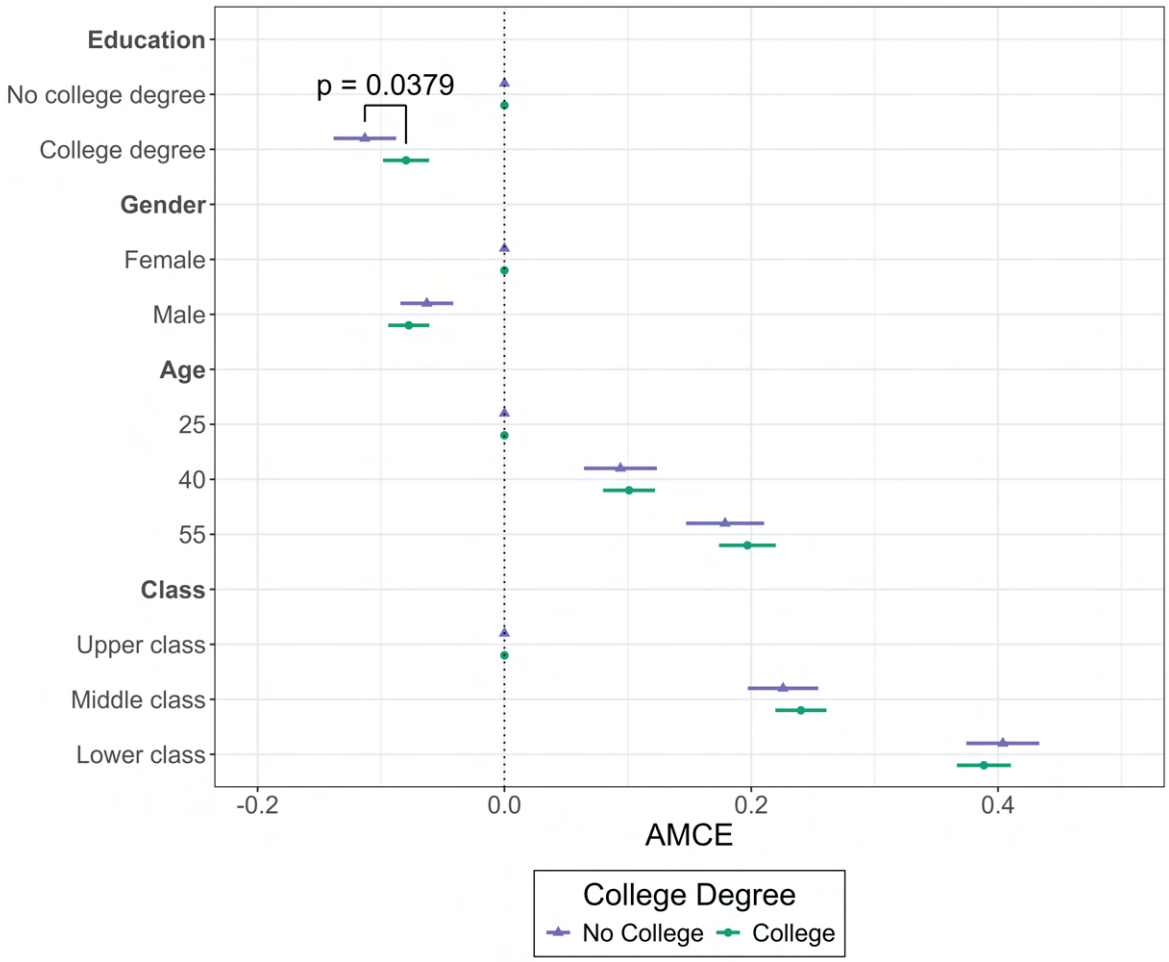
Supplementary Material

Figure S1: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker, By Belief that University-Educated Workers Invested More in Acquiring Skills



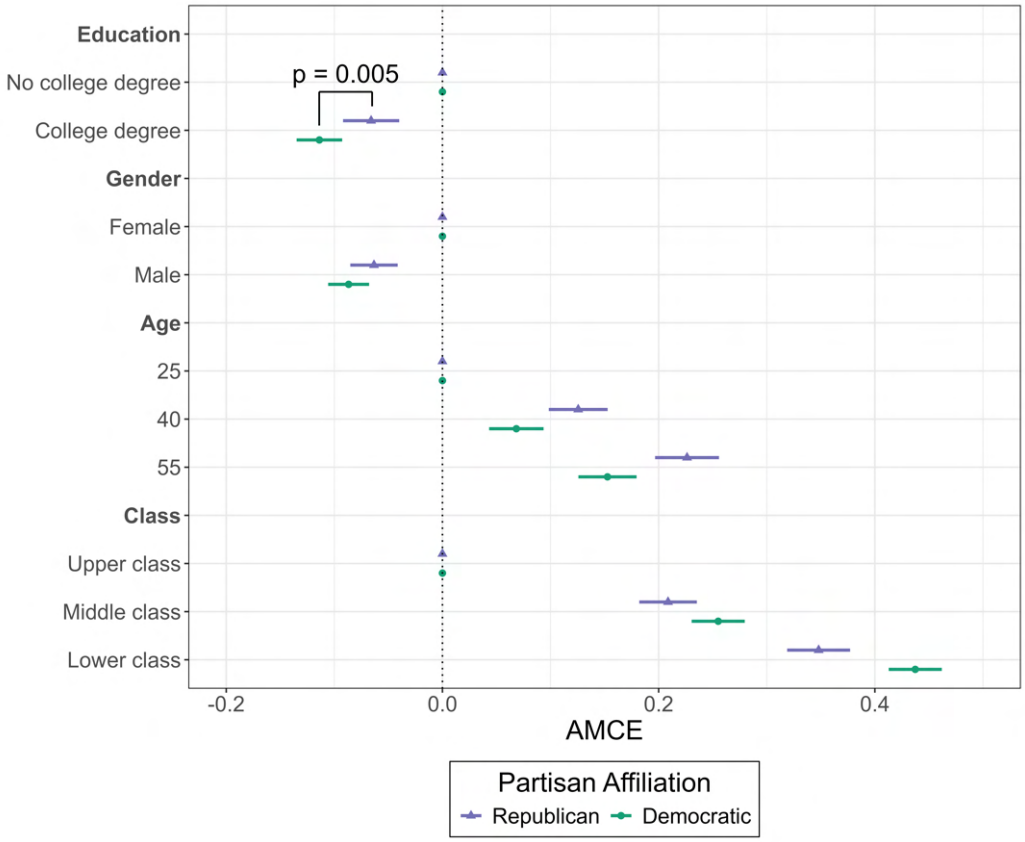
Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. We divided the sample by performing a mean-split (mean = 5.98) based on the answers to the question: 'On a scale of 0-10, to what extent do you agree with the following statement: "College-educated workers have invested much more in acquiring the skills needed in modern labor markets than non-college-educated workers."' Points show estimates and bars show 95% confidence intervals.

Figure S2: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker, By University Degree



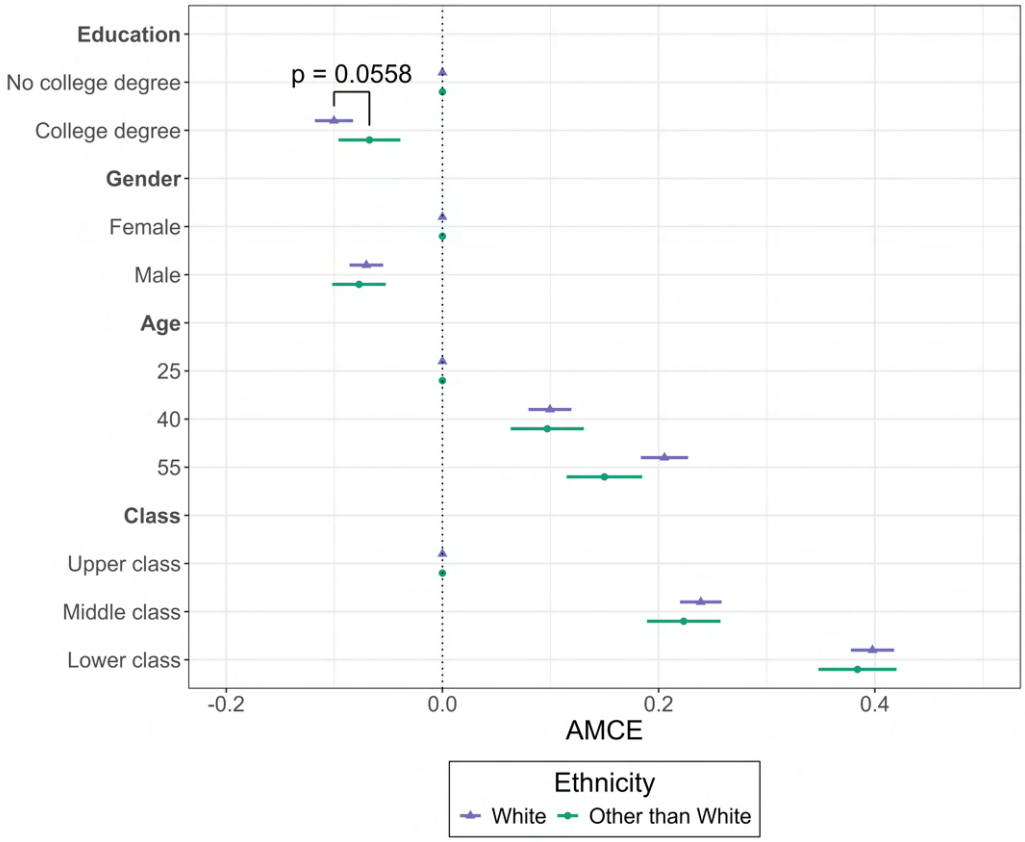
Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. We divided the sample by comparing people with and without a college degree. Points show estimates and bars show 95% confidence intervals.

Figure S3: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker, By Partisanship



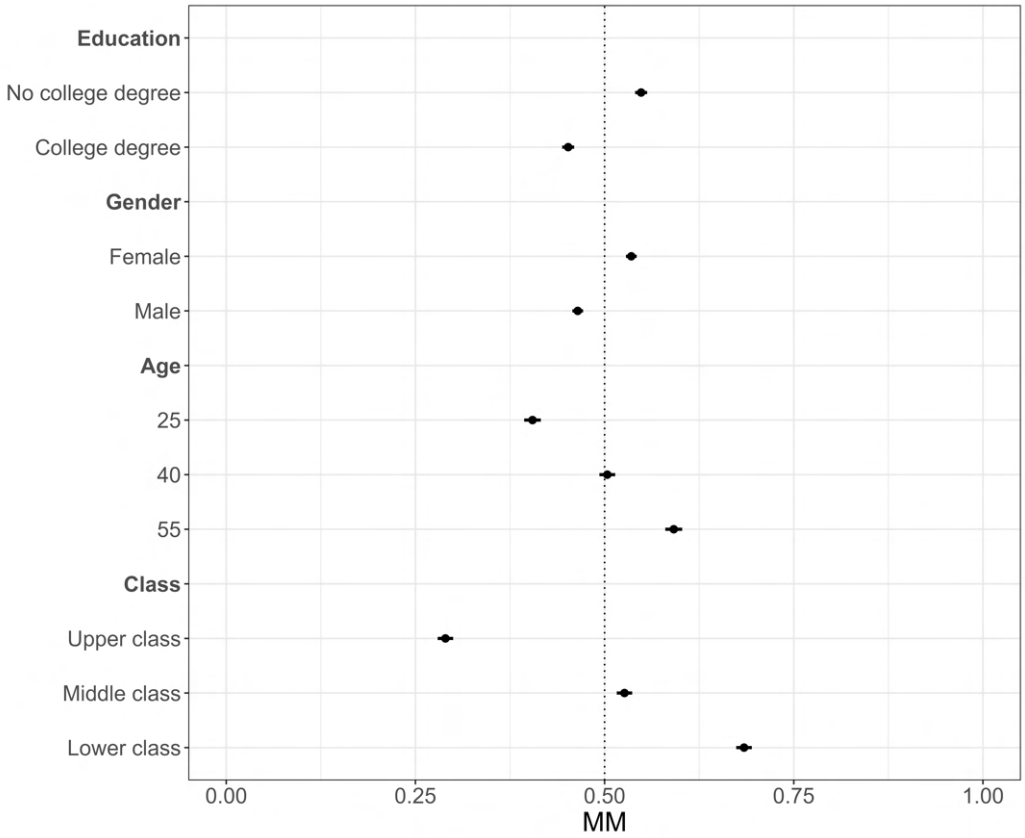
Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. We divided the sample by comparing people that identify as Republicans and Democrats. Points show estimates and bars show 95% confidence intervals.

Figure S4: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker, By Ethnicity



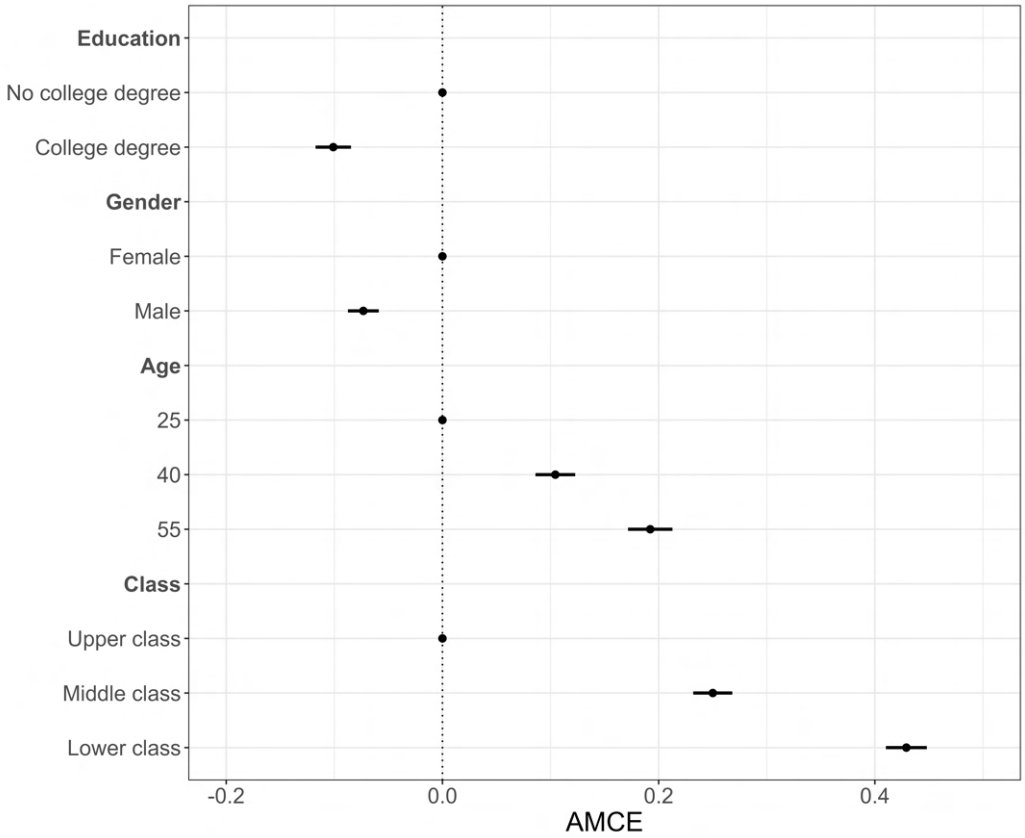
Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. We divided the sample by comparing people that identify as White and those that identify as other ethnicities. Points show estimates and bars show 95% confidence intervals.

Figure S5: Marginal Means for Receiving Greater Income Assistance for Recently Unemployed Worker



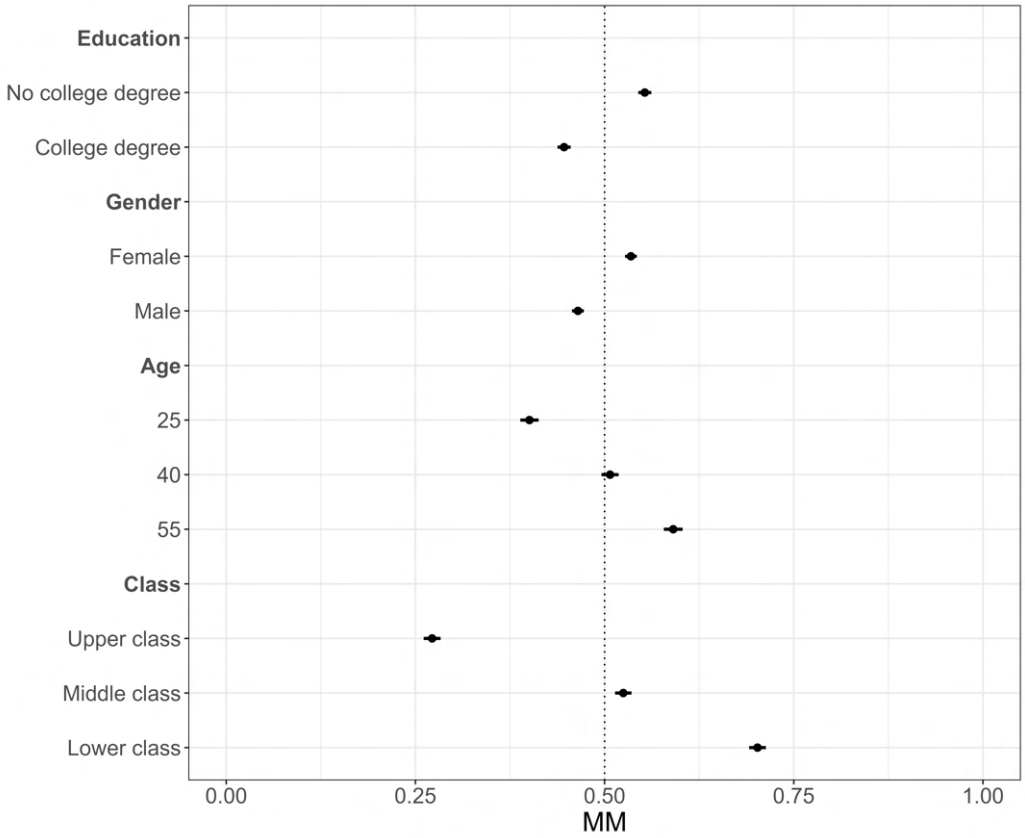
Note: The figure shows the marginal means for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. Points show estimates and bars show 95% confidence intervals.

Figure S6: AMCEs for Receiving Greater Income Assistance for Recently Unemployed Worker, Without Inconsistent Responses



Note: The figure shows the AMCEs for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. Points show estimates and bars show 95% confidence intervals. Respondents who choose different workers in the first and the sixth choice of pairs (which are the same, just with the worker order reversed) are dropped.

Figure S7: Marginal Means for Receiving Greater Income Assistance for Recently Unemployed Worker, Without Inconsistent Responses



Note: The figure shows the marginal means for the different attributes in the conjoint experiment that affect the likelihood that a recently unemployed worker who previously earned $60,000 per year is chosen to receive greater income assistance from the government. Points show estimates and bars show 95% confidence intervals. Respondents who choose different workers in the first and the sixth choice of pairs (which are the same, just with the worker order reversed) are dropped.

Table S1: Effect of Attribute Levels on Profile Rating Across Model Specifications

	Model 1	Model 2	Model 3
College Degree	−0.2478	−0.2368	−0.0897
	(0.0353)	(0.0294)	(0.0256)
Age: 40	0.3153	0.3070	0.1476
	(0.0434)	(0.0337)	(0.0292)
Age: 55	0.4902	0.5458	0.2377
	(0.0431)	(0.0391)	(0.0336)
Male	−0.1675	−0.1658	−0.0484
	(0.0353)	(0.0264)	(0.0238)
Middle Class	−0.3747	−0.4059	−0.1490
	(0.0433)	(0.0340)	(0.0307)
Upper Class	−1.4480	−1.4545	−0.8173
	(0.0432)	(0.0486)	(0.0423)
Chosen Profile			1.4681
			(0.0402)
FE	✗	✓	✓
Num. obs.	19630	19630	19630

Standard errors are shown in parantheses.

Table S2: Regression Results for Effect of Treatment on Core Beliefs

	Easy New Job	Invested More	Winners ICT
Treatment	0.0574	0.1633	0.5497
	(0.0732)	(0.0771)	(0.0607)
Num. obs.	3916	3916	3916

Standard errors are shown in parantheses.