Resisting Populism through Financial Market Exposure: Experimental Evidence from Brexit

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Abstract

Populism has been on the rise, posing a threat to liberal democracy. Existing evidence suggests that globalization, economic shocks, and concerns over cultural change increase support for populist agendas. Yet less is known about interventions that can empower individuals to critically evaluate populist messaging. We argue that tailored exposure to financial markets can reduce support for populist policies because it can encourage learning about the gains of economic complementarity and the costs of nativism and isolationism. We test this argument with an RCT implemented in the run-up to the Brexit referendum. We randomly assigned British citizens to hold and trade complementary financial assets from the UK, EU and the US for six weeks. We show that this intervention increased citizens' willingness to vote to remain in the European Union during the Brexit Referendum, and particularly so when exposed to companies that exemplify EU-UK economic complementarity. Countering populist narratives, treated participants instead came to associate the EU with economic prosperity, rather than a threat to their cultural identity or a waste of money. Overall, the effects are stronger among swing participants and those originally more open to a European cultural identity.

Keywords: Populism, Financial Market Exposure, Brexit, Field Experiment

Introduction

Democratic institutions around the world are being severely challenged by a wave of populism (eg, Funke, Schularick and Trebesch, 2020, Guriev and Papaioannou, 2022). With populist leaders espousing antagonistic rhetoric that pits the "*pure people*", often defined in nativist terms, in a *zero-sum* contest against "*corrupt elites*"[1], democracies are also witnessing increased polarization, hate and distrust in fellow citizens and institutions, and more frequent irregular challenges to elections and the peaceful transfers of power (e.g. Funke et al., 2020, Chinoy,

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[1]Here, I follow Guriev and Papaioannou (2022) and Mudde (2004) in defining *populism* as "*a thin-centered ideology that considers society to be separated into two homogeneous, antagonistic groups: 'the pure people' and the 'corrupt elite'.*" Further, populist rhetoric often delineates who is *pure*, tying them to a specific cultural (and often nativist) identity (Müller, 2016, Guriev and Papaioannou, 2022).

Nunn, Sequeira and Stantcheva, 2023, Dimant, 2024, Rivera, Seira and Jha, 2025). These political challenges have been accompanied with the espousal of policies and reforms that go against commonly accepted economic principles and faltering faith in expert advice, resulting in almost unprecedented degrees of economic policy uncertainty (e.g. Baker, Bloom, Davis and Kost, 2019).

Countries at the vanguard of the populist wave, like the United Kingdom in the aftermath of the decision by its citizens to leave the European Union during the *Brexit* Referendum in 2016, have already experienced substantial negative effects to their economic growth (Born, Müller, Schularick and Sedláček, 2019), firm productivity (Bloom, Bunn, Chen, Mizen, Smietanka and Thwaites, 2019), and foreign direct investment (Breinlich, Leromain, Novy, Sampson and Usman, 2018). Given growing support for populist leaders and parties around the world, as well as the potentially severe social and economic consequences of populist policies, it is crucial to understand how to empower citizens with the tools to manage the growing economic uncertainties they face as well as to resist the lure of potentially corrosive and antagonistic populist narratives.[2]

In recent years, social scientists have increasingly interrogated the causes and consequences of populism around the world (for recent reviews, see Noury and Roland (2020), Berman (2021), Guriev and Papaioannou (2022)). Existing studies emphasize a broad set of important factors, including globalization (Colantone and Stanig, 2018, Rodrik, 2021), financial crises (Gyöngyösi and Verner, 2022), economic shocks (Algan, Guriev, Papaioannou and Passari, 2017, Autor, Dorn, Hanson and Majlesi, 2020), austerity (Fetzer, 2019), immigration (Hangartner, Dinas, Marbach, Matakos and Xefteris, 2019), cultural threats (Mutz, 2018), and the spread of mobile broadband internet (Guriev, Melnikov and Zhuravskaya, 2021) in contributing to the rise of populism.[3] An important, and arguably general, insight from existing populism research is that individuals who perceive that they are being '*left behind*' to face the brunt of financial crises, economic openness and technological change, while not perceiving that they share in the benefits of economic growth, have been among the most susceptible to populist rhetoric (Fetzer, 2022, Colantone and Stanig, 2018, Fetzer, 2019). However, much less is known is about we can reduce mass support for populism. Indeed, in their recent influential review of the literature, Guriev and Papaioannou (2022) stress that "*there is virtually no empirical research on the effectiveness of specific policy solutions*" for populism (Guriev and Papaioannou, 2022, p.756).

In this paper, we test a potentially highly scalable and non-paternalistic approach for empowering individuals and strengthening their ability to independently evaluate the merits of populist policies: exposure to tailored opportunities for experiential learning through trading small amounts of assets in financial markets. As we describe below, in past work we have shown that randomly assigned opportunities for experiential learning in the financial markets

[2]In Europe alone, the populist party vote share has almost doubled since the early 2000s (Guriev and Papaioannou, 2022).

[3]Populist leaders have in turn fostered divisive social norms and behaviors (Bursztyn, Egorov and Fiorin, 2020, Valentim, 2021, Grosjean, Masera and Yousaf, 2022, Dimant, 2024) and adversely affected a range of economic outcomes (Graziano, Handley and Limão, 2020, Born et al., 2019, Bloom et al., 2019, Breinlich et al., 2018).

is an empowering intervention that can be effective for building basic financial literacy, better understanding of financial markets and participation. Indeed we find these patterns replicate in this current experiment as well (Jha, in progress, see also Appendix).

But along with these learning effects, we argue there are three key potential benefits of well-designed financial market exposure that can be effective at helping individuals to independently evaluate and reconsider *populist* narratives in particular. First- at their essence- many financial assets are designed to allow large numbers of individuals to credibly share in the future through joint investment, and thus financial markets can provide an opportunity for individuals to share in the common gains of both economic growth and to diversify and to manage their idiosyncratic risks (Jha, 2012). Thus even though financial markets are sometimes construed—particularly by non-participants—as zero sum, *carefully tailored exposure* to opportunities to learn and for mutual financial investment can allow individuals to participate in a potentially *highly positive-sum, rather than zero-sum*, set of activities that can bridge the divides that are often leveraged by populists (see Berman (2021), Chinoy et al. (2023)). As a potential antidote to those perceiving themselves *left behind* (Fetzer, 2022), once individuals perceive that they too can participate in financial markets, it also allows all participants, whether self-perceived non-elites or elites, to share in common gains from trade and economic activity. This is particularly so as *the democratization of finance*—advances in financial technology— have greatly lowered the transaction costs to individual participation. Second, financial markets can focus citizens' *attention* on the common good, as reflected in the economy, rather than in polarised issues of identity politics.[4] Third, financial markets can provide an objective (and relatively non-partisan) *gauge* of the health of the economy, which can provide signals to citizens that are independent from echo chambers and politically-filtered rhetoric (Braghieri, Eichmeyer, Levy, Mobius, Steinhardt and Zhong, 2024, Jha, Koudijs and Salgado, 2024).[5] Further, these three potential benefits are mutual complements rather than separate mechanisms, each reinforcing each other in a way that may counter populism.

To test whether exposure to financial markets can indeed reduce support for populism, we focus on the 2016 Brexit referendum, in which UK citizens voted to leave the European Union. Unlike voting for parties in elections, which can reflect many different aspects of a party platform and citizens' loyalty to a party, potentially *in spite* of its policies, the Brexit

[4]Though the overall economy is, of course, not perfectly encompassed by financial markets, they are strongly correlated, with the financial markets often a leading metric. For example, Jha and van Rensselaer calculate that the correlation between US stock prices and real GDP between 1955- 2020 is 0.31 and that with median household income has been even greater ($\rho = 0.42$).

[5]Tailored financial market exposure can also restore generalized trust, particularly among the politically polarized (Jha, Shayo and Weiss, 2025, Rivera et al., 2025). This is particularly important given that deficits of trusts in experts and existing institutions can be a central antecedent to mass support for populism (Algan et al., 2017, Thielmann and Hilbig, 2023). Indeed, in the Brexit context, distrust towards EU institutions and bureaucrats was a central theme of the pro-leave campaign (Fetzer, 2019). More generally, suspicion towards liberal elites, ethnic minorities, and immigrants is integral to populist agendas (Berman, 2021). Accordingly, by potentially serving to restore trust-building financial markets can dissuade citizens from supporting populist politicians. Indeed, generalized trust levels negatively correlate with support for populist leaders, parties, and policies (Guriev, 2018, Keefer, Scartascini and Vlaicu, 2019, Giuliano and Wacziarg, 2020).

referendum provides an unusual opportunity to study individual decisions to support or oppose what is widely considered the archetype of a populist policy (Dhingra and Sampson, 2022, Rodrik, 2021). Naturally, the processes by which individuals choose to invest in, hold and divest from stocks are highly endogenous and can be shaped by political attitudes and characteristics that also may drive support for populist parties. Thus identifying the effects of financial market exposures on political attitudes is highly challenging in observational data (though, see e.g. Jha (2015)). Therefore, we turn to a field experiment. Specifically, we implemented a randomized controlled trial in which we encouraged British citizens to hold and trade various financial assets for a period of six weeks that overlapped with the Brexit referendum. Participants were randomly assigned to trade stocks in three EU companies complementary to the UK economy, three UK companies complementary to the EU or three financial assets that provided exposure to American companies or culture (baseball teams) that could compete with the EU and pan-European identity.

As we will show, relative to otherwise similar individuals in the control group, randomized exposure to our financial market treatments increases the probability that participants voted for Remain across the entire sample by 2.5pp-3.1pp (Intent to Treat Effects (ITT), p-values of an increase ranging between 0.034-0.059 depending on specification) or 3.3pp-4.0pp (Treatment Effect on the Treated (TOT), p-values of an increase ranging between 0.028-0.058) overall. Further, these effects are particularly marked *outside London*, with ITT effects of 3.6pp- 4.1pp (p-values of an increase ranging between 0.008-0.017), and TOT effects of 4.8pp-5.5pp (p-value range: 0.004-0.014). The effects are even more remarkable among *swing voters*: 14.6pp- 16.9pp (ITT, p-values of an increase ranging from 0.006-0.012) and 19.6pp-25.5pp (TOT, p-value range: 0.001-0.008). These effects are economically meaningful given that the Brexit referendum was ultimately determined by a narrow 3.78% vote margin (Uberoi, 2016).[6]

As we describe below, these treatment effects are particularly marked for assets that exemplify European-UK complementarity relative to assets from the US, which instead were construed among populist politicians as *competing* with the EU as a partner for the UK, both financially and culturally. We further examine how pre-existing cultural identities shape these effects. We find that while assets from EU companies that complement the UK economy have a greater effect among those with a less parochial British / more European cultural identity, their effects are weaker (though still positive) among those who with more parochial senses of their cultural identity. In contrast, exposure to assets from marquee UK companies that

[6]The treatment effects we find are also on the higher end relative to those found in the political persuasion and canvassing literature. For example, in their meta-study, Kalla and Broockman (2018) find an insignificant 0.58 percentage point increase in general elections persuasion attempts. Furthermore, our estimates are comparable to those also found by Kalla and Broockman (2018) on primary elections conducted in the US, where their meta-analytic estimate is 4.51 percentage points. In another context, Gentzkow (2006) finds that, over a decade, television introduction *reduced* turnout for congressional elections by 2 percentage points and to presidential elections by 0.7 percentage points. DellaVigna and Kaplan (2007) estimate that Fox News exposure generated persuasion rates of 0.03 to 0.28 percentage points. Lastly, Kalla and Broockman (2016) estimate canvassing effects of 0.29–0.45 standard deviation increases in transgender tolerance scale in South Florida. In an online mega-study testing 25 different treatments, Voelkel, Stagnaro et al. (2024) find short-term (same survey) decreases in partisan animosity of 5 percentage points, on average.

also complement the EU, like Rolls-Royce, had similar positive effects for participants with both parochial and more expansive cultural identities. We interpret these effects as reflecting how the effects of financial market exposures are not uniform nor symmetric, but can be more effective when identity-congruent, interacting in important ways with how individuals focus on more narrower senses of national identity rather than internalize the benefits of others across national and cultural divides.

We can further (descriptively) explore the mechanism using other survey responses and a rich set of sub-treatments. In particular, we can directly evaluate whether and which populist narratives are being resisted by treated participants using the fact that we asked participants "*what does the European Union mean to you?*" just after each registered their Referendum decision. As we describe below, in general, British citizens were among the least knowledgeable people in Europe about the European Union prior to the Referendum, arguably providing fertile ground for populist rhetoric that the EU was corrupt, posed a cultural threat and that, contrary to expert opinion, leaving would be good for Britain economically.

Yet, crucially, treated individuals become 4.5pp more likely to respond that, to them, the EU means "*economic prosperity*" (p-value range: 0.004-0.005), a remarkable 26% increase in the probability relative to the 17.2% who believed this in the control. Further contrary to the prevailing populist narrative at the time, they were (weakly) 3.6pp (8.7%) less likely to respond that the European Union meant a "*loss of our cultural identity*" (p-value range: 0.038-0.189), and (weaker still) 1.8pp (3.8%) less likely to respond that to them, the European Union meant "*a waste of money*". Furthermore, while treated participants both with ex ante more parochial and more European identities increase their perceptions equating the EU with prosperity, the treatment also causes those with a more parochial UK identity to somewhat lower their perceptions that the EU constitutes a cultural threat.

To what extent can these belief changes explain the treatment effect on the Brexit vote? To answer this, we employ both formal mediation exercises (following Kwon and Roth (2026) and Imai, Keele and Tingley (2010a)) as well as a simple comparison of attenuated coefficients. Applying the mediation approach recommended by Kwon and Roth (2026), we fail to reject the sharp null hypothesis that changes induced by the treatment in each the three beliefs about the EU mentioned above can explain *all* of the average treatment effects on support for Remain (with p-values ranging from 0.45 to 1.00). However, the changes in beliefs associating the EU with economic prosperity emerges as the strongest channel. Further, assuming the orthogonality conditions noted by Imai et al. (2010a), the changes in beliefs associating the EU with economic prosperity explains 35.2% of the total effect of the pooled treatments on support for Remain, and the reduced perception that the EU implies a loss of cultural identity 19.2%, and that it is a waste of money 15.0%. A simple attenuation exercise finds very similar shares. It further shows that controlling for these three changed perceptions alone can account for the majority of the overall treatment effect on support for Remain in the Referendum, though it is important to note that a substantial residual direct effect remains.

We use a similar attenuation approach to show that the effect on Remain are not explained by changes in risk sensitivity, more self-reliant economic attitudes, or the activation of a more European self-identity in response to treatment, among other alternatives. We further use a rich set of subtreatments to show that the effects are not driven by the stakes or the direction of asset price performance. Instead we interpret these results as reflecting the role of tailored financial exposures in empowering individuals to re-evaluate the appeals of populism, becoming more aware of the economic benefits of the European Union, less distrustful of its governance and less concerned about the cultural threats that it might pose.

The closest study to this, which we explicitly build upon in ways described in more detail below, is that by Jha and Shayo (2019), who were the first to study the effects of randomly allocating the opportunity to trade stocks on votes and political attitudes, as well as on participants' financial literacy and confidence (Jha and Shayo, 2025). Jha and Shayo (2019) assigned each treated participant a single Israeli or Palestinian stock or index fund which they could then buy or sell. They show that exposing Jewish Israelis before the 2015 elections the opportunity to trade that stock changed their political attitudes towards the peace process, focusing on the gains to the economy from peace, and changing their voting decisions towards parties that supported restarting negotiations. On economic issues, however, individuals became slightly more self-reliant rather than supportive of redistribution.

Also using data from the current (UK) study, Margalit and Shayo (2020) find consistent, and somewhat stronger, effects on such economic attitudes, while in a companion paper, Jha (in progress) finds again that the current intervention was again empowering, raising participants' financial literacy. However, none of these studies focus on the key question of whether and how financial market exposure can build resistance to populism, and do so in arguably one of the most important political choices in recent history.[7]

[7]Beyond the central question of restarting the peace process versus resisting populist narratives, the study also differs from Jha and Shayo (2019) in three other crucial ways. First, the setting is very different, and not merely in terms of geographical location. The Jha and Shayo (2019) study was conducted around the 2015 Israeli elections, at a time where the Israel-Palestine conflict was on-going, and anticipated to remain so for a long time, with individuals who had multiple opportunities to establish and reconsider their positions over time. The UK Brexit referendum, in contrast, was a one-off decision, with a relatively uninformed population who had not had faced such a decision in the past. Second, Jha and Shayo (2019) do not consider the role of identity in shaping responses, focusing on rationalist tradeoffs for conflict. Third, the treatments are different. Instead of only being exposed to a single stock or index fund in Jha and Shayo (2019), participants could trade between three different single company stocks within a geographical set (EU, UK or US). The sub-treatments in this study also included Short positions, Fantasy treatments and Sports derivative treatment not present in the Israel study. Thus the question, setting and treatment are all different.

Further, as discussed below, this current study differs from the Margalit and Shayo (2020), not just in terms of the key question, but also in terms of the Brexit endline survey used, which was fielded completely separately from the financial study (and thus not as potentially susceptible to social desirability / experimental demand concerns), as well as being able to capture a greater share of post-treatment responses. Importantly, as we show, the treatment effects on Remain index are also orthogonal to the effects on self-reliant socio-economic values in that study and involve a different mechanism.

Context: the 2016 Brexit Referendum

As Alabrese and Fetzer (2018) write: "*Brexit is a watershed moment in European history, and is widely seen as marking the beginning of a wider populist revolt affecting the Western World.*" Despite a '*clear consensus*' among economists at the time that Brexit would have stark adverse consequences for the UK economy (Portes, 2022), on June 2016, UK voters chose, by a slender 51.89% - 48.11% margin, to leave the European Union.

The grave concerns of economists have indeed been realized in the decade since. The UK Office of Budget Responsibility (2025) estimates that Brexit has reduced British long-run GDP by 4 percent relative to remaining in EU. They estimate that around 40% of that 4 percent impact had already been incurred by 2021 due to the adverse effects of the high levels of policy uncertainty on investment and capital deepening.[8] A 2025 YouGov poll found that only 30% of British citizens now believe that it was right for the UK to vote to leave the EU, down from 52% who voted do so in 2015, and a majority now believe that leaving the EU has damaged the UK economy.[9]

Within the UK, Scotland and Northern Ireland voted strongly to Remain. England, however, was more firmly in the Brexit camp. With the exception of London (which voted 59.53% vs 40.07% to Remain), majorities in *all other* regions of England voted to Leave. On average, the Leave vote in England garnered 53.41% vs 46.59% for Remain, with 73.0% turnout. Summarizing the evidence, however, Fetzer (2022, pg.11) describes how support for leave was not cohesive but consisted largely of two groups. Two thirds of Leave voters were disproportionately white, English and male, with relatively low education attainment and nearing retirement at the time of the Referendum (see also Becker, Fetzer and Novy (2017)). A strong aspect of the Leave campaign was its *nativist appeals*, regarding immigration in particular as a cultural threat to British identity.

However, the remaining third of Leave voters were "*a mixed bag of protest voters*" that proved to be pivotal (Fetzer, 2022, pg.11). These "*left behind*" protest voters did not perceive that they were sharing in the benefits of the UK's growing economy. Instead, having weathered trade shocks and the financial crisis, they then disproportionately bore the brunt of the austerity policies implemented thereafter by the Conservative government (Becker et al., 2017, Colantone and Stanig, 2018, Fetzer, 2022, Alabrese and Fetzer, 2018, Fetzer, 2019).

Even while economists were expressing severe concerns about Brexit, Leave campaigners were finding fertile ground outside London with a populist platform that has since been widely mimicked. Along with nativist appeals about cultural threat, populist pro-Brexit UK Indepen-

[8] See also Bloom et al. (2019) who exploits the monthly Decision Maker Panel survey of roughly 7,000 UK firms to measure post-referendum shocks, documents a broad and persistent jump in Brexit-related uncertainty that stayed above 50 % of firms ranking it a top-three concern three years after the vote. They estimate that heightened uncertainty and anticipation effects cut aggregate business investment by about 11 % over the first three years, with growth each year roughly 2-3 percentage points lower than the pre-referendum trend. Similarly Dhingra and Sampson (2022) estimate that UK GDP was 2-3% smaller at the end of 2019 compared to a Remain scenario.

[9] See e.g. Richard Partington "How has Britain's economy fared since Brexit?", *The Guardian*, May 19, 2025.

dence Party (UKIP) politicians were also vocally *anti-elite*, arguing that UK contributions to the EU are used to fund corrupt bureaucrats and promote the interests of large corporations instead of addressing the needs of ordinary citizens (Fetzer, 2019). Further, and again diametrically opposed to policy expert projections, UKIP actors made explicit *pocketbook* claims about *economic prosperity*: leaving the EU was depicted by UKIP actors as a relatively risk-free course of action that would improve the social and economic well-being of ordinary UK citizens (Dhingra and Sampson, 2022).

A natural question that the literature raises then, are both whether experiential learning through the financial markets could empower individuals to resist these populist claims, and to what extent existing cultural identities shape the relative effects of different types of financial market exposure in responding to populist claims.

Research Design

To address these questions, in May 2016, we invited adult British citizens from a large online panel composed of over 40,000 participants to take part in a study on economic behavior. To join the study, participants were asked to complete a consent form and answer a detailed survey eliciting a range of questions relating to economic issues and financial literacy. After completing the survey, respondents were informed that they were entered into a lottery in which winners would receive £50 to be traded on an online platform for a period of six weeks. Respondents were also informed that they would be asked to participate in several follow-up surveys. We limited our study to individuals living within the borders of England, which was known to be the centre of support for Leave, relative to Scotland and Northern Ireland, which were strongly in favor of Remain.

As depicted in Figure 1, our study included social and economic baseline surveys, a treatment period in which individuals received weekly opportunities to trade either a fantasy portfolio or an initial £50 worth of three specific EU, UK or US stocks through our survey platform, and endline surveys of their financial literacy and other economic measures. Figure 1 also shows the performance of each of these assets during the study period. The six week trading period spanned the five weeks before and the one week after the anticipated Brexit referendum.

As the figure shows, separately, and shortly following the baseline economic survey, we fielded a seemingly unconnected survey that allowed us to elicit respondents' pre-treatment social and political preferences. Specifically, we designed the survey using a different interface and ensured it made no explicit connection to our first survey focusing on financial literacy and economic issues. Since these surveys were entirely separate and not tied to the financial treatments, they are not contaminated by experimenter demand effects.[10] As part of this social

[10]Indeed we verify this in Figure A3 which reports the open responses to the post-treatment survey in which respondents were asked "*what can researchers learn from the study?*". Remarkably, of the 2,132 non-empty responses, only 50 (2.3%) mentioned the Brexit referendum, and of these, only 2 (0.09%) made a causal claim that could be construed as being the direction of our hypothesis.

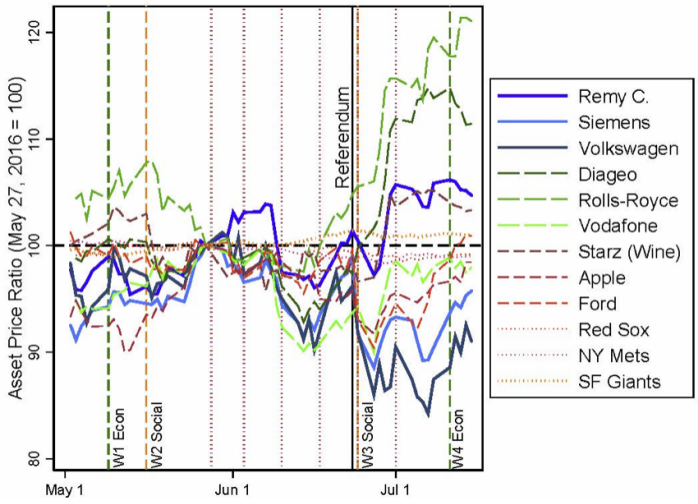


Figure 1: **Study Timeline and Asset Values**

This figure reports the timeline of our study as well as the asset price ratios over time for all assets included in our randomized controlled trial. Green dashed lines represent the W(ave) 1 baseline and W4 endline economic/ financial surveys. The dotted lines represent the weekly financial trading surveys. The beige lines represent the separately administered baseline (W2) and endline (W3) social/ political surveys. W3 was implemented immediately after the 2016 Brexit Referendum vote.

survey, we elicited respondents' attitudes regarding the upcoming Brexit referendum—our key outcome of interest. We further resurveyed them immediately after the Brexit referendum to determine their ultimate vote.[11] Almost 58% of respondents in the control reported casting a leave vote in the Referendum, while 36% of respondents reported casting a remain vote, and almost 6% reported to having abstained in the Referendum.

This study was conducted in 2016 when pre-registration was not as widespread, and a notable limitation is that it was not formally pre-registered. However, as the design shows, the experiment was explicitly designed around the Brexit referendum, with the vote being the key outcome measure. The other main outcome we were interested in was financial literacy, which we study in a companion paper (Jha, in progress). See also our Stanford IRB protocol 37442 (May 2016), which was explicitly entitled: "*Exposure to Financial Markets, Financial Literacy and European Integration.*" Further, as our IRB protocol describes:"*the purpose of the study is to study how exposure to financial markets affects both financial literacy and attitudes towards economic and political integration. The study will be undertaken in the UK which is currently debating the possibility of exiting the EU- what is commonly termed "Brexit".*

Table A1 provides summary statistics of our sample by their pre-Brexit voting intentions less than a month before the Referendum. Notably, mimicking the ultimate outcome (and unlike the majority of contemporary polls, which predicted a Remain victory), a slight majority of our

[11] 79 individuals did not respond to the immediate post-Referendum survey, so were recontacted three weeks later, once the ramifications of the Referendum had begun to be more apparent. We include a dummy for these late respondents in all specifications.

sample (50.28%) expressed an intention to vote Leave.[12] In contrast, 38.36% to vote Remain, and 11.36% had 'no idea'. Closely consistent with Fetzer (2022)'s description of the ultimate Leave voters above, as the table suggests, at baseline those intending to vote Leave in our sample were older (53.06 years old vs 47.29 intending to vote Remain), more male, less educated, with only 22% with a university degree or above (vs 47% of those intending to vote Remain), and were somewhat poorer (earning an average of £20,808 vs £22,008 for Remain voters).[13] 7% of prospective Leave voters were London residents vs 12% of those intending to vote Remain.

Beyond these core demographics, our baseline survey allows us to compare individuals' willingness to take risks (scored from 1-10, based upon Dohmen, Falk, Huffman, Sunde, Chupp and Wagner (2011)), time preference, past experience trading stocks, and participants' objective financial literacy score (based upon a standard battery of eight questions derived from van Rooij, Lusardi and Alessie (2011).)[14] Prospective Leave voters were more risk averse than Remain (4.65 vs 4.90 on a 0-10 point scale, p-value of a difference 0.02), but somewhat more patient on average, with comparable experience trading stocks (14% reported having done so in the past six months vs 13%) and similar financial literacy scores (5.51 vs 5.65 out of 8).

To capture participants' cultural identity as British or Europeans, in the baseline social survey, we also asked individuals a set of four questions which we formed into an *European Identity Index*.[15] We generate an indicator for participants with index values below the median— and therefore more parochially British— and above the median, and therefore reflecting a greater European self-identity.[16]

As Table A1 reveals, the European identity index very strongly correlates to vote intentions in the EU Referendum, but not perfectly so. In fact, 17% of prospective Leave voters had a European identity index above the median, compared to 80% for Remain. These differences hold across all components of the index. For example, 85% of prospective Leave voters self-identify as British only (rather than noting some acceptance of a European identity), compared to 47% of remain. Similarly, on average, prospective Leave voters perceived European values to be between 'very distant' and 'distant' (1.90/ 5) to the UK compared to between 'do not know' and 'close' (3.48/5) for Remain.

Importantly, the European identity index also is diagnostic of who fall into the category of

[12]See for example, Pamela Duncan "How the pollsters got it wrong on the EU referendum", *the Guardian*, June 24, 2016.

[13]See also Becker et al. (2017) and Alabrese and Fetzer (2018). The income differences are likely attenuated since to calculate these particular averages, we assign the top coded category of 30K or above to 30K- please see Table A1. For our regression analysis we use indicator variables for each income category instead.

[14]See also Jha and Shayo (2025) and our companion paper- Jha (in progress).

[15]Specifically, this index is the first principal component of answers to the following questions: *Identity*: "do you see yourself as (5 point Likert scale, from 1-British only, 2- British but only European, 3- Neither, 4- European but also British to 5-European only)"; *Attached to Europe*:"how attached do you feel to Europe? (1-Not at All Attached; 4-Very Attached)" *Shared Values*:" in terms of shared values, are EU member states? (1-Very Distant to the UK- 3-DK, 5-Very Close)" and *European Criticism is Personal*: "when someone from another country criticizes Europe, it feels like a personal insult (1-Strongly Disagree; 5- Strongly Agree)."

[16]Naturally, such cultural identities and attitudes of openness and tolerance can emerge both due to very long-term historical incentives (eg Jha, 2013) but also be the product of more recent forms of socialization and transmission (Bisin and Verdier, 2000). See Bisin and Verdier (2023) for a useful recent overview.

the 11.35% swing voters who reported having 'no idea' on the eve of the Referendum. These voters strongly mimic prospective Leave voters in some dimensions (residence outside London, education and average income), with a similar 81% considering themselves British only in their identity and similar levels of attachment to Europe. However, 45% have an above median European identity, reflecting a less strong level of British parochialism that falls in between Leave and Remain. This swing group also stands out in other dimensions, particularly gender (they are 68% female), youth (their average age is 45.66) and having lower financial literacy (4.85/8).

Does a less parochially British and more European identity merely reflect the other major demographic differences that shape Brexit voting intentions? Figure A1 presents residual plots of indicators of intent to vote leave, vote remain and a Remain Vote Intention Index (defined by the categories in Table A1: -1: Leave, 0: No Idea, +1: Remain) against the residuals of the European Identity Index, controlling for the other characteristics in Table A1. Pre-treatment intentions to vote Remain show a strong correlation with a more European cultural identity even among individuals with otherwise similar demographic characteristics. Further, as the figures show, there remains substantial variation in voting intentions even among otherwise similar individuals with all but the most parochial British identities.

Could tailored financial market exposures impact these attitudes, and if so, how? To determine this, we block randomized respondents into treatment and control conditions. These randomization strata were specifically created based on Brexit voting intentions and the European identity index, an indicator for having traded shares in the past six months, willingness to take risks, and financial literacy. Each stratification block included 26 individuals.[17] 2,333 completed the initial surveys and also responded to the end-line Brexit survey, which is the sample we use for analysis (Table 1). Of these, 431 were randomly assigned to the control group and 1,902 respondents were assigned to a set of different financial market treatments. As Table A2 shows, the sample is balanced both between control and the financial treatment group and by each treatment arm along a wide range of pre-treatment intentions and covariates.[18]

Members of the financial market treatment group were further each randomly assigned to six weeks— overlapping the Referendum— trading between three specific assets. For each person, these three assets were drawn from within three different geographical units: either

[17] We also stratified upon indices of attitudes towards trade and xenophobia.

[18] In terms of attrition, those in the fantasy treatment were as likely to respond to the endline survey as control, but those with real assets responded more. However, note that Table A2 shows that even for the attritted sample, there remains balance in a wide range of pre-treatment covariates across arms, including the fantasy treatment. Table A21 further does a bounds exercise, assigning all those who completed the initial surveys but failed to answer the endline survey to their pre-treatment Brexit intention , thereby assuming, doubly conservatively, that the treatments had no effect at all, and contrary to Figure 1, there was no additional swing among the control towards Leave. Perhaps not surprisingly, the effects are noisier but similar, particularly outside London. However, given that 57.1 % of the control group did move towards leave (see Table 2), Figure A11 does a further exercise, randomly assigning an additional set of the attritted to Leave to match that proportion a thousand times, with the rest assigned to their initial voting intent, and then estimating the treatment coefficients on the Remain Index. As the figure shows, the resultant imputed effects are stronger than our estimates without imputation in 95% of the simulations, and on average are substantially stronger.

Table 1: **Assignment to Treatments and Compliance Rates**

	Assigned	Compliers	Share
Control	431		
All Treatments	1,902	1,443	0.759
European Complementary	368	292	0.793
UK Pooled Assets	982	728	0.741
UK Real Long	364	294	0.808
UK Real Short	358	275	0.768
UK Fantasy	260	159	0.612
US Pooled Assets	552	423	0.766
US Financial	275	224	0.815
US Sports	277	199	0.718
Total	2,333		

This table reports the number of individuals with completed surveys who were assigned to control and the treatments, along with the compliance rates: i.e. shares that actually 'took up' their assigned assets and agreed to continue with the study after asset assignment.

the EU, UK and the US. Those in the EU treatment (368) were assigned the opportunity to trade among three stocks, initially worth a total of £50, in European companies engaged in activities that were complementary to the UK economy. These include one company each in the beverage industry— *Remy Cointreau* (the UK does not make cognac)— the automobile industry — *Volkswagen* (the UK specializes in luxury vehicles, importing smaller family cars)— and technology industry — *Siemens* makes high end medical and other machines not made in the UK.

We hypothesized that, since these most directly exemplified companies that complement and benefit the UK economy, and demonstrate the economic gains from openness to the EU, this treatment would have the largest effects on support for Remain in the referendum.

However, motivated by previous work in the Israeli context (Jha and Shayo, 2019), where we found that exposure to trading both Israeli and Palestinian financial assets raised support for peace, we randomly assigned a total of 982 individuals the opportunity to trade between three UK company stocks in the same broad categories whose operations also had substantial operations in the rest of the European Union. These included: *Rolls-Royce*, a marquee engineering company that makes engines for the European consortium AirBus Industrie, *Diageo*, a beverage company whose portfolio includes prominent scotch whisky brands like *Johnnie Walker* and *Talisker* that naturally complement European beverage offerings, and *Vodafone*, a prominent communications company with extensive European operations.[19] Though the European

[19]Vodafone was the sponsor of the iconic jersey for the Manchester United football team from 2000-2013, but at the time of the Referendum, its logo was on the jersey of Ajax Amsterdam. See also Jacob Davey (2020) "The 25 Most Iconic Shirt Sponsors of All Time", *Versus UK*.

economic exposure of these companies are less salient, these assets are likely more familiar to UK voters (Huberman, 2001), more congruent with British identity (eg Akerlof and Kranton, 2000, Donkor, Goette, Müller, Dimant and Kurschilgen, 2025), and also could evoke both national pride and a recognition that such national pride does not have to be accompanied with economic isolation.

To further unpack the mechanism, and to examine the extent to which actual economic incentives in the financial markets affect the results, the UK companies treatment came in three different types. The '*UK Long Real*' subtreatment (N= 364) was the closest parallel to the EU treatment, with participants similarly receiving the opportunity to trade in the assets of three UK companies complementary to the EU (valued at £50).

In our Israel study, we had divested a random subset prior to the 2015 elections and found that those that were divested prior to the elections exhibited similar changes in experiential learning and in political attitudes to those with *skin in the game*, who were divested afterwards. In this study too, we similarly hypothesized that if learning was the key mechanism rather than direct economic incentives, those with assets *inversely correlated with the economy* should respond similarly to those that are positively correlated. In contrast, these groups should have different effects if positive (or negative) material returns were crucial for the mechanism. To study this component of the mechanism, we therefore also assigned 358 participants to a "Short" treatment, where they received returns that tracked the inverse of the stock prices of those same UK companies (again initially valued at £50).

Further, we wanted to test whether experiential learning could be fostered even without any material incentives. Thus a smaller group (N=260) were assigned to a 'Fantasy' treatment. The Fantasy participants got the same interface and the same opportunity to trade the three UK companies, but received 50 virtual pounds, without the promise of gaining the realized value of the portfolio at the end of the study. As Table 1 shows, while compliance rates were quite high given the incentives (79% for the EU assets, 80% for the UK Long Real, and 76% overall), take up for those with the Fantasy treatment was, not surprisingly, substantially lower (61.2%). Anticipating this, we also took care to re-survey non-compliers, who did not ultimately decide to take up the assets. This allows us to report both conservative Intent to Treat (ITT) effects that considers an individual to be treated, whether or not they actually decided to take up the asset treatment, as well as the treatment effect on the treated (TOT), using assignment to treatment as an instrument for actual treatment.

Finally, we wanted to unpack whether the Brexit vote was affected more by exposure to the EU-UK financial assets that most directly demonstrate the trade complementarity of the UK and other economies within the European Union, rather than other less directly affected / more neutral economies that might still provide trade opportunities that complement the UK economy, while potentially providing competing products to the EU. In particular, pro-Leave campaigners had argued that leaving the EU would allow the UK to develop closer economic

ties to the Commonwealth and particularly the US.[20] We were further interested in whether learning could be encouraged even with more exotic financial assets, particularly ones with a cultural identity valence but not one directly related to stockmarkets.

We therefore provided a smaller set of individuals £50 of initial exposure to two types of financial assets from the *US* economy. The *US Financial Asset* group (N=275) received opportunities to trade in a set of three US companies in the same three broad economic categories as for the EU and UK treatments: technology (*Apple*), automotive (*Ford*), and beverages (Constellation Brands, which includes the well-known *Robert Mondavi* wine company). A second *US Sports* group (N=277) received a set of three financial assets that tracked the promotion probabilities of three major US Baseball teams: the San Francisco Giants, the Boston Red Sox and the New York Mets.[21]

Main Results

Table A2 reports the average responses in the control group, and p-values testing for the presence of differences between the control and treatment arms on pre-treatment Brexit vote intentions, previous parliamentary vote, demographics, and the British vs European identity score. It includes all participants that completed the initial surveys and for whom we have their Brexit decision. Each cell represents the coefficient from an OLS regression on an indicator for the treatment, controlling solely for the randomization strata.

As the table shows, consistent with our stratified randomization approach, the control group and the treatment are well-balanced across both pre-treatment Brexit vote intentions and other characteristics. This is also true comparing the control with each sub-treatment arm. Our estimation is also straightforward, given our randomized control trial. In our baseline specifications, we run cross-sectional OLS regressions of the following form:

$$RemainIndex_{it} = \beta\, Treatment_{it} + X'\Gamma_{i,t-1} + S_{FE} + \epsilon_i \tag{1}$$

Our main outcome of interest is the voting decision in the 2016 Brexit referendum. As discussed above, our main hypothesis was that by exposing individuals to opportunities for experiential learning in the financial markets, they would be more resistant to populist messaging, and would increase their support for remaining in the European Union. Note that support for remaining in the European Union could take two forms. Individuals who might otherwise

[20] See for example, Erlanger (2016): "*Those who favor breaking away argue that a country with close ties to the United States and the Commonwealth as well as Europe would emerge better off, freed from onerous regulations and Britain's net annual contribution of 8.5 billion pounds ($12.1 billion) to the European Union budget.*" See also Lilico (2016).

[21] These were based upon the Elo scores from the https://data.fivethirtyeight.com/ website. Though celebrated in the US as *America's pastime*, baseball is not widely played in the UK or the EU (with an estimated 22,274 participants in the UK in 2015-16 (World Baseball Softball Confederation, 2016)). In contrast, football/ soccer is by far the most popular sport in both the UK and the rest of the EU, with 2.3 million playing football in England alone in 2016 (Sport England, 2024). Within our study, takeup rates were indeed higher for US Financial assets (81.5%) than for those assigned to Baseball (71.8%)(Table 1).

have voted Leave may actually change their minds and vote Remain instead - thereby counting double in the Referendum. Alternatively, they may decide to abstain on the day of the Referendum. Thus, to capture both these effects, we both report the effect on the Remain vote as well as adopt a simple three step *Remain Index*, similar to that described above. This takes the values -1 if an individual voted to Leave, 0 - if they abstained, and +1 if they voted Remain. We will also unpack this outcome into separate indicators for vote $Remain_{it}$ and vote $Leave_{it}$. Thus we interpret the coefficients as a 'step' summing the effect on the probabilities of moving from Leave to Abstain and Abstain to Remain.

Our main variable of interest is $Treatment_{it}$: an indicator of assignment to treatment, and thus the coefficient β estimates a conservative Intent to Treat (ITT) effect that considers an individual to be treated, whether or not they actually decided to take up the asset treatment. However, since we follow non-compliers, in some specifications, we also report the treatment effect on the treated (TOT), using assignment to treatment as an instrument for actual treatment. As our main outcome we study both the vote for Remain as well as the Remain Index, which incorporates potential switchers from Leave.

We also include S_{FE} fixed effects for the randomization strata, and in some specifications, a matrix of controls X for pre-treatment political attitudes, including Brexit voting intentions, 2015 parliamentary vote, the European vs UK identity index and perceptions of EU and UK policies, as well as indicators for age, education and income levels and controls for pre-treatment financial literacy score, risk aversion and patience. In some specifications, we also subset the data to the 92% of our participants outside the financial and political capital, London.

Figure 2 previews the results providing the *raw* comparison by pre-treatment intentions, between all pooled financial treatments versus the control. These comparisons do not control for the randomization strata and include treatments that we anticipated to be both relatively strong (eg EU) and weak (eg Fantasy). The effects are nonetheless illuminating. The pooled financial exposure treatments shifted votes away from Leave and towards Remain, and did so in a particularly striking way among swing voters. Those who reported having 'no idea' a month before the referendum ended up voting for leave by a large (25pp) margin in the control. In contrast, a (slight) majority of the swing voters in the treatment group (40.1% vs 39.2%) actually voted to Remain in the European Union.

A natural question is whether the treatment effects are meaningful for the average individual, rather than just the swing voters. Table 2 presents the basic average treatment effects, again pooling all the financial treatments. The top panel shows the results for the Remain Vote Index as a whole, before showing the results separately for the probability of voting Remain (second panel) and Leave (bottom panel). As the table shows, the share of participants in the control who voted Leave rose to 57.1% (from 52.9% who intended to do so pre-treatment), while the share who voted Remain remained unchanged at 36%. Columns 1,3,5 and 7 present a parsimonious comparison solely comparing individuals with similar pre-Brexit voting intentions within strata. Column 2,4,6 and 8 onwards provide our preferred specification: a tighter

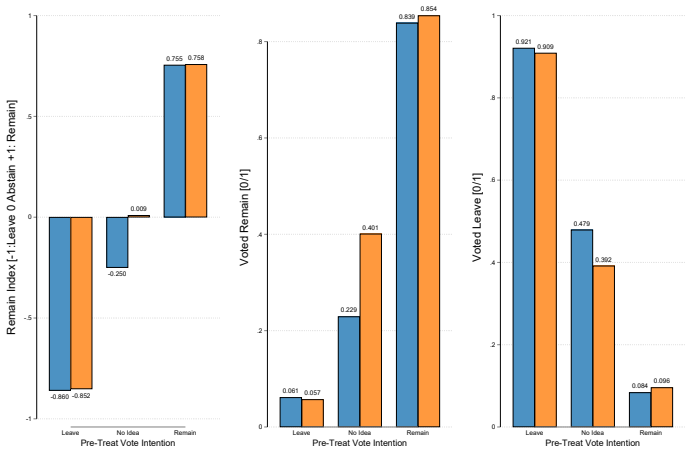


Figure 2: **Brexit Referendum Decisions: Raw Pooled Treatment vs Control**
Notes: left/blue: Control; right/orange: the Pooled Treatment.

comparison among individuals that are similar in key relevant characteristics, including flexible controls for age, income and education categories as well as financial literacy, risk tolerance, patience, European identity indices, and an extensive set of attitudes to the European Union and economic policy that we measured pre-treatment in an attempt to capture the varying perspectives on the referendum and what it meant to likely voters.[22] For reference, Table A3 also presents an augmented table where the controls are mechanically selected using the post-double-selection-LASSO procedure suggested by Belloni, Chernozhukov and Hansen (2014).

As Tables 2 and A3 shows, relative to otherwise similar individuals in the control group, randomized exposure to the pooled market treatments increases the probability that participants voted for Remain by 2.5pp-3.1pp (Intent to Treat Effects: ITT, p-values of an increase ranging between 0.034-0.059 depending on specification) or 3.3pp-4.0pp (Treatment Effect on the Treated: TOT, p-values of an increase ranging between 0.028-0.058) overall. Further, and importantly, these effects are particularly marked outside London, with ITT effects of 3.6pp-4.1pp (p-values of an increase ranging between 0.0079-0.0171), and TOT effects of 4.8pp-5.5pp (p-values: 0.0044-0.014). These effects are substantially meaningful, particularly as the Brexit referendum was determined by a 3.78% vote margin (Uberoi, 2016).

Further, the effects on the Remain Index are consistent, though slightly higher in magnitude. As the tables show, this reflects the fact the increase in votes for Remain is also accompanied by more modest falls in the Leave vote. Notably these are more marked outside London (ITT: 1.9pp (parsimonimous, p-value 0.12) 2.5pp (LASSO, p-value 0.059), 2.9pp (Full controls, p-value 0.044). Thus most of the effect on the Remain Index is not through conversion from Leave to Remain, though this did happen somewhat outside London, but rather from undecided to

[22]Specifically, these include the following pre-treatment variables: vote choice in the prior (2015) elections, pre-treatment identity as British only or neither British nor European, dummies for what the EU means to them (see below), attitudes towards market reforms and economic equality, current policy priorities, and dummies for late response and residence in London.

Table 2: Regression: Effect on Brexit Referendum Decisions

	Intent to Treat (OLS)				Treatment Effect on the Treated (IV-2SLS)			
	Full Sample		Outside London		Full Sample		Outside London	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remain Index [-1: Leave, 0: Abstain, +1: Remain]								
Pooled Treatment	0.039	0.052*	0.055*	0.070**	0.052	0.068*	0.073*	0.092**
	(0.030)	(0.031)	(0.030)	(0.031)	(0.038)	(0.038)	(0.039)	(0.039)
p-value (Treatment>0)	0.0968	0.0467	0.0334	0.0120	0.0856	0.0368	0.0306	0.0092
Control Mean	-0.211	-0.211	-0.247	-0.247	-0.211	-0.211	-0.247	-0.247
SD	0.942	0.942	0.932	0.932	0.942	0.942	0.932	0.932
R-squared	0.667	0.705	0.669	0.709	0.089	0.167	0.084	0.162
Voted Remain [0/1]								
Pooled Treatment	0.025	0.031*	0.036**	0.041**	0.033	0.040*	0.048**	0.055***
	(0.016)	(0.017)	(0.017)	(0.017)	(0.021)	(0.021)	(0.022)	(0.021)
p-value (Treatment>0)	0.0591	0.0341	0.0171	0.0079	0.0580	0.0284	0.0146	0.0044
Control Mean	0.360	0.360	0.340	0.340	0.360	0.360	0.340	0.340
SD	0.480	0.480	0.474	0.474	0.480	0.480	0.474	0.474
R-squared	0.626	0.671	0.631	0.676	0.058	0.138	0.053	0.131
Voted Leave [0/1]								
Pooled Treatment	-0.014	-0.022	-0.019	-0.029*	-0.019	-0.028	-0.025	-0.038*
	(0.016)	(0.016)	(0.016)	(0.017)	(0.021)	(0.020)	(0.021)	(0.021)
p-value (Treatment<0)	0.1908	0.0846	0.1175	0.0440	0.1828	0.0808	0.1169	0.0352
Control Mean	0.571	0.571	0.587	0.587	0.571	0.571	0.587	0.587
SD	0.496	0.496	0.493	0.493	0.496	0.496	0.493	0.493
R-squared	0.643	0.686	0.646	0.691	0.101	0.182	0.100	0.179
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-Treat Brexit Intention	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extensive Controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	2333	2333	2122	2122	2333	2333	2122	2122

This table presents Intent to Treat (ITT) and Treatment Effect on the Treated (TOT) results on decisions to vote for Remain pooling all treatment arms. Columns 1,3,5 and 7 includes a parsimonious specification with only randomization strata fixed effects, a dummy variable for late respondents, and indicators for pre-treatment Brexit vote intentions. Column 2,4,6 and 8 includes a more extensive set of controls for pre-treatment political attitudes, flexible demographic, education and income controls, and controls for financial literacy, risk aversion, and patience. Columns 3-4 and 7-8 exclude respondents from London. The outcome in the top panel is a Remain Index that takes the values -1 if an individual voted Leave, 0 if they Abstained, and 1 if they voted Remain, while the ones below break the index down into indicators for Voted Remain and Voted Leave. Robust standard errors in parentheses: *** p¡0.01, ** p¡0.05, * p¡0.1. p-values for one-sided tests in the direction of the hypothesis are also provided.

Remain.[23]

A natural question that Figure 2 raises is whether these average effects reflect only the effect on swing voters, or if voters with more committed views were also affected by the treatment. Table A6 allows the overall treatment effects to differ among those with pre-treatment Brexit vote intentions. Consistent with Figure 2, the treatments cause a striking increase in the Remain Index of 22.2pp - 23.8pp of a combined step from Leave towards Remain (ITT, p-value range: 0.014-0.046) among swing voters. This largely reflects an increased probability of voting Remain among treated swing voters of 14.2pp-16.9pp (ITT, p-value range: 0.006-0.019) overall, and 18.7pp (ITT) outside London (p-value: 0.002).

[23]Note also that the magnitudes and significance are weaker for the parsimonious specification, but strengthen for the full sample with controls, with the LASSO specification effects lying in between (Table A3). However, the treatment effects outside of London are stronger and robustly significant at conventional levels including in the LASSO specifications.

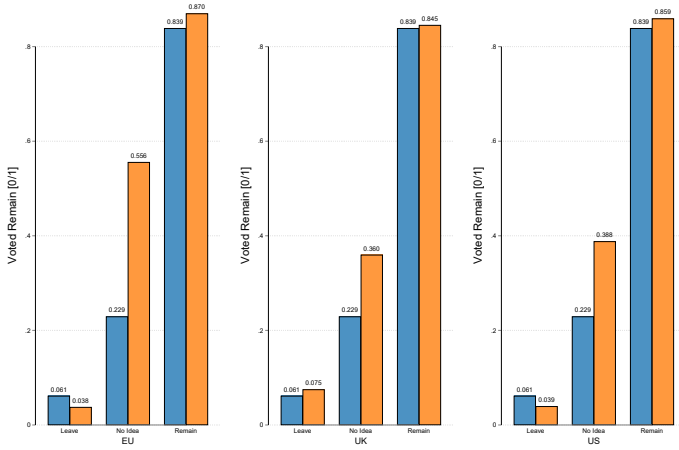


Figure 3: **Voted Remain by Pre-Treatment Intentions**
Notes: left/blue: Control; right/orange: EU, UK or US treatments.

To further unpack the mechanism, while recognising its exploratory nature, we break down the overall treatment effects into exposure to trade financial assets from the EU, the UK and the US. Figure 3 previews the results, again showing the *raw* effects by pre-Brexit vote intention on the vote for Remain. Notice first that all the treatments tend to dramatically increase support for Remain among swing voters, with the effects of the EU assets particularly striking. However, the UK assets increase the average probability of voting Remain even for the ex ante Leave voters. As we document below, while the UK financial assets have similar positive effects on Remain vote for those who self-identify strongly as British versus European, the effects of both the foreign asset exposures are more influenced by the nature of these pre-existing cultural identities.

To begin with, Table 3 breaks down the overall financial exposure treatment effects on the Remain Index, first pooling within the EU, UK and US assets, before further disaggregating into each component sub-treatment. Tables A7 -A8 further show PDS-LASSO specifications, and q-values, as well as the analogous results by probability of voting for Remain (Tables A9 and A10) and for Leave (Tables A11 and A12).

Overall, the effect of exposure to the EU complementary assets has the highest effects in magnitude on the Remain Index. These mainly reflect treatment effect increases in the probability of vote for Remain by 3.3pp-4.1pp (ITT, p-value range: 0.029-0.064, Table A9) and 4.2pp-5.1pp (TOT, p-value range: 0.022-0.059, Table A10), again with more marked effects outside London (ITT: 4.8pp-5.4pp, p-value range: 0.009-0.018, TOT: 6pp-6.8pp, p-value range: 0.006-0.015).

The second key finding from the sub-treatment analysis is that, despite the fact that the European companies are more obviously connected with EU integration, the UK complementary asset exposures had very similar effects to the EU assets on the Remain Index. These again reflect an increase in the probability of voting Remain by 2.5- 3.1pp (ITT, p-value range:0.044-

Table 3: **Regression: Effect on Remain Vote Index by Sub-Treatments**

Estimation	Intent to Treat			Treatment Effect on the Treated		
	OLS	OLS	OLS	IV-2SLS	IV-2SLS	IV-2SLS
Sample	Full	Full	Outside London	Full	Full	Outside London
	(1)	(2)	(3)	(4)	(5)	(6)
Remain Index [-1: Leave, 0: Abstain: +1: Remain]						
EU Complementary Assets	0.077*	0.077*	0.109***	0.096**	0.096**	0.138***
	(0.040)	(0.040)	(0.041)	(0.047)	(0.047)	(0.049)
UK Pooled Assets	0.056*			0.075*		
	(0.034)			(0.043)		
UK Long Real		0.053	0.076*		0.066	0.094*
		(0.043)	(0.045)		(0.050)	(0.053)
UK Short Real		0.041	0.050		0.053	0.064
		(0.041)	(0.043)		(0.051)	(0.051)
UK Long Fantasy		0.081*	0.079*		0.130*	0.127*
		(0.045)	(0.047)		(0.069)	(0.072)
US Pooled Assets	0.027			0.035		
	(0.037)			(0.045)		
US Fin. Assets Real		0.005	0.015		0.004	0.018
		(0.043)	(0.044)		(0.049)	(0.051)
US Sports Assets Real		0.049	0.074		0.067	0.106*
		(0.045)	(0.046)		(0.059)	(0.062)
Observations	2,333	2,333	2,122	2,333	2,333	2,122
R-squared	0.705	0.706	0.710	0.168	0.167	0.163
Control Mean	-0.211	-0.211	-0.247	-0.211	-0.211	-0.247
SD	0.942	0.942	0.932	0.942	0.942	0.932
p-value (EU>0)	0.0270	0.0270	0.00400	0.0207	0.0209	0.00267
p-value (UK pooled>0)	0.0470			0.0388		
p-value (US pooled>0)	0.228			0.219		
p-value (EU>UK pooled)	0.277			0.309		
p-value (EU>US pooled)	0.0920			0.0865		
p-value (UK Long=Short)		0.782	0.782		0.811	0.602
p-value (UK Long= Fantasy)		0.564	0.564		0.333	0.642
p-value(US Fin.=Sports)		0.355	0.355		0.291	0.158

This table presents Intent to Treat (ITT) and Treatment Effect on the Treated (TOT) results on decisions to vote for Remain disaggregating treatment arms. All columns include controls for pre-treatment political attitudes, flexible demographic, education and income controls, and controls for financial literacy, risk aversion, and patience. Columns 3 and 6 exclude respondents from London. The outcome in the top panel is a Remain Index that takes the values -1 if an individual voted Leave, 0 if they Abstained, and 1 if they voted Remain. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. p-values for (one-sided) tests in the direction of the hypothesis are also provided.

0.089) and 3.3pp-4.1pp (TOT: p-value range:0.036-0.084). The effect on the Remain Index is furthermore statistically indistinguishable from the increase due to the EU asset effect (p-value 0.277).

Further breaking down the UK treatment effects by whether the participants received an initial £50 of assets and payoffs that were long or short the underlying company prices, or received a fantasy treatment with no material exposure (Cols 2-3, 5-6), it is also striking that all of these UK treatments had very similar effects overall. Notably, despite the substantial difference in takeup rates (Table 1) between UK Long Real and Fantasy, those in the Fantasy treatment that did participate show sufficiently strong effects such that we fail to reject that

they have the same effect as the UK Long Real or the Short Real. All these effects mainly come from increasing the probability of voting for Remain rather than reducing Leave vote propensities. The similar effect sizes of the Fantasy treatment, as well as the Long and Short positions are inconsistent with a mechanism dependent solely on incentives or positive realized financial returns driving the results. In fact, by design, those assigned the Short UK positions had diametrically opposite direct incentives than those with the Long positions. However these results are consistent with an exposure effect, where small amounts of skin in the game and incentives may increase attention, but are *not necessary* for experiential learning to take place.[24]

Finally, we compare the EU and UK assets to those from the US economy, which was also presented as an economic and cultural competitor to the EU during the Brexit decision. The overall effect of US asset exposure on the Remain Index is again somewhat positive but indeed smaller in magnitude than the EU treatment. These differences are furthermore statistically distinguishable (with one sided p-value that the EU effects are greater of 0.09 (ITT) to 0.087 (TOT).) These patterns mainly reflect the muted effect of the US financial assets treatment. Thus it appears that, rather than there being a uniform effect of financial market exposure, the presence of assets demonstrating the specific economic complementarity between the UK and the EU had larger effects than on resisting support for Brexit than those of potential financial and cultural competitors.[25]

How Does Financial Market Exposure Interact with Identity?

The discussion above raises the intriguing question about whether pre-existing cultural identities may shape what individuals learn from experimentally induced interactions with financial markets. We now turn to analysis of this heterogeneity. These analyses are exploratory and potentially underpowered, but nevertheless, also potentially illuminating.

As noted above, in our assignment to treatments, we stratified on individuals' British vs European self-identity. Table 4 presents the intent to treat (ITT) effects on the Remain Index separately for participants with above and below median pre-treatment European identities, allowing the coefficients on the controls to vary within these groups (see also Table A13 for specifications with PDS-LASSO controls).[26]

[24]Though we report conservative intent to treat effects, who ultimately takes up the Fantasy treatment may also be informative for understanding why the effects are similar. As Figure A2 shows, those who take up the Fantasy assets are largely similar in terms of their Brexit vote intentions and many other characteristics, but do differ in some salient dimensions– they are more likely to be Female, are more patient, are (somewhat) older and less likely to vote for the Conservatives or be in the top income bracket. Indeed, as Table A22 shows, the effects of being exposed to Fantasy on support for Remain are (somewhat) stronger for the more patient, for women, and those who nevertheless took up even though they were Conservatives or in the top income bracket.

[25]Further, and intriguingly, financial exposures that spotlight a (lack of a) common culture– in the form of our Baseball financial treatment– also has somewhat differential effects. The Baseball financial treatment, despite substantially lower takeup than the US financial assets (71.8% vs 81.5%), had stronger effects in magnitude (4.9pp vs 0.5pp ITT, 6.7pp vs 0.1pp TOT, though these are not statistically distinguishable). In fact, the treatment effect on the treated is sufficiently large that the overall effects are comparable in magnitude to the EU and UK treatments.

[26]Appendix Tables A14 and A15 provides specifications for the Remain Index, and separately for Remain

Table 4: **Regression: Effect by Parochial / European Identity**

Estimation: OLS (ITT)	Remain Index [-1: Leave, 0: Abstain, 1: Remain]				Remain Index [-1: Leave, 0: Abstain, 1: Remain]			
	European Identity Index *Above Median*				European Identity Index *Median and Below*			
	All	All	All	Outside London	All	All	All	Outside London
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	0.118**				0.038			
	(0.052)				(0.039)			
EU Complementary Assets		0.133**	0.136**	0.202***		0.075	0.077	0.103*
		(0.065)	(0.065)	(0.067)		(0.052)	(0.052)	(0.053)
UK Pooled Assets		0.093*				0.064		
		(0.056)				(0.043)		
UK Long Real			0.034	0.060			0.101*	0.121**
			(0.067)	(0.072)			(0.058)	(0.061)
UK Short Real			0.120*	0.139*			0.001	0.018
			(0.068)	(0.075)			(0.053)	(0.054)
UK Long Fantasy			0.149**	0.158**			0.097	0.106*
			(0.074)	(0.080)			(0.062)	(0.063)
US Pooled Assets		0.158**				-0.034		
		(0.063)				(0.048)		
US Fin. Assets Real			0.148**	0.177**			-0.081	-0.066
			(0.072)	(0.079)			(0.056)	(0.056)
US Sports Assets Real			0.172**	0.194**			0.002	0.032
			(0.078)	(0.083)			(0.059)	(0.061)
Observations	1,033	1,033	1,033	905	1,300	1,300	1,300	1,217
R-squared	0.651	0.651	0.653	0.673	0.603	0.606	0.608	0.601
Control Mean	0.309	0.309	0.309	0.288	-0.588	-0.588	-0.588	-0.620
SD	0.903	0.903	0.903	0.908	0.778	0.778	0.778	0.750
p-value (Treatment>0)	0.0120				0.168			
p-value (EU>0)		0.0200	0.0180	0.00100		0.0730	0.0690	0.0260
p-value (UK pooled>0)		0.0500				0.0700		
p-value (US pooled>0)		0.00600				0.761		
p-value (EU>UK pooled)		0.226				0.405		
p-value (EU>US pooled)		0.337				0.0140		
p-value (UK Long=Short)			0.196	0.307			0.115	0.120
p-value (UK Long= Fantasy)			0.114	0.226			0.959	0.838
p-value(US Fin.=Sports)			0.759	0.843			0.199	0.139

Each column of this table presents a single Intent to Treat (OLS) regression on the Remain Vote Index, subsetting the sample by the pre-treatment *European Identity Index* above and below the median. The European Identity Index is the first principal component of responses to the following four questions: *Attached to Europe:* (1-Very attached, 4-Not at all attached), *Shared Values:* the closeness of the values of EU member states to the UK ("1-Very Distant"- to "4-Very Close"); *Personal Insult* : When someone from another country criticizes Europe, it feels like a personal insult (1-Strongly Disagree; 5- Strongly Agree); Identity: Do you see yourself as (5 point scale, from "1-British only" "2- Mostly British but also European", 3- Neither", "4- Mostly European but also British" to "5-European only"); . All columns include the same set of controls for pre-treatment political attitudes, flexible demographic, education and income controls, and controls for financial literacy, risk aversion, and patience as Table 1, Col 2. Columns 4 and 8 exclude respondents from London. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

All these specifications provide a consistent picture. First, note that the pooled financial treatments are substantially more effective in magnitude for those with a less parochial / more European identity ex ante: allowing controls to vary within groups, the effect is 10.3pp-11.8pp of a step towards Remain among those with a more European identity (p-value range: 0.012-0.018, see also Table A13) versus 1.1pp-3.8pp among those with a more parochial British identity.[27] This reflects a 6pp increase in the probability of voting Remain and a 4.4pp fall in the probability

and Leave votes, for the full sample requiring the coefficients on the controls to remain constant, while also controlling for the European Identity Index itself. We use these specifications to report tests for the significance of the interactions by sub-treatment.

[27]Similarly the interaction of the pooled treatment with a high European identity is 10.5pp of a step toward Remain, compared to 1.3pp for those with a low identity (p-value of a greater interactive effect 0.067, Appendix Table A14).

of voting Leave among those with high European identities who were assigned to any financial treatment, compared to essentially no effect (0.9pp and 0.4pp respectively) among those with more parochial British identities (Table A15).

The second aspect to note is that these differences by parochial vs European identity are chiefly coming from the *non-UK* assets. The UK assets raises support for Remain significantly in both groups, but have similar effects overall by identity. Among those with a stronger European identity, UK assets raise the Remain Index by 8.2-9.3pp of a step (p-value range: 0.05-0.062), compared to 3.9-6.4pp (p-value range: 0.07-0.18) for those with a more parochial British identity. Thus, financial exposure to prominent UK companies with extensive and complementary European operations appears to have effects across both those with stronger British nationalist feeling and those who were more open to broader European identities.

Similarly, the EU complementary assets have positive effects for both groups. However the EU assets have stronger effects in magnitude among those with a more European identity (of 13.1-13.3pp overall vs 16.3-20pp of a step outside London) than for those with a more parochial British identity. Thus, while both the more European and the more British participants increased their support for Remain when exposed to EU complementary financial market exposures, the effects are larger for those that consider themselves more European. This is consistent with the possibility that when exposed to European companies, the more European individuals internalize not just the gains to the UK economy from continued trade integration but potentially to those of other Europeans as well.

Further, and similar to the EU assets, the US assets have significantly stronger positive effects on support for Remain among those with a stronger European identity, increasing the Remain index by 12.4pp-15.8pp of a step on average. Both types of asset- financial assets and baseball assets- have similar effects for those with stronger European identities, despite the fact that the US was seen as a potential competitor to the EU.

However unlike the EU assets, the treatment effect of the US assets is in fact weakly *negative* on average among those with a more parochial British identity, reducing the Remain Index by 3.4pp-4.3pp of a step.[28]

In contrast, the Baseball treatment, with its cultural valence of US dissimilarity relative to EU-UK similarity, had no effect on those with an ex ante parochially British identity.

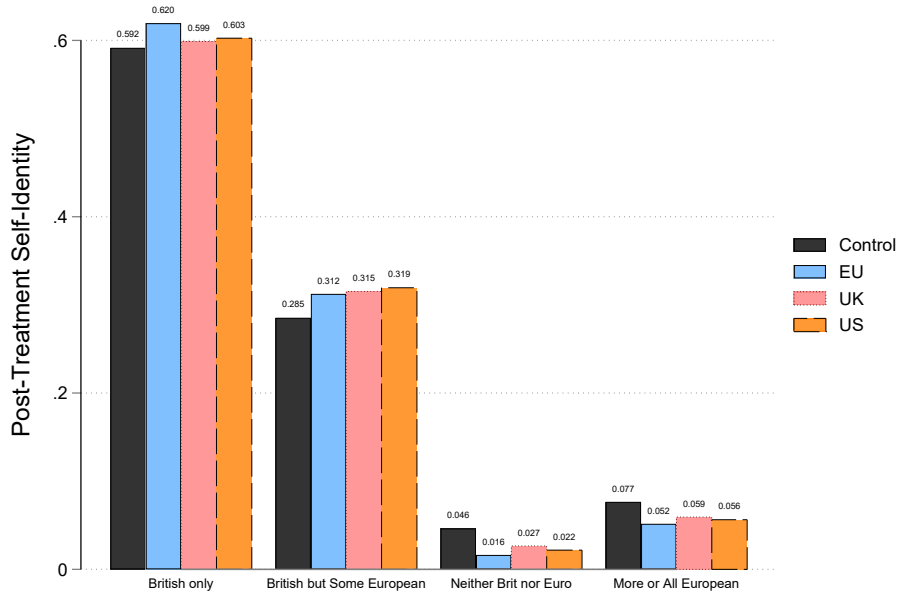
To summarize, both the UK and the EU complementary assets have a positive effect on support for Remain, including among those with more parochially British identities ex ante. However, the EU assets have a noticeably larger effect among those with more European identities ex ante, and while the EU complementary assets seemed to have elicited a positive response to Remain from both the culturally parochial and the culturally more European, the 'competing' US financial assets have a more polarizing response, raising the support for Remain among those with European identities, but somewhat reducing it for those with a stronger British

[28] While these effects are not precisely estimated and the entire exercise as noted above is exploratory in nature, they do hint at the potential for a backlash effect due to particular identity-asset matches that is worthy of future study.

identity.

These patterns do appear consistent with a form of *identity congruence* (e.g. Akerlof and Kranton, 2000, Donkor et al., 2025) - that individuals do respond more to particular treatments– e.g. EU assets– when they are congruent with their existing 'more European' identity.

Figure 4: **Effects on Post-Treatment Self-Identity**
This figure plots the raw proportions of the control and sub-treatments, by geographical origin of the assets, on participants' response to the question "*Do you see yourself as:*", post-treatment. The possible answers (and overall shares) were "*British only*" (60.16%), "*British but also European*" (31.03%), "*Neither European nor British*" (2.75%), "*European but also British*" (1.42%) and "*European only*" (4.64%). For clarity, the figure pools the latter two categories. Notice that, relative to control, each of the sub-treatments have similar effects, moving participants away from a 'more European' or 'neither' identity towards 'more British', while retaining some European.



Further Unpacking the Mechanism

Becoming More European? A natural question these results raise is whether the effect on the Remain index might extend beyond *identity congruence* and might even lead to *identity reinforcement*: individuals may use asset exposure to make sense of their pre-existing affiliations, in a way that may *confirm* prior beliefs rather than *revise* them. This would suggest that those with parochial UK identities exposed to UK assets might become even more supportive of Leave. As we have seen, however, even those with more parochial UK identities tend to become more supportive of *Remain* whether they are exposed to EU or UK complementary assets, only less so than those who have a more European identity.

However, another possible way identity reinforcement could operate is that it could lead to *identity shift*. Perhaps the exposure to the financial treatments made treated individuals self-identify as more European and cosmopolitan, leading them to be more supportive of Remain in the Referendum?

To assess this mechanism, we can use the fact that we asked the same set of identity

questions at the time we recorded individuals' Brexit decision. Figure 4 compares the raw shares of post-treatment individual self-identity. As the Figure indicates, rather than moving towards a more European identity, treated individuals move away from a 'more European' or 'neither European or British' identity towards a 'more British' identity instead. In fact, as Table A16 shows, relative to the control, the pooled treatment increases the share of respondents that see themselves '*mostly*' or '*only British*' by 3.7pp (or 4.2% compared to the 88% in the control), and reduces those who chose '*neither European nor British*' by 2.7pp (or 58% of the 4.6% who had this identity in the control). The treatment further *reduces* the overall European identity index by 0.066SD. The point estimates are relatively larger for those exposed to UK assets, but the effects for US and European assets are broadly similar.[29]

Since as we have shown, a more parochial identity correlates with a greater propensity to vote Leave, such a shift is unlikely to be the central mechanism explaining the treatment effect on the Remain index, and instead, arguably makes the overall support for Remain even more striking. In fact, comparing individuals with similar levels of ex post European identity, the magnitude of the pooled treatment effect on the Remain index *increases* by 17% from 0.052 to 0.061 of a step (se: 0.031).

Self-Reliant Socioeconomic Values? Another possible mechanism is that perhaps the effect on support for Remain is already implied by the increase in self-reliant socioeconomic values measured by Margalit and Shayo (2020), which were collected in a separate survey.[30] It may nonetheless be useful to use the overlapping surveys to see if treated individuals who adopted more self-reliant socioeconomic values were also the ones who supported Remain in the Referendum. Table A4 replicates the ITT specifications in our basic Table 1 (Cols 1-3), augmenting them with analogous estimations of the socioeconomic values (SEV) variable from Margalit and Shayo (2020) (Cols 4-6).[31]

For the full sample and set of controls, consistent with Margalit and Shayo (2020), there is indeed a significant ITT increase in the SEV of 0.133 (Col 5). However, as Figure A5 reveals, this SEV effect is actually orthogonal to the treatment effect on the Remain Index: i.e. the treatment effect does not change at all when we control for the effect on post-treatment socioeconomic values. Thus, this effect does not appear to be driving the mechanism.

Perceptions of Systemic Risk? Another plausible potential mechanism is that individuals experience a shift in perceived risk as a result of treatment, becoming more aware of systemic exposure to volatility, and this makes them more willing to stay the course within the EU and

[29] Further, as Figure A7 shows, not surprisingly, the identity shift effect is largely coming from those with ex ante more of a European identity.

[30] Unlike the Brexit (W3) survey, the SEV indicator was collected from a survey (W4) conducted more than two weeks after the Brexit referendum, were explicitly part of the financial treatment rather than collected anonymously (and thus potentially more susceptible to social desirability / experimenter demand effects), and faced greater non-response rates.

[31] Given that the Margalit and Shayo (2020) study implies the presence of two hypothesis tests, we also report False Discovery Rate q-values for each pair of specifications, following Anderson (2008).

more hesitant to vote leave. This could have also countered the populist narrative that leaving the EU was risk-free (see above). If this is the case, we should expect that the treatment effect should be greater for those who are more risk-averse. However, Table A20 shows that for the full sample, the interaction between the treatment and individuals' pre-treatment risk tolerance on support for Remain is almost precisely zero and not significant. Further, on average, the treatment did not itself substantively affect risk tolerance (Table A19), and controlling for ex post risk tolerance does not attenuate the treatment effect (Figure A5). This suggests that the treatment effect on support for Remain is not operating primarily through a heightened risk sensitivity channel.[32]

Generalized Learning or Trust? Do these effects stem from broad general learning and generalized trust or are they more focused with respect to countering populist appeals? Figure A5 shows that, consistent with Jha and Shayo (2025) and Jha (in progress), generalized financial literacy, as measured by the Big Three questions, does increase in response to treatment, but controlling for this increase and the slighter increase in generalized trust does not affect the treatment effect on the Remain Index substantially. Thus, the mechanism that explains the treatment effect on the Remain index is more specific to increased resistance to populist appeals rather than more general increases in financial learning or trust.

Learning and Countering Populist Narratives about Europe So what explains the results? Did the treatment, as we argue, lead participants to learn and revise their prior beliefs such that they adopt attitudes that run counter to populist narratives? It is worth noting that, in general, British citizens were among the least knowledgeable people in Europe about the European Union prior to the Referendum.[33] In fact, "*what is the EU*" was the second most popular question asked of Google in the UK the day after the Referendum.[34] As described in the context section, the Brexit populist platform, in common with others since, was based upon three pillars: (1) *nativist* and anti-globalization appeals, associating the EU with a threat to British cultural identity, (2) *anti-elite*: claiming that UK contributions to the EU were a waste of money, funding corrupt bureaucrats and corporations, and (3) *pocketbook*, claiming that the EU was impeding Britons' economic prosperity, despite the consensus among experts.

To explore this mechanism directly, I use the fact that we asked participants "*what does the European Union mean to you?*" at the same time as they registered their Referendum decision, allowing participants to select as many features as they wished from a broad set of

[32]These patterns also suggest that the effects on populism reflect a somewhat different channel than those on peace in Jha and Shayo (2019). They found, in contrast, that found financial exposures led the more risk averse to be more supportive of restarting the peace process, as they become more aware of the risks of the status quo for the Israeli economy. Beyond differences in setting and the salience of populist narrative, another arguably important feature was that the Israeli-Palestinian conflict was ongoing at the time, and expected to continue, while the Brexit Referendum was an abrupt (and one-off) decision to transform Britain's relationship with Europe.

[33]Rivalled only by Latvians. See Eurobarometer 83, Spring 2015.

[34]See Kimiko De Freitas-Kimura, "Britons Ask Google: What Did We Just Do?" *The New York Times*, June 24, 2016.

potential responses. I then group these as Pro-Globalization: i.e. *the EU means* (1) *economic prosperity*, (2) *freedom to travel, study and work anywhere in the EU*, (3) *a stronger say in the world*, (4) *peace* and (5) *cultural diversity*; Other Positive Valence: i.e. (1) *democracy*, (2) *social protection*, Anti-Globalization: i.e. (1) "*loss of our cultural identity*" (2) "*more crime*", (3) "*not enough control at external borders*"(4) "*unemployment*", and Distrust in Elites/ Government: (1) "*waste of money*", (2) "*bureaucracy*".[35]

Table 5 shows how the pooled treatment affects the probability that a respondent chooses a feature as representing what the EU means to them. As Table 5, Panel A shows, the treatment has two key effects. First and foremost, it increases the probability that respondents agree that, to them, the European Union means "*economic prosperity*" by 4.5pp (or a remarkable 26% relative to the 17.2% who believed this in the control, p-value: 0.004-0.005). Further, though more weakly, the treatment decreases the probability that respondents agree that the European Union means a "*loss of our cultural identity*" by 3.6pp (or 8.7% relative to 41.3% who believed this in the control, p- value: 0.038-0.189).

Apart from these, the effects on the other features are smaller and not significant, though overall individuals increase their probability of associating the EU with 6 out of 7 of the features with positive connotations, and similarly decreased the probability of associating the EU with 6 out of 7 of the negative valence features.[36] Among these, the effects on the distrust in expertise dimension stand out in relative terms, as the treatment reduces the probability that people view the EU as representing "bureaucracy" (p-value: 0.113) and a waste of money (p-value: 0.174).

To what extent can these belief changes explain the treatment effect on the Brexit vote? To answer this, in Appendix A we employ two types of formal mediation exercises (following Kwon and Roth (2026) and Imai et al. (2010a)). First, we apply the mediation approach recommended by Kwon and Roth (2026), testing for violations of monotonicity – e.g. that the treated group contains a smaller share of those linking the EU with economic prosperity— and further assessing the 'sharp null' hypothesis that, e.g. changes in beliefs about the EU and economic prosperity mediate the entire pooled treatment effect (see Table A23 and Figure A4).

As the Appendix reveals, for the belief equating the EU with economic prosperity, the largest violation implied by the sharp null and monotonicity assumptions is precisely 0.000 (i.e., there is no violation for this mediator). Additionally, 6.1% came to believe that the EU means economic prosperity due to treatment. Lastly, because the observed largest deviation from the inequalities is exactly 0, we cannot reject the sharp null hypothesis that the treatment effect operates *entirely* through shifting people's beliefs towards believing that the European Union means economic prosperity (with p-value 1.00).

In Table A24 we report the results of the causal mediation analysis using the framework

[35]We also asked whether the EU means *the Euro*, which ex ante has less clear positive or negative associations, though see next footnote.

[36]Though not obvious ex ante, this is if we classify *the Euro* as negative valence, which makes sense given that as Table 5, Panel B shows, those who associate the EU with the Euro reduce their support for Remain by 0.13 of a step).

Table 5: **Regression: Effects on Beliefs about the European Union**

Panel	A: ITT: Post-Treatment Attitudes to the EU					B: ITT: Remain Index Controlling for EU Attitudinal Change						
Full Sample: Obs 2,333	Pooled Treat	SE	Control Mean	R2	p (|Treat|>0)	Pooled Treat	SE	Row Coefficient	SE	R2	p (|Treat|>0)	% Attenuation
* Baseline Effect (ITT, Full Controls)						0.052*	(0.031)			0.705	0.044	-
What does the European Union mean to you? (Indicator Variables)												
Pro-Globalization												
(1) Economic Prosperity	0.045***	(0.017)	0.172	0.459	0.004	0.034	(0.030)	0.406***	(0.038)	0.722	0.129	34.62
(2) Freedom to Travel, Study, Work in EU	0.012	(0.022)	0.427	0.445	0.292	0.049	(0.030)	0.272***	(0.037)	0.716	0.053	5.77
(3) Stronger Say in the World	0.009	(0.018)	0.253	0.521	0.302	0.048	(0.029)	0.478***	(0.044)	0.729	0.052	7.69
(4) Peace	0.012	(0.016)	0.172	0.460	0.227	0.049	(0.030)	0.285***	(0.039)	0.713	0.053	5.77
(5) Cultural Diversity	0.007	(0.020)	0.269	0.431	0.360	0.051*	(0.031)	0.114***	(0.036)	0.707	0.047	1.92
Pro- Other												
(6) Democracy	0.013	(0.015)	0.114	0.358	0.197	0.050*	(0.031)	0.132***	(0.041)	0.707	0.049	3.85
(7) Social Protection	-0.007	(0.016)	0.165	0.417	0.667	0.054*	(0.031)	0.242***	(0.039)	0.711	0.039	-3.85
Common Currency												
(8) The Euro	0.008	(0.023)	0.281	0.261	0.357	0.053*	(0.031)	-0.131***	(0.031)	0.708	0.041	-1.92
Anti-Globalization												
(9) Loss of Our Cultural Identity	-0.036*	(0.020)	0.413	0.518	0.038	0.043	(0.030)	-0.271***	(0.040)	0.714	0.08	17.31
(10) More Crime	-0.010	(0.018)	0.204	0.406	0.292	0.050*	(0.031)	-0.167***	(0.037)	0.708	0.049	3.85
(11) Not Enough Control of Borders	-0.002	(0.021)	0.497	0.485	0.454	0.052*	(0.031)	-0.241***	(0.037)	0.713	0.047	0.00
(12) Unemployment	-0.003	(0.017)	0.139	0.277	0.427	0.052*	(0.031)	-0.098***	(0.037)	0.706	0.045	0.00
Distrust of Expertise / Government												
(13) Bureaucracy	-0.025	(0.020)	0.561	0.508	0.113	0.047	(0.031)	-0.213***	(0.036)	0.711	0.062	9.62
(14) Waste of Money	-0.018	(0.019)	0.466	0.543	0.174	0.044	(0.029)	-0.426***	(0.042)	0.727	0.066	15.38

Notes: Panel A reports ITT effects of the pooled treatment on indicator variable responses to the post-treatment question "*What does the European Union mean to you?* " Respondents could select as many features as they wished. Panel B reports the attenuated effect of the pooled treatment on the Remain index when controlling for the post-treatment EU attitudinal indicator in each row, one-sided p-values of the residual treatment effect as well as the share of the effect that is attenuated. Each row in each panel represents a separate OLS regression including the full sample and the same full set of controls as Table 1, Col 2.

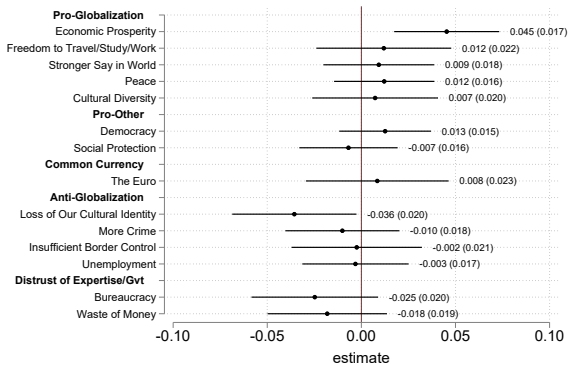
of Imai, Keele and Yamamoto (2010b), Imai et al. (2010a). For each candidate mediator, we decompose the total treatment effect on the Remain Index into the Natural Indirect Effect (NIE), which captures the portion of the treatment effect transmitted through the mediator, and the Natural Direct Effect (NDE), which captures the residual effect operating through all other channels.

Note that the belief that EU means Economic Prosperity is the only mediator with a strongly statistically significant indirect effect (NIE = 0.018, $p < 0.01$), accounting for approximately 35.2% of the total effect. That is, the treatment causally shifts beliefs about the EU meaning economic prosperity, and this belief shift in turn causally increases support for Remain. Again, the second strongest candidate is the loss of cultural identity, which has an NIE=0.010, and can explain 19.2% of the total effect. The next largest mediator is Waste of Money at 15.0%. However, it is important to note that there remains a substantial residual direct effect.

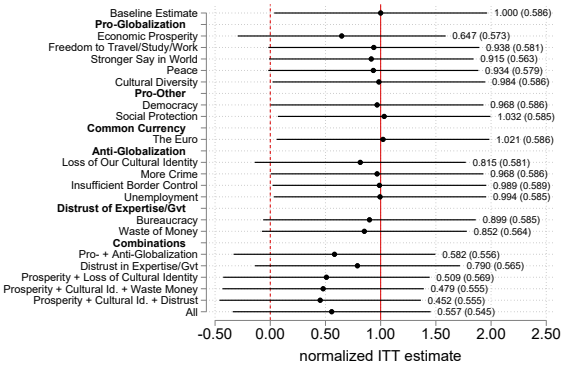
We can also adopt a simple attenuation strategy: we examine what extent the people who associate the EU with economic prosperity or other features are the ones who are also more likely to support Remain, by examining the extent to which the treatment effect on the Remain Index attenuates when we control for their responses to this question. These results are summarized in Figure 5 and Table 5, Panel B.

Figure 5: **Mechanism- What does the European Union mean to you?**

(a) ITT on Potential Responses



(b) Remain Index ITT Attenuation



This figure shows Intent to Treat effects of the pooled treatments on potential responses to the question "*What does the European Union mean to you*" in Panel (a) and Intent to Treat Effects of the pooled treatment on the Remain Index after controlling for that potential response in Panel (b). In Panel (b) we standardize the coefficients by the baseline (i.e. without controlling for mediators) ITT estimate. Horizontal lines represent 90% confidence intervals. Numbers next to the confidence intervals denote the treatment effect that remains after controlling for the potential response, in percentage terms relative to the baseline.

The table shows that the resultant shares are very similar to those assuming orthogonality. Controlling for the effect on personal perceptions of EU as meaning economic prosperity attenuates the treatment effect on support for Remain by 34.6% (from 5.2pp to 3.4pp), and on perceptions that it means '*a loss of our cultural identity*' by 17.3%. Further, as Figure 5 shows, controlling for just these two effects together already captures almost half (49.1%) of the treatment effect on the Remain Index. Further including the distrust valuables raises this share

to 54.8%. Further, these patterns are largely similar across EU, UK, and US assets (Figure A6).

Comparing the effects on EU beliefs among those with an ex ante more parochial British vs more European identity is also informative (see Tables A17 and Figure A8 for the preferred specification, and A18 for LASSO). Treated individuals both with ex ante more British and more European identities become more likely to equate the European Union with economic prosperity (by 3.1pp-3.5pp for the ex ante more parochial British, p-value range: 0.025-0.041, and 6.4pp-8.3pp for the more open to Europe, p-value range: 0.009-0.037). However, the parochial also become (somewhat) less likely by 3.3pp - 5.8pp (p-value range: 0.032-0.154) to view the EU as a threat to their cultural identity.

Further, the attenuation of the treatment effect on support for Remain when we control for this effect is particularly marked for those with a more parochial British identity ex ante (47.9% vs 23.4%). Further, the effect on reducing the perceived cultural threat to British identity is also particular marked among this group, as is the relative attenuation of the ITT effect.[37]

Overall, the combination of controlling for post-treatment attitudes towards the EU on economic prosperity, the threat to cultural identity and whether it is a waste of money can account for 71.9% of the ITT effect on support for Remain among those with a median or below ex ante European identity, and 27.7% of those had an European identity above the median (Figure A8).

Taken together, these results suggest that rather than the effect on support for Remain being driven by treated individuals becoming more European, more economically self-reliant or more general changes in their risk sensitivity, financial literacy or trust, treated individuals that changed their attitudes to support Remain were also those who were more likely to become more *resistant to all three central populist narratives*. They began to associate the European Union with *more rather than less economic prosperity*, became *less distrustful of its bureaucracy and governance* and, even while they began to self-identify as more British, they became *less concerned about the cultural threats to British identity* that being in the EU might pose.

Discussion

Finding consensus among economists can be quite rare. Yet, on the eve of the Brexit referendum, not only did a consensus opinion of expert economists exist, but they also prove to be largely correct about the ultimate consequences of Brexit decision over the ensuing decade (eg Portes, 2022, UK Office of Budget Responsibility, 2025). Yet, despite this, in 2016, a majority of English voters in each of the regions outside London discounted expert opinion in favour of populist promises. And again unlike London, it has been these very communities that have disproportionately born the economic costs of that decision (Fetzer, 2022).

[37]Further, among those with parochial UK identities ex ante, the point estimate effects both on economic prosperity and reducing the sense of cultural threat, as well as the extent that these explain the ITT effect on Remain are more marked for those exposed to the UK assets (Figures A9 and A10), again consistent with identity congruent assets being more impactful.

While deeply consequential for the people of the United Kingdom, the Brexit referendum has also proven to be a bellwether of a wave of populism that continue to assail democratic societies (Funke et al., 2020, Dhingra and Sampson, 2022, Fetzer, 2022). Thus the lessons it can provide continue to be extremely relevant and timely. In this paper, we provide experimental evidence that providing the opportunity to UK citizens for tailored experiential learning in the financial markets had meaningful empowering effects, not only on their own financial literacy (Jha, in progress), on their sense of self-reliance (Margalit and Shayo, 2020) but, separately and orthogonally, on their resistance to populist narratives amidst their decision to vote for an archetypal populist policy (this paper). Particularly germane in an era of increasing skepticism towards experts, our intervention was non-paternalistic, one that encouraged individuals to learn by doing, and reach their own conclusions about the rival policy proposals being espoused, rather than being told what to believe.

Further, in the era of the *democratization of finance*, our online approach is also eminently scalable. As our study reveals, though providing £50 proved to substantially increase compliance, even providing a fantasy exposure had meaningful effects among those who took up the treatment. Further, and again consistent with learning, those who experienced exogenous losses largely show similar effects to those who gained.

Thus *tailored* financial exposures, designed to foster learning rather than simply gambling in stock markets, could be an important means both to provide opportunities for individuals to share in the common gains of economic prosperity but also to refocus away from zero sum antagonisms towards the common benefits of broader cooperation.

To be absolutely clear, we are not claiming the general prescription that financial market exposure by itself reduces populism. Rather our findings support targeted informational and experiential interventions, that recognize the existence of and relevance of existing cultural identities, geographical contexts (e.g. outside London) and swing voters in shaping the effects.

Clearly more work needs to be done: to further examine the effects of culturally valent assets, to evaluate how it can operate to counter populist rhetoric in other contexts, and to see how this intervention operates at scale.[38] Yet, the stakes could not be higher.

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[38]Indeed, building on the insights of this work, Hanlon, Jha, Kala, Shroff and Weiss (2026) find promising effects of providing US citizens tailored exposures to green and brown stocks in changing their beliefs about and support for one of the most popular targets of populists- policies to address climate change.

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Resisting Populism: *Supporting Information for Online Appendix*

Table A1: **Comparison of Groups by Pre-Treatment Brexit Vote Intention**

	Intent to Vote Leave		No Idea		Intent to Vote Remain		Leave = Other
	Mean	SD	Mean	SD	Mean	SD	Welch p-value
European Identity Index > Median	0.17	0.37	0.45	0.50	0.80	0.40	0.000
Identity [1 Brit only- 5 Eur only]	1.21	0.55	1.25	0.59	1.73	0.92	0.000
British Only [0/1]	0.85	0.36	0.81	0.39	0.47	0.50	0.000
Shared Values [1-5]	1.90	0.92	2.63	0.97	3.48	0.96	0.000
Attached to Europe [1-4]	1.62	0.69	1.95	0.72	2.76	0.76	0.000
Euro Criticism is Personal [1-5]	2.16	1.13	2.53	1.02	2.74	1.07	0.000
London Resident	0.07	0.26	0.08	0.28	0.12	0.32	0.001
Age	53.06	13.20	45.66	13.87	47.29	15.36	0.000
Female	0.50	0.50	0.68	0.47	0.52	0.50	0.003
Education: GCSEs	0.34	0.47	0.32	0.47	0.20	0.40	0.000
A Level	0.23	0.42	0.28	0.45	0.21	0.41	0.729
Prof. qualification.	0.15	0.36	0.12	0.33	0.10	0.30	0.001
University degree and above	0.22	0.41	0.23	0.42	0.47	0.50	0.000
Annual Net HH Income	20808.18	8747.40	20535.85	8790.47	22008.94	8325.85	0.015
Traded Stocks Past 6 Months	0.14	0.35	0.08	0.26	0.13	0.33	0.090
Willingness to Take Risks [0-10]	4.65	2.60	4.80	2.25	4.90	2.34	0.021
Patience above median	0.53	0.50	0.45	0.50	0.51	0.50	0.087
Financial Literacy Score [0-8]	5.51	1.77	4.85	1.94	5.65	1.81	0.565
Observations (%)	1173	50.28%	265	11.36%	895	38.36%	

Note: This table compares the mean demographics for the sample by their pre-treatment Brexit voting intentions as of May 2016. The *European Identity Index* is the first principal component of answers to the following questions: *Identity* : ``do you see yourself as (5 point Likert scale, from 1-British only, 2- British but only European, 3- Neither, 4- European but also British to 5-European only)"; *Attached to Europe* :``how attached do you feel to Europe? (1-Not at All Attached; 4-Very Attached)" ; *Shared Values:* `` in terms of shared values, are EU member states? ( 1-Very Distant to the UK- 3-DK, 5-Very Close)" and *European Criticism is a Personal Insult* : ``when someone from another country criticizes Europe, it feels like a personal insult (1-Strongly Disagree; 5- Strongly Agree). *Annual Net HH Income* is based upon the midpoints of 6 income categories. For this table, we also assign missings to the median; and assign the lower bound to the top coded category of 30000 pounds. The last column presents the p-value of a two sided Welch t-test, allowing for unequal variances, testing the equality of means for each characteristic between those intending to vote leave vs others.

Table A2: **Pre-treatment Balance by Treatment Arm** This table reports summary statistics for pre-treatment characteristics for the control, as well as the coefficient (and robust standard errors) from univariate regressions of the overall treatment, and each sub-treatment, absorbing strata fixed effects, for the analysis sample (i.e. for those who responded to the Brexit surveys). Square brackets report p-values testing the difference of the treatment coefficient relative to control.

		Control	Balance Tests (vs Control)						
		Mean (SD)	Treatment	EU	UK Long	UK Short	UK Fantasy	US Fin.	US Sports
			Coef (se) [p-value]						
Brexit vote intention	Remain	0.360	0.000	-0.002	0.005	0.001	-0.002	-0.002	0.002
		(0.480)	(0.002)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
			[0.915]	[0.373]	[0.228]	[0.700]	[0.552]	[0.442]	[0.696]
	No idea	0.111	0.005	0.002	0.015	-0.013	0.006	-0.007	0.021
		(0.315)	(0.013)	(0.017)	(0.017)	(0.018)	(0.020)	(0.020)	(0.019)
			[0.711]	[0.912]	[0.389]	[0.452]	[0.770]	[0.712]	[0.271]
	Leave	0.529	-0.005	0.000	-0.020	0.012	-0.004	0.010	-0.023
		(0.500)	(0.013)	(0.017)	(0.018)	(0.018)	(0.020)	(0.020)	(0.019)
			[0.697]	[0.982]	[0.265]	[0.498]	[0.843]	[0.629]	[0.239]
Vote in 2015	Labour	0.281	0.016	-0.028	0.045	-0.001	0.029	0.021	0.011
		(0.450)	(0.024)	(0.031)	(0.032)	(0.032)	(0.035)	(0.034)	(0.035)
			[0.501]	[0.377]	[0.161]	[0.966]	[0.414]	[0.537]	[0.749]
	Conservatives	0.360	-0.016	0.031	-0.016	0.014	-0.066	-0.031	-0.030
		(0.480)	(0.025)	(0.034)	(0.034)	(0.034)	(0.036)	(0.037)	(0.036)
			[0.531]	[0.364]	[0.625]	[0.675]	[0.067]	[0.405]	[0.403]
	UKIP	0.155	0.013	0.008	-0.022	-0.004	0.058	0.036	0.018
		(0.363)	(0.018)	(0.023)	(0.023)	(0.023)	(0.028)	(0.027)	(0.027)
			[0.475]	[0.735]	[0.339]	[0.857]	[0.037]	[0.190]	[0.499]
Annual net income [GBP]	Less than 13,000	0.194	-0.012	-0.032	-0.010	0.002	-0.026	-0.019	-0.016
		(0.396)	(0.021)	(0.028)	(0.028)	(0.028)	(0.032)	(0.031)	(0.030)
			[0.581]	[0.254]	[0.710]	[0.952]	[0.414]	[0.548]	[0.605]
	13,000 to 17,000	0.103	0.011	0.021	-0.001	-0.004	0.017	0.033	-0.012
		(0.304)	(0.017)	(0.023)	(0.022)	(0.022)	(0.025)	(0.025)	(0.023)
			[0.513]	[0.355]	[0.949]	[0.841]	[0.503]	[0.196]	[0.619]
	17,000 to 22,000	0.119	0.035	0.045	0.035	0.027	0.047	-0.001	0.042
		(0.324)	(0.018)	(0.025)	(0.024)	(0.025)	(0.027)	(0.026)	(0.026)
			[0.048]	[0.066]	[0.150]	[0.283]	[0.087]	[0.973]	[0.113]
	22,000 to 32,000	0.234	-0.023	-0.021	-0.047	0.010	-0.034	-0.013	0.006
		(0.424)	(0.022)	(0.030)	(0.030)	(0.030)	(0.033)	(0.033)	(0.032)
			[0.294]	[0.481]	[0.116]	[0.752]	[0.304]	[0.695]	[0.845]
	More than 32,000	0.350	-0.011	-0.013	0.024	-0.033	-0.004	-0.001	-0.021
		(0.478)	(0.025)	(0.034)	(0.034)	(0.033)	(0.037)	(0.037)	(0.037)
			[0.655]	[0.694]	[0.488]	[0.316]	[0.914]	[0.987]	[0.576]
London resident		0.079	0.015	0.018	0.023	0.031	0.011	0.019	-0.002
		(0.270)	(0.014)	(0.020)	(0.020)	(0.020)	(0.021)	(0.022)	(0.021)
			[0.307]	[0.373]	[0.253]	[0.136]	[0.602]	[0.382]	[0.928]
Age [Yrs]		50.107	-0.136	0.272	0.378	-1.032	-0.473	-1.193	0.709
		(14.449)	(0.714)	(0.952)	(0.951)	(0.953)	(1.044)	(1.063)	(1.039)
			[0.849]	[0.775]	[0.691]	[0.279]	[0.651]	[0.262]	[0.495]
Female		0.510	0.015	0.003	0.016	0.021	-0.057	0.084	0.013
		(0.500)	(0.026)	(0.035)	(0.035)	(0.035)	(0.038)	(0.037)	(0.038)
			[0.572]	[0.933]	[0.638]	[0.553]	[0.134]	[0.025]	[0.725]
Education	GSCE, GNVQ or Equivalent	0.304	-0.024	-0.059	-0.014	-0.017	-0.041	-0.016	-0.014
		(0.460)	(0.024)	(0.031)	(0.032)	(0.032)	(0.035)	(0.035)	(0.035)
			[0.310]	[0.061]	[0.656]	[0.601]	[0.250]	[0.642]	[0.690]
	A-Levels or Equivalent	0.237	-0.012	0.001	-0.011	-0.008	0.015	-0.029	-0.033
		(0.426)	(0.023)	(0.030)	(0.030)	(0.031)	(0.035)	(0.032)	(0.033)
			[0.602]	[0.977]	[0.717]	[0.782]	[0.663]	[0.360]	[0.306]
	Professional Qualifications	0.125	0.008	0.017	0.025	0.012	-0.005	-0.028	0.011
		(0.331)	(0.018)	(0.024)	(0.025)	(0.025)	(0.026)	(0.025)	(0.026)
			[0.645]	[0.489]	[0.322]	[0.629]	[0.855]	[0.271]	[0.663]
	Academic Degree	0.290	0.030	0.058	0.007	0.004	0.020	0.068	0.035
		(0.454)	(0.023)	(0.032)	(0.031)	(0.032)	(0.035)	(0.035)	(0.034)
			[0.195]	[0.066]	[0.830]	[0.899]	[0.563]	[0.048]	[0.306]
European identity index		-0.160	-0.025	-0.005	0.036	-0.045	-0.030	-0.064	-0.054
		(1.396)	(0.042)	(0.055)	(0.056)	(0.056)	(0.061)	(0.061)	(0.061)
			[0.553]	[0.928]	[0.521]	[0.425]	[0.621]	[0.299]	[0.382]
Identity		0.698	0.011	0.020	-0.020	0.035	-0.009	0.013	-0.004
		(0.459)	(0.022)	(0.027)	(0.029)	(0.029)	(0.032)	(0.032)	(0.032)
			[0.612]	[0.457]	[0.497]	[0.229]	[0.783]	[0.683]	[0.895]
Bought/Sold Shares in Last 6 Mnths [0/1]		0.137	-0.012	-0.016	-0.011	-0.014	0.005	-0.011	-0.023
		(0.344)	(0.015)	(0.021)	(0.021)	(0.022)	(0.024)	(0.023)	(0.022)
			[0.439]	[0.433]	[0.603]	[0.515]	[0.839]	[0.627]	[0.301]
Willing to Take Risks [0-10]		3.125	-0.125	-0.112	-0.355	-0.120	-0.325	0.053	0.063
		(2.214)	(0.119)	(0.159)	(0.159)	(0.164)	(0.176)	(0.172)	(0.170)
			[0.292]	[0.483]	[0.026]	[0.466]	[0.065]	[0.759]	[0.711]
Patience [time preference median or above]		0.508	0.006	-0.019	0.030	0.004	0.037	-0.023	-0.011
		(0.501)	(0.027)	(0.036)	(0.036)	(0.036)	(0.039)	(0.040)	(0.039)
			[0.837]	[0.600]	[0.405]	[0.906]	[0.352]	[0.559]	[0.789]
Financial Literacy Score [0-8]		5.425	0.088	0.132	0.016	0.069	0.172	-0.035	0.166
		(1.827)	(0.085)	(0.111)	(0.112)	(0.115)	(0.128)	(0.124)	(0.125)
			[0.300]	[0.233]	[0.885]	[0.550]	[0.179]	[0.774]	[0.185]
Observations		431	1902	368	364	358	260	275	277

Table A3: Effect on Brexit Referendum Decisions: including PDS- LASSO specifications

	Intent to Treat (OLS)						Treatment Effect on the Treated (IV-2SLS)					
	Full Sample			Outside London			Full Sample			Outside London		
Controls	Parsim.	LASSO	Extens.	Parsim.	LASSO	Extens.	Parsim.	LASSO	Extens.	Parsim.	LASSO	Extens.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Remain Index [-1: Leave, 0: Abstain, +1: Remain]												
Pooled Treatment	0.039	0.041	0.052*	0.055*	0.064**	0.070**	0.052	0.054	0.068*	0.073*	0.083**	0.092**
	(0.030)	(0.029)	(0.031)	(0.030)	(0.030)	(0.031)	(0.038)	(0.038)	(0.038)	(0.039)	(0.039)	(0.039)
p-value (Treatment>0)	0.0968	0.0787	0.0467	0.0334	0.0164	0.0120	0.0856	0.0777	0.0368	0.0306	0.0167	0.0092
Control Mean	-0.211	-0.211	-0.211	-0.247	-0.247	-0.247	-0.211	-0.211	-0.211	-0.247	-0.247	-0.247
SD	0.942	0.942	0.942	0.932	0.932	0.932	0.942	0.942	0.942	0.932	0.932	0.932
R-squared	0.667	0.681	0.705	0.669	0.683	0.709	0.089		0.167	0.084		0.162
Voted Remain [0/1]												
Pooled Treatment	0.025	0.025	0.031*	0.036**	0.039**	0.041**	0.033	0.034	0.040*	0.048**	0.051**	0.055***
	(0.016)	(0.016)	(0.017)	(0.017)	(0.016)	(0.017)	(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.021)
p-value (Treatment>0)	0.0591	0.0591	0.0341	0.0171	0.0074	0.0079	0.0580	0.0527	0.0284	0.0146	0.0102	0.0044
Control Mean	0.360	0.360	0.360	0.340	0.340	0.340	0.360	0.360	0.360	0.340	0.340	0.340
SD	0.480	0.480	0.480	0.474	0.474	0.474	0.480	0.480	0.480	0.474	0.474	0.474
R-squared	0.626	0.633	0.671	0.631	0.637	0.676	0.058		0.138	0.053		0.131
Voted Leave [0/1]												
Pooled Treatment	-0.014	-0.017	-0.022	-0.019	-0.025	-0.029*	-0.019	-0.022	-0.028	-0.025	-0.032	-0.038*
	(0.016)	(0.015)	(0.016)	(0.016)	(0.016)	(0.017)	(0.021)	(0.020)	(0.020)	(0.021)	(0.021)	(0.021)
p-value (Treatment<0)	0.1908	0.1285	0.0846	0.1175	0.0591	0.0440	0.1828	0.1357	0.0808	0.1169	0.0638	0.0352
Control Mean	0.571	0.571	0.571	0.587	0.587	0.587	0.571	0.571	0.571	0.587	0.587	0.587
SD	0.496	0.496	0.496	0.493	0.493	0.493	0.496	0.496	0.496	0.493	0.493	0.493
R-squared	0.643	0.660	0.686	0.646	0.663	0.691	0.101		0.182	0.100		0.179
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-Treat Brexit Intention	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extensive Controls	No	LASSO	Yes	No	LASSO	Yes	No	LASSO	Yes	No	LASSO	Yes
Observations	2333	2333	2333	2122	2122	2122	2333	2333	2333	2122	2122	2122

This table replicates Table 2, but includes Post-Double-Selection-LASSO specifications for comparison, following Belloni, et al. 2014. Notice that (1) the LASSO specifications provide coefficients that are intermediate between the parsimonious and extensive control set reported in Table 1, (2) for the full sample, the effects strengthen with controls, and (3) and both the ITT and TOT effects outside London are robust across specifications.

Table A4: Table 2 and SEV with False Discovery q-values: ITT

				SEV		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Remain Index [-1, 0, +1]						
Pooled Treatment	0.039	0.052*	0.070**	0.087	0.133**	0.107
	(0.030)	(0.031)	(0.031)	(0.076)	(0.068)	(0.069)
Control Mean	-0.146	-0.146	-0.146	0.000	0.000	0.000
Control SD	0.958	0.958	0.958	1.320	1.320	1.320
p-value (one-sided)	0.093	0.044	0.013	0.126	0.025	0.061
q-value	0.144	0.047	0.027	0.144	0.047	0.032
Panel B: Remain [0/1]						
Pooled Treatment	0.025	0.031*	0.041**	0.087	0.133**	0.107
	(0.016)	(0.017)	(0.017)	(0.076)	(0.068)	(0.069)
Control Mean	0.397	0.397	0.397	0.000	0.000	0.000
Control SD	0.489	0.489	0.489	1.320	1.320	1.320
p-value (one-sided)	0.065	0.032	0.008	0.126	0.025	0.061
q-value	0.144	0.034	0.016	0.144	0.034	0.032
Panel C: Leave [0/1]						
Pooled Treatment	-0.014	-0.022	-0.029*	0.087	0.133**	0.107
	(0.016)	(0.016)	(0.017)	(0.076)	(0.068)	(0.069)
Control Mean	0.543	0.543	0.543	0.000	0.000	0.000
Control SD	0.498	0.498	0.498	1.320	1.320	1.320
Observations	2333	2333	2122	2089	2089	1911
p-value (one-sided)	0.183	0.095	0.045	0.126	0.025	0.061
q-value	0.225	0.053	0.066	0.225	0.053	0.066
Strata FE	✓	✓	✓	✓	✓	✓
Pre-treat Brexit Intention	✓	✓	✓	✓	✓	✓
Extensive Controls		✓	✓		✓	✓
Sample	Full	Full	Outside London	Full	Full	Outside London

This table shows intent-to-treat estimates on the Remain Index from Table 2 as well as Socioeconomic Values from Margalit and Shayo (2020). Columns (1)–(3) show estimates on Remain Index (Panel A), Remain Vote (Panel B), and Leave Vote (Panel C), while columns (4)–(6) show estimates on Socioeconomic Values. We report the False Discovery Rate q-values pairwise comparing the (one-sided) p-values of the treatment effect on each outcome, holding the set of controls fixed. This procedure is described in detail in Anderson (2008).

Table A5: Table 2 and SEV with False Discovery q-values: TOT

			SEV	
	(1)	(2)	(3)	(4)
Panel A: Remain Index [-1, 0, +1]				
Pooled Treatment	0.068*	0.092**	0.169**	0.138*
	(0.038)	(0.039)	(0.081)	(0.084)
Control Mean	-0.146	-0.146	0.000	0.000
Control SD	0.958	0.958	1.320	1.320
p-value (one-sided)	0.036	0.009	0.018	0.049
q-value	0.037	0.019	0.037	0.026
Panel B: Remain [0/1]				
Pooled Treatment	0.040*	0.055**	0.169**	0.138*
	(0.021)	(0.021)	(0.081)	(0.084)
Control Mean	0.397	0.397	0.000	0.000
Control SD	0.489	0.489	1.320	1.320
p-value (one-sided)	0.025	0.005	0.018	0.049
q-value	0.026	0.011	0.026	0.026
Panel C: Leave [0/1]				
Pooled Treatment	-0.028	-0.038*	0.169**	0.138*
	(0.020)	(0.021)	(0.081)	(0.084)
Control Mean	0.543	0.543	0.000	0.000
Control SD	0.498	0.498	1.320	1.320
Observations	2333	2122	2089	1911
p-value (one-sided)	0.083	0.036	0.018	0.049
q-value	0.044	0.052	0.038	0.052
Strata FE	✓	✓	✓	✓
Pre-treat Brexit Intention	✓	✓	✓	✓
Extensive Controls	✓	✓	✓	✓
Sample	Full	Outside London	Full	Outside London

This table shows treatment effect on the treated estimates on the Remain Index from Table 2 as well as Socioeconomic Values from Margalit and Shayo (2020). Columns (1)–(2) show estimates on Remain Index (Panel A), Remain Vote (Panel B), and Leave Vote (Panel C), while columns (3)–(4) show estimates on Socioeconomic Values from Margalit and Shayo (2020). We show the False Discovery Rate q-values from pairwise comparing the (one-sided) p-values of the treatment effect on each outcome, holding the set of controls fixed. We report the False Discovery Rate q-values pairwise comparing the (one-sided) p-values of the treatment effect on each outcome, holding the set of controls fixed. This procedure is described in detail in Anderson (2008).

Table A6: Regression: Brexit Referendum Decisions with Swing Voter Interactions

	Remain Index [-1: Leave, 0: Abstain, +1: Remain]						
Estimation	OLS	OLS	OLS	OLS	IV-2SLS	IV-2SLS	IV-2SLS
Sample	Full	Full	Full	Outs. Ldn	Full	Full	Outs. Ldn
Controls	Parsim.	LASSO	Extens.	Extens.	LASSO	Extens.	Extens.
	Intent to Treat				Treatment Effect on the Treated		
Treatment x Intent to Vote Leave	0.028	0.015	0.046	0.061*	0.020	0.059	0.079*
	(0.035)	(0.034)	(0.037)	(0.037)	(0.044)	(0.045)	(0.045)
Treatment x No Idea	0.222*	0.276**	0.238*	0.309**	0.376**	0.326**	0.421***
	(0.132)	(0.125)	(0.122)	(0.124)	(0.170)	(0.159)	(0.159)
Treatment x Intent to Vote Remain	-0.001	0.006	0.003	0.006	0.011	0.002	0.007
	(0.050)	(0.049)	(0.052)	(0.056)	(0.065)	(0.065)	(0.069)
p-value (Treat x Leave >0)	0.214	0.323	0.104	0.047	0.324	0.096	0.041
p-value (Treat x No Idea >0)	0.046	0.014	0.026	0.006	0.014	0.020	0.004
p-value (Treat x Remain >0)	0.505	0.448	0.479	0.461	0.431	0.487	0.458
p-value (Tr. x No Idea= Tr. x Leave)	0.155	0.045	0.136	0.057	0.045	0.107	0.041
p-value (Tr. x No Idea= Tr. x Remain)	0.115	0.044	0.074	0.024	0.046	0.056	0.016
q-value (Treat x Leave >0)	0.301	0.193	0.157	0.061	0.193	0.120	0.041
q-value (Treat x No Idea >0)	0.301	0.073	0.149	0.033	0.074	0.110	0.021
q-value (Treat x Remain >0)	0.349	0.218	0.204	0.101	0.208	0.155	0.101
q-value (Tr. x No Idea= Tr. x Leave)	0.301	0.073	0.157	0.061	0.074	0.120	0.041
q-value (Tr. x No Idea= Tr. x Remain)	0.301	0.073	0.157	0.051	0.074	0.120	0.032
Control Mean	-0.211	-0.211	-0.211	-0.247	0.000	0.000	0.000
SD	0.942	0.942	0.942	0.932	0.000	0.000	0.000
Observations	2333	2333	2333	2122	2333	2333	2122
R-squared	0.667		0.706	0.710		0.167	0.161
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-Treat Brexit Intention	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extensive Controls	No	LASSO	Yes	Yes	LASSO	Yes	Yes
Voted Remain [0/1]							
Treatment x Intent to Vote Leave	0.007	-0.000	0.015	0.021	-0.000	0.019	0.026
	(0.017)	(0.017)	(0.018)	(0.018)	(0.022)	(0.022)	(0.023)
Treatment x No Idea	0.146**	0.169**	0.142**	0.187***	0.231**	0.196**	0.255***
	(0.070)	(0.068)	(0.063)	(0.063)	(0.092)	(0.082)	(0.081)
Treatment x Intent to Vote Remain	0.013	0.020	0.019	0.026	0.028	0.023	0.034
	(0.031)	(0.030)	(0.031)	(0.033)	(0.040)	(0.038)	(0.041)
p-value (Treat x Leave >0)	0.344	0.506	0.204	0.128	0.507	0.200	0.123
p-value (Treat x No Idea >0)	0.019	0.006	0.012	0.002	0.006	0.008	0.001
p-value (Treat x Remain >0)	0.332	0.257	0.275	0.220	0.244	0.270	0.205
p-value (Tr. x No Idea= Tr. x Leave)	0.054	0.015	0.053	0.012	0.015	0.038	0.007
p-value (Tr. x No Idea= Tr. x Remain)	0.083	0.043	0.075	0.022	0.043	0.054	0.014
q-value (Treat x Leave >0)	0.162	0.254	0.143	0.069	0.254	0.111	0.066
q-value (Treat x No Idea >0)	0.103	0.032	0.063	0.008	0.032	0.043	0.004
q-value (Treat x Remain >0)	0.162	0.147	0.143	0.097	0.139	0.121	0.089
q-value (Tr. x No Idea= Tr. x Leave)	0.121	0.032	0.111	0.024	0.032	0.078	0.014
q-value (Tr. x No Idea= Tr. x Remain)	0.125	0.045	0.111	0.030	0.045	0.078	0.018
Control Mean	0.360	0.360	0.360	0.340	0.000	0.000	0.000
SD	0.480	0.480	0.480	0.474	0.000	0.000	0.000
Observations	2333	2333	2333	2122	2333	2333	2122
R-squared	0.627		0.672	0.677		0.140	0.130
Voted Leave [0/1]							
Treatment x Intent to Vote Leave	-0.021	-0.018	-0.031	-0.041**	-0.024	-0.040	-0.052**
	(0.019)	(0.019)	(0.020)	(0.020)	(0.024)	(0.025)	(0.025)
Treatment x No Idea	-0.076	-0.107	-0.095	-0.122	-0.146	-0.131	-0.166*
	(0.079)	(0.073)	(0.075)	(0.077)	(0.100)	(0.097)	(0.099)
Treatment x Intent to Vote Remain	0.014	0.013	0.016	0.020	0.016	0.021	0.027
	(0.024)	(0.024)	(0.025)	(0.027)	(0.031)	(0.031)	(0.033)
p-value (Treat x Leave <0)	0.141	0.162	0.062	0.023	0.162	0.054	0.018
p-value (Treat x No Idea <0)	0.167	0.071	0.101	0.057	0.071	0.088	0.047
p-value (Treat x Remain <0)	0.721	0.709	0.733	0.772	0.697	0.752	0.786
p-value (Tr. x No Idea= Tr. x Leave)	0.496	0.241	0.409	0.310	0.237	0.368	0.271
p-value (Tr. x No Idea= Tr. x Remain)	0.274	0.118	0.156	0.080	0.121	0.133	0.063
q-value (Treat x Leave <0)	0.718	0.369	0.336	0.128	0.370	0.284	0.099
q-value (Treat x No Idea <0)	0.718	0.369	0.336	0.128	0.370	0.284	0.099
q-value (Treat x Remain <0)	0.763	0.396	0.415	0.447	0.387	0.431	0.459
q-value (Tr. x No Idea= Tr. x Leave)	0.718	0.369	0.351	0.183	0.370	0.285	0.157
q-value (Tr. x No Idea= Tr. x Remain)	0.718	0.369	0.336	0.128	0.370	0.284	0.099
Control Mean	0.571	0.571	0.571	0.587	0.000	0.000	0.000
SD	0.496	0.496	0.496	0.493	0.000	0.000	0.000
Observations	2333	2333	2333	2122	2333	2333	2122
R-squared	0.643		0.687	0.692		0.181	0.177
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-Treat Brexit Intention	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extensive Controls	No	LASSO	Yes	Yes	LASSO	Yes	Yes

Table A7: Regression: Effect on Remain Vote Index by Sub-Treatments - ITT

	Extensive Controls				LASSO Controls			
	(1) OLS Full	(2) OLS Full	(3) OLS Outs. Ldn	(4) OLS Outs. Ldn	(5) OLS Full	(6) OLS Full	(7) OLS Outs. Ldn	(8) OLS Outs. Ldn
EU Complementary Assets	0.077*	0.077*	0.109***	0.109***	0.050	0.050	0.081*	0.081*
	(0.040)	(0.040)	(0.041)	(0.041)	(0.041)	(0.041)	(0.042)	(0.042)
UK Pooled Assets	0.056*		0.068*		0.046		0.059*	
	(0.034)		(0.035)		(0.034)		(0.035)	
US Pooled Assets	0.027		0.046		0.020		0.042	
	(0.037)		(0.038)		(0.037)		(0.037)	
UK Long Real		0.053		0.076*		0.063		0.098**
		(0.043)		(0.045)		(0.044)		(0.046)
UK Short Real		0.041		0.050		0.023		0.035
		(0.041)		(0.043)		(0.042)		(0.044)
UK Long Fantasy		0.081*		0.079*		0.053		0.040
		(0.045)		(0.047)		(0.046)		(0.047)
US Fin. Assets Real		0.005		0.015		-0.020		-0.004
		(0.043)		(0.044)		(0.044)		(0.044)
US Sports Assets Real		0.049		0.074		0.059		0.086*
		(0.045)		(0.046)		(0.045)		(0.046)
Observations	2333	2333	2122	2122	2333	2333	2122	2122
R-squared	0.705	0.706	0.709	0.710	0.635	0.636	0.640	0.641
Control Mean	-0.211	-0.211	-0.247	-0.247	-0.211	-0.211	-0.247	-0.247
SD	0.942	0.942	0.932	0.932	0.942	0.942	0.932	0.932
p-value (EU>0)	0.027	0.027	0.004	0.004	0.110	0.110	0.028	0.028
p-value (UK pooled>0)	0.047		0.025		0.088		0.044	
p-value (US pooled>0)	0.228		0.112		0.299		0.134	
p-value (EU> *pooled*)	0.277		0.132		0.455		0.287	
p-value (EU> *pooled*)	0.092		0.054		0.218		0.164	
p-value (UK Long=Short)		0.782		0.605		0.396		0.213
p-value (UK Long=Fantasy)		0.564		0.951		0.834		0.277
p-value (US Fin.=Sports)		0.355		0.235		0.110		0.073
q-value (EU>0)	0.075	0.120	0.013	0.018	0.198	0.284	0.070	0.124
q-value (UK pooled>0)	0.075		0.026		0.198		0.070	
q-value (US pooled>0)	0.082		0.039		0.198		0.070	
q-value (UK Long=Short)		1.000		0.883		0.359		0.172
q-value (UK Long=Fantasy)		1.000		0.907		0.715		0.172
q-value (US Fin.=Sports)		1.000		0.543		0.284		0.124

Table A8: Regression: Effect on Remain Vote Index by Sub-Treatments - TOT

	Extensive Controls				LASSO Controls			
	(1) IV-2SLS Full	(2) IV-2SLS Full	(3) IV-2SLS Outs. Ldn	(4) IV-2SLS Outs. Ldn	(5) IV-2SLS Full	(6) IV-2SLS Full	(7) IV-2SLS Outs. Ldn	(8) IV-2SLS Outs. Ldn
EU Complementary Assets	0.096**	0.096**	0.138***	0.138***	0.063	0.063	0.102**	0.102**
	(0.047)	(0.047)	(0.049)	(0.049)	(0.050)	(0.050)	(0.052)	(0.052)
UK Pooled Assets	0.075*		0.090**		0.062		0.079*	
	(0.043)		(0.043)		(0.045)		(0.045)	
US Pooled Assets	0.035		0.061		0.025		0.055	
	(0.045)		(0.047)		(0.047)		(0.048)	
UK Long Real		0.066		0.094*		0.078		0.121**
		(0.050)		(0.053)		(0.053)		(0.056)
UK Short Real		0.053		0.064		0.030		0.044
		(0.051)		(0.051)		(0.053)		(0.053)
UK Long Fantasy		0.130*		0.127*		0.086		0.065
		(0.069)		(0.072)		(0.073)		(0.075)
US Fin. Assets Real		0.004		0.018		-0.025		-0.005
		(0.049)		(0.051)		(0.053)		(0.052)
US Sports Assets Real		0.067		0.106*		0.082		0.122*
		(0.059)		(0.062)		(0.061)		(0.064)
Observations	2333	2333	2122	2122	2333	2333	2122	2122
R-squared	0.168	0.167	0.163	0.163	0.002	0.003	0.004	0.006
Control Mean	-0.211	-0.211	-0.247	-0.247	-0.211	-0.211	-0.247	-0.247
SD	0.942	0.942	0.932	0.932	0.942	0.942	0.932	0.932
p-value (EU>0)	0.021	0.021	0.003	0.003	0.105	0.105	0.024	0.024
p-value (UK pooled>0)	0.039		0.019		0.083		0.040	
p-value (US pooled>0)	0.219		0.098		0.295		0.128	
p-value (EU> *pooled*)	0.309		0.143		0.491		0.315	
p-value (EU> *pooled*)	0.086		0.051		0.220		0.174	
p-value (UK Long=Short)		0.811		0.602		0.411		0.208
p-value (UK Long=Fantasy)		0.333		0.642		0.912		0.463
p-value (US Fin.=Sports)		0.291		0.158		0.092		0.051
q-value (EU>0)	0.062	0.091	0.008	0.011	0.186	0.265	0.063	0.109
q-value (UK pooled>0)	0.062		0.019		0.186		0.063	
q-value (US pooled>0)	0.079		0.034		0.186		0.063	
q-value (UK Long=Short)		0.797		0.473		0.378		0.161
q-value (UK Long=Fantasy)		0.498		0.473		0.839		0.301
q-value (US Fin.=Sports)		0.498		0.311		0.265		0.109

Table A9: Regression: Effect on Remain Vote by Sub-Treatments - ITT

	Extensive Controls				LASSO Controls			
	(1) OLS Full	(2) OLS Full	(3) OLS Outs. Ldn	(4) OLS Outs. Ldn	(5) OLS Full	(6) OLS Full	(7) OLS Outs. Ldn	(8) OLS Outs. Ldn
EU Complementary Assets	0.041*	0.041*	0.054**	0.054**	0.033	0.033	0.048**	0.048**
	(0.022)	(0.022)	(0.023)	(0.023)	(0.022)	(0.022)	(0.023)	(0.023)
UK Pooled Assets	0.031*		0.040**		0.025		0.037**	
	(0.018)		(0.019)		(0.018)		(0.019)	
US Pooled Assets	0.023		0.034		0.018		0.031	
	(0.020)		(0.020)		(0.020)		(0.020)	
UK Long Real		0.019		0.033		0.022		0.045*
		(0.023)		(0.024)		(0.024)		(0.025)
UK Short Real		0.033		0.045*		0.023		0.037
		(0.022)		(0.023)		(0.022)		(0.023)
UK Long Fantasy		0.045*		0.045*		0.030		0.027
		(0.024)		(0.025)		(0.024)		(0.025)
US Fin. Assets Real		0.012		0.016		-0.002		0.006
		(0.023)		(0.024)		(0.024)		(0.023)
US Sports Assets Real		0.034		0.050**		0.037		0.056**
		(0.025)		(0.025)		(0.025)		(0.025)
Observations	2333	2333	2122	2122	2333	2333	2122	2122
R-squared	0.671	0.671	0.676	0.676	0.604	0.605	0.612	0.613
Control Mean	0.360	0.360	0.340	0.340	0.360	0.360	0.340	0.340
SD	0.480	0.480	0.474	0.474	0.480	0.480	0.474	0.474
p-value (EU>0)	0.029	0.029	0.009	0.009	0.064	0.064	0.018	0.018
p-value (UK pooled>0)	0.044		0.015		0.089		0.024	
p-value (US pooled>0)	0.126		0.051		0.191		0.062	
p-value (EU> *pooled*)	0.297		0.255		0.325		0.298	
p-value (EU> *pooled*)	0.187		0.174		0.225		0.220	
p-value (UK Long=Short)		0.537		0.642		0.976		0.761
p-value (UK Long=Fantasy)		0.299		0.657		0.790		0.524
p-value (US Fin.=Sports)		0.393		0.213		0.139		0.060
q-value (EU>0)	0.071	0.130	0.024	0.037	0.154	0.343	0.037	0.076
q-value (UK pooled>0)	0.071		0.024		0.154		0.037	
q-value (US pooled>0)	0.071		0.024		0.154		0.037	
q-value (UK Long=Short)		0.675		0.744		0.952		0.615
q-value (UK Long=Fantasy)		0.648		0.744		0.952		0.537
q-value (US Fin.=Sports)		0.648		0.471		0.343		0.098

Table A10: Regression: Effect on Remain Vote by Sub-Treatments- TOT

	Extensive Controls				LASSO Controls			
	(1) IV-2SLS Full	(2) IV-2SLS Full	(3) IV-2SLS Outs. Ldn	(4) IV-2SLS Outs. Ldn	(5) IV-2SLS Full	(6) IV-2SLS Full	(7) IV-2SLS Outs. Ldn	(8) IV-2SLS Outs. Ldn
EU Complementary Assets	0.051**	0.051**	0.068**	0.068**	0.042	0.042	0.060**	0.060**
	(0.026)	(0.026)	(0.027)	(0.027)	(0.027)	(0.027)	(0.028)	(0.028)
UK Pooled Assets	0.041*		0.054**		0.033		0.050**	
	(0.023)		(0.024)		(0.024)		(0.024)	
US Pooled Assets	0.030		0.045*		0.023		0.041	
	(0.025)		(0.026)		(0.026)		(0.026)	
UK Long Real		0.023		0.041		0.028		0.056*
		(0.027)		(0.028)		(0.029)		(0.030)
UK Short Real		0.043		0.057**		0.030		0.046*
		(0.027)		(0.027)		(0.028)		(0.028)
UK Long Fantasy		0.072**		0.073*		0.048		0.044
		(0.037)		(0.039)		(0.039)		(0.040)
US Fin. Assets Real		0.014		0.020		-0.003		0.007
		(0.027)		(0.027)		(0.028)		(0.028)
US Sports Assets Real		0.047		0.071**		0.052		0.080**
		(0.032)		(0.034)		(0.033)		(0.035)
Observations	2333	2333	2122	2122	2333	2333	2122	2122
R-squared	0.139	0.139	0.131	0.132	0.003	0.004	0.004	0.006
Control Mean	0.360	0.360	0.340	0.340	0.360	0.360	0.340	0.340
SD	0.480	0.480	0.474	0.474	0.480	0.480	0.474	0.474
p-value (EU>0)	0.022	0.022	0.006	0.006	0.059	0.059	0.015	0.015
p-value (UK pooled>0)	0.036		0.011		0.084		0.021	
p-value (US pooled>0)	0.114		0.041		0.186		0.057	
p-value (EU> *pooled*)	0.332		0.283		0.359		0.332	
p-value (EU> *pooled*)	0.187		0.182		0.231		0.238	
p-value (UK Long=Short)		0.476		0.594		0.935		0.775
p-value (UK Long=Fantasy)		0.162		0.400		0.592		0.773
p-value (US Fin.=Sports)		0.309		0.129		0.111		0.036
q-value (EU>0)	0.057	0.098	0.016	0.024	0.144	0.284	0.032	0.065
q-value (UK pooled>0)	0.057		0.016		0.144		0.032	
q-value (US pooled>0)	0.057		0.016		0.144		0.032	
q-value (UK Long=Short)		0.477		0.423		0.878		0.633
q-value (UK Long=Fantasy)		0.320		0.364		0.652		0.633
q-value (US Fin.=Sports)		0.446		0.240		0.284		0.065

Table A11: Regression: Effect on Leave Vote by Sub-Treatments - ITT

	Extensive Controls				LASSO Controls			
	(1) OLS Full	(2) OLS Full	(3) OLS Outs. Ldn	(4) OLS Outs. Ldn	(5) OLS Full	(6) OLS Full	(7) OLS Outs. Ldn	(8) OLS Outs. Ldn
EU Complementary Assets	-0.036*	-0.036*	-0.055**	-0.055**	-0.017	-0.017	-0.033	-0.033
	(0.021)	(0.021)	(0.022)	(0.022)	(0.022)	(0.022)	(0.023)	(0.023)
UK Pooled Assets	-0.025		-0.027		-0.021		-0.022	
	(0.018)		(0.019)		(0.018)		(0.019)	
US Pooled Assets	-0.004		-0.012		-0.002		-0.010	
	(0.019)		(0.020)		(0.020)		(0.020)	
UK Long Real		-0.035		-0.043*		-0.041*		-0.053**
		(0.023)		(0.024)		(0.024)		(0.026)
UK Short Real		-0.008		-0.005		-0.000		0.002
		(0.022)		(0.023)		(0.023)		(0.024)
UK Long Fantasy		-0.036		-0.034		-0.023		-0.013
		(0.025)		(0.026)		(0.025)		(0.026)
US Fin. Assets Real		0.007		0.001		0.018		0.010
		(0.023)		(0.024)		(0.024)		(0.024)
US Sports Assets Real		-0.015		-0.024		-0.022		-0.030
		(0.023)		(0.024)		(0.024)		(0.025)
Observations	2333	2333	2122	2122	2333	2333	2122	2122
R-squared	0.687	0.687	0.692	0.692	0.603	0.604	0.607	0.609
Control Mean	0.571	0.571	0.587	0.587	0.571	0.571	0.587	0.587
SD	0.496	0.496	0.493	0.493	0.496	0.496	0.493	0.493
p-value (EU<0)	0.046	0.954	0.007	0.993	0.224	0.776	0.073	0.927
p-value (UK pooled<0)	0.079		0.072		0.126		0.121	
p-value (US pooled<0)	0.411		0.273		0.460		0.308	
p-value (EU< *pooled*)	0.284		0.075		0.592		0.299	
p-value (EU< *pooled*)	0.056		0.019		0.242		0.146	
p-value (UK Long=Short)		0.255		0.150		0.112		0.045
p-value (UK Long=Fantasy)		0.966		0.749		0.523		0.170
p-value (US Fin.=Sports)		0.388		0.335		0.135		0.145
q-value (EU<0)	0.135	1.000	0.020	1.000	0.507	0.634	0.222	0.301
q-value (UK pooled<0)	0.135		0.078		0.507		0.222	
q-value (US pooled<0)	0.159		0.121		0.507		0.222	
q-value (UK Long=Short)		1.000		1.000		0.371		0.217
q-value (UK Long=Fantasy)		1.000		1.000		0.535		0.217
q-value (US Fin.=Sports)		1.000		1.000		0.371		0.217

Table A12: Regression: Effect on Leave Vote by Sub-Treatments - TOT

	Extensive Controls				LASSO Controls			
	(1) IV-2SLS Full	(2) IV-2SLS Full	(3) IV-2SLS Outs. Ldn	(4) IV-2SLS Outs. Ldn	(5) IV-2SLS Full	(6) IV-2SLS Full	(7) IV-2SLS Outs. Ldn	(8) IV-2SLS Outs. Ldn
EU Complementary Assets	-0.045*	-0.045*	-0.070***	-0.070***	-0.021	-0.021	-0.042	-0.042
	(0.025)	(0.025)	(0.027)	(0.026)	(0.027)	(0.027)	(0.028)	(0.028)
UK Pooled Assets	-0.034		-0.036		-0.029		-0.030	
	(0.023)		(0.023)		(0.024)		(0.025)	
US Pooled Assets	-0.005		-0.016		-0.003		-0.014	
	(0.024)		(0.025)		(0.026)		(0.026)	
UK Long Real		-0.043		-0.053*		-0.050*		-0.066**
		(0.027)		(0.029)		(0.029)		(0.031)
UK Short Real		-0.009		-0.007		-0.000		0.003
		(0.027)		(0.027)		(0.029)		(0.029)
UK Long Fantasy		-0.058		-0.054		-0.038		-0.021
		(0.038)		(0.039)		(0.040)		(0.041)
US Fin. Assets Real		0.009		0.002		0.022		0.012
		(0.027)		(0.027)		(0.029)		(0.029)
US Sports Assets Real		-0.020		-0.034		-0.030		-0.042
		(0.031)		(0.033)		(0.033)		(0.034)
Observations	2333	2333	2122	2122	2333	2333	2122	2122
R-squared	0.182	0.182	0.180	0.179	0.000	0.002	0.003	0.004
Control Mean	0.571	0.571	0.587	0.587	0.571	0.571	0.587	0.587
SD	0.496	0.496	0.493	0.493	0.496	0.496	0.493	0.493
p-value (EU<0)	0.038	0.038	0.004	0.004	0.219	0.219	0.068	0.068
p-value (UK pooled<0)	0.930		0.939		0.879		0.885	
p-value (US pooled<0)	0.589		0.738		0.540		0.697	
p-value (EU< *pooled*)	0.309		0.076		0.621		0.319	
p-value (EU< *pooled*)	0.049		0.016		0.240		0.149	
p-value (UK Long=Short)		0.244		0.130		0.113		0.041
p-value (UK Long=Fantasy)		0.683		0.971		0.752		0.287
p-value (US Fin.=Sports)		0.346		0.270		0.124		0.121
q-value (EU<0)	0.128	0.181	0.013	0.017	1.000	0.330	0.256	0.158
q-value (UK pooled<0)	1.000		1.000		1.000		1.000	
q-value (US pooled<0)	1.000		1.000		1.000		1.000	
q-value (UK Long=Short)		0.530		0.242		0.330		0.158
q-value (UK Long=Fantasy)		0.859		0.564		0.414		0.168
q-value (US Fin.=Sports)		0.530		0.350		0.330		0.158

Table A13: Regression: Effect by Parochial / European Identity : LASSO and q-values

	European Identity Index *Above Median*				European Identity Index *Median and Below*			
	(1) All	(2) All	(3) All	(4) Outside London	(5) All	(6) All	(7) All	(8) Outside London
Pooled Treatment	0.103**				0.011			
	(0.049)				(0.039)			
EU Complementary Assets		0.131**	0.131**	0.163**		0.020	0.020	0.047
		(0.064)	(0.064)	(0.068)		(0.052)	(0.052)	(0.053)
UK Pooled Assets		0.082				0.039		
		(0.053)				(0.043)		
US Pooled Assets		0.124**				-0.043		
		(0.059)				(0.047)		
UK Long Real			0.035	0.060			0.089	0.122**
			(0.068)	(0.072)			(0.056)	(0.058)
UK Short Real			0.107	0.114			-0.025	-0.013
			(0.066)	(0.072)			(0.053)	(0.054)
UK Long Fantasy			0.116*	0.080			0.061	0.066
			(0.070)	(0.076)			(0.060)	(0.061)
US Fin. Assets Real			0.086	0.096			-0.086	-0.063
			(0.070)	(0.070)			(0.055)	(0.055)
US Sports Assets Real			0.165**	0.182**			-0.004	0.025
			(0.070)	(0.073)			(0.057)	(0.059)
Observations	1033	1033	1033	905	1288	1288	1288	1205
R-squared	0.516	0.517	0.518	0.531	0.492	0.494	0.496	0.489
Control Mean	0.309	0.309	0.309	0.288	-0.603	-0.603	-0.603	-0.636
SD	0.903	0.903	0.903	0.908	0.768	0.768	0.768	0.739
Controls	LASSO	LASSO	LASSO	LASSO	LASSO	LASSO	LASSO	LASSO
p-value (Treatment>0)	0.018				0.389			
p-value (EU>0)		0.020	0.020	0.008		0.347	0.349	0.188
p-value (UK pooled>0)		0.062				0.181		
p-value (US pooled>0)		0.018				0.822		
p-value (EU> *pooled*)		0.189				0.660		
p-value (EU> *pooled*)		0.456				0.097		
p-value (UK Long=Short)			0.310	0.500			0.060	0.033
p-value (UK Long=Fantasy)			0.278	0.808			0.677	0.414
p-value (US Fin.=Sports)			0.302	0.266			0.188	0.166
q-value (EU>0)		0.054	0.088	0.034		0.824	0.536	0.232
q-value (UK pooled>0)		0.067				0.824		
q-value (US pooled>0)		0.054				0.974		
q-value (EU> *pooled*)		0.117				0.974		
q-value (EU> *pooled*)		0.224				0.824		
q-value (UK Long=Short)			0.304	1.000			0.318	0.155
q-value (UK Long=Fantasy)			0.304	1.000			0.605	0.334
q-value (US Fin.=Sports)			0.304	0.664			0.394	0.232

Table A14: Regression: Effect on Remain Index by Identity Interactions

Estimation: OLS (ITT) Sample	Full Remain Index [-1: (1)	Full Leave, 0: (2)	Full Abstain, 1: (3)	Outside London Remain] (4)
Treat x Hi Euro Identity Index	0.105**			
	(0.049)			
Treat x Lo Euro Identity Index	0.013			
	(0.038)			
EU x Hi		0.118*	0.119*	0.172**
		(0.063)	(0.063)	(0.067)
EU x Lo		0.044	0.044	0.060
		(0.050)	(0.050)	(0.052)
UK Pooled x Hi Euro Identity Index		0.082		
		(0.053)		
UK Long Real x Hi			0.037	0.068
			(0.066)	(0.070)
UK Short Real x Hi			0.110*	0.120*
			(0.063)	(0.068)
UK Long Fantasy x Hi			0.110	0.106
			(0.068)	(0.073)
UK Pooled x Lo Euro Identity Index		0.038		
		(0.042)		
UK Long Real x Lo			0.074	0.086
			(0.055)	(0.059)
UK Short Real x Lo			-0.013	0.000
			(0.054)	(0.055)
UK Long Fantasy x Lo			0.059	0.061
			(0.060)	(0.062)
US Pooled x Hi Euro Identity Index		0.137**		
		(0.059)		
US Fin. Assets x Hi			0.117*	0.140**
			(0.067)	(0.071)
US Sports Assets x Hi			0.158**	0.191**
			(0.073)	(0.077)
US Pooled x Lo Euro Identity Index		-0.052		
		(0.046)		
US Fin. Assets x Lo			-0.083	-0.075
			(0.054)	(0.055)
US Sports Assets x Lo			-0.026	-0.002
			(0.055)	(0.056)
Hi (Above Median) Euro Identity Index	0.022	0.016	0.017	0.014
	(0.086)	(0.086)	(0.086)	(0.090)
Observations	2333	2333	2333	2122
R-squared	0.706	0.707	0.708	0.712
Control Mean	-0.211	-0.211	-0.211	-0.247
SD	0.942	0.942	0.942	0.932
p-value (Treat: x Hi | > | x Lo)	0.0675			
p-value (EU: x Hi | > | x Lo)		0.177	0.174	0.0913
p-value (UK Pooled: x Hi —>— x Lo)		0.256		
p-value (UK Long Real: x Hi | > | x Lo)			0.666	0.579
p-value (UK Short Real: x Hi | > | x Lo)			0.0676	0.0847
p-value (UK Long Fantasy: x Hi | > | x Lo)			0.286	0.318
p-value (US Pooled: x Hi | > | x Lo)		0.005		
p-value (US Fin.: x Hi | > | x Lo)			0.011	0.00823
p-value (US Sports: x Hi | > | x Lo)			0.0207	0.0209
q-value (Treat: x Hi | > | x Lo)	0.0724			
q-value (EU: x Hi | > | x Lo)		0.206	0.156	0.1005
q-value (UK Pooled: x Hi | > | x Lo)		0.206		
q-value (UK Long Real: x Hi | > | x Lo)			0.352	0.239
q-value (UK Short Real: x Hi | > | x Lo)			0.0991	0.1005
q-value (UK Long Fantasy: x Hi | > | x Lo)			0.208	0.159
q-value (US Pooled: x Hi | > | x Lo)		0.01600		
q-value (US Fin.: x Hi | > | x Lo)			0.0661	0.05200
q-value (US Sports: x Hi | > | x Lo)			0.0661	0.0553
Strata FE	Yes	Yes	Yes	Yes
Pre-Treat Brexit Intention	No	Yes	Yes	Yes
Extensive Controls	No	Yes	Yes	Yes

This table shows treatment effect estimates on the Remain Index by Brexit vote intent. Columns (1)–(4) show Intent-to-Treat estimates. We show False Discovery Rate q-values at the bottom. We use the p-values associated to the tests with analogous q-value labels as inputs for the False Discovery Rate algorithm. This procedure is described in detail in Anderson (2008).

Table A15: Regression: Effects on Remain and Leave Vote by Identity Interactions

Estimation: OLS (ITT)								
Sample	Full	Full	Full Vote Remain	Outside London	Full	Full	Full Vote Leave	Outside London
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat x Hi Euro Identity Index	0.060**				-0.044*			
	(0.028)				(0.026)			
Treat x Lo Euro Identity Index	0.009				-0.004			
	(0.020)				(0.021)			
EU x Hi		0.070*	0.071**	0.092**		-0.048	-0.048	-0.080**
		(0.036)	(0.036)	(0.038)		(0.033)	(0.033)	(0.034)
EU x Lo		0.018	0.018	0.025		-0.026	-0.026	-0.036
		(0.026)	(0.026)	(0.027)		(0.028)	(0.028)	(0.029)
UK Pooled x Hi Euro Identity Index		0.047				-0.035		
		(0.030)				(0.028)		
UK Long Real x Hi			0.010	0.032			-0.026	-0.036
			(0.038)	(0.040)			(0.035)	(0.037)
UK Short Real x Hi			0.079**	0.096**			-0.031	-0.024
			(0.035)	(0.038)			(0.033)	(0.036)
UK Long Fantasy x Hi			0.057	0.052			-0.053	-0.054
			(0.039)	(0.042)			(0.036)	(0.039)
UK Pooled x Lo Euro Identity Index		0.020				-0.018		
		(0.022)				(0.023)		
UK Long Real x Lo			0.029	0.037			-0.045	-0.050
			(0.029)	(0.030)			(0.030)	(0.032)
UK Short Real x Lo			-0.002	0.008			0.011	0.008
			(0.028)	(0.028)			(0.029)	(0.030)
UK Long Fantasy x Lo			0.037	0.042			-0.023	-0.019
			(0.030)	(0.031)			(0.034)	(0.034)
US Pooled x Hi Euro Identity Index		0.078**				-0.059*		
		(0.034)				(0.030)		
US Fin. Assets x Hi			0.065*	0.069*			-0.052	-0.071*
			(0.039)	(0.041)			(0.035)	(0.037)
US Sports Assets x Hi			0.092**	0.116**			-0.065*	-0.075*
			(0.043)	(0.045)			(0.036)	(0.039)
US Pooled x Lo Euro Identity Index		-0.017				0.035		
		(0.023)				(0.025)		
US Fin. Assets x Lo			-0.030	-0.022			0.053*	0.053*
			(0.028)	(0.028)			(0.030)	(0.031)
US Sports Assets x Lo			-0.007	0.007			0.020	0.009
			(0.028)	(0.029)			(0.030)	(0.031)
Hi (Above Median) Euro Identity Index	-0.004	-0.007	-0.007	-0.011	-0.026	-0.023	-0.024	-0.024
	(0.046)	(0.046)	(0.047)	(0.049)	(0.045)	(0.045)	(0.045)	(0.047)
Observations	2333	2333	2333	2122	2333	2333	2333	2122
R-squared	0.671	0.672	0.673	0.678	0.687	0.688	0.689	0.695
Control Mean	0.360	0.360	0.360	0.340	0.571	0.571	0.571	0.587
SD	0.480	0.480	0.480	0.474	0.496	0.496	0.496	0.493
p-value (Treat: x Hi | > | x Lo)	0.065				0.111			
p-value (EU: x Hi | > | x Lo)		0.120	0.115	0.073		0.299	0.300	0.159
p-value (UK Pooled: x Hi | > | x Lo)		0.230				0.320		
p-value (UK Long Real: x Hi | > | x Lo)			0.653	0.538			0.656	0.609
p-value (UK Short Real: x Hi | > | x Lo)			0.034	0.030			0.171	0.245
p-value (UK Long Fantasy: x Hi | > | x Lo)			0.335	0.423			0.272	0.250
p-value (US Pooled: x Hi | > | x Lo)		0.010				0.008		
p-value (US Fin.: x Hi | > | x Lo)			0.023	0.032			0.013	0.006
p-value (US Sports: x Hi | > | x Lo)			0.026	0.021			0.034	0.043
q-value (Treat: x Hi | > | x Lo)	0.069				0.124			
q-value (EU: x Hi | > | x Lo)		0.137	0.095	0.069		0.271	0.315	0.250
q-value (UK Pooled: x Hi | > | x Lo)		0.181				0.271		
q-value (UK Long Real: x Hi | > | x Lo)			0.278	0.219			0.521	0.428
q-value (UK Short Real: x Hi | > | x Lo)			0.072	0.069			0.296	0.250
q-value (UK Long Fantasy: x Hi | > | x Lo)			0.209	0.204			0.315	0.250
q-value (US Pooled: x Hi | > | x Lo)		0.032				0.025		
q-value (US Fin.: x Hi | > | x Lo)			0.072	0.069			0.082	0.034
q-value (US Sports: x Hi | > | x Lo)			0.072	0.069			0.094	0.120
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-Treat Brexit Intention	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Extensive Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes

This table shows treatment effect estimates on Vote Remain and Vote Leave by Brexit vote intent. Columns (1)–(4) show Intent-to-Treat estimates on Vote Remain and Columns (5)–(8) show Intent-to-Treat estimates on Vote Leave. We show False Discovery Rate q-values at the bottom. We use the p-values associated to the tests with analogous q-value labels as inputs for the False Discovery Rate algorithm. This procedure is described in detail in Anderson (2008).

Table A16: **Regression: Effects on Post-Treatment European Identity**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Euro Id. Index	European Identity Index: Components						
		Attached to Europe	Shared Values	Personal Insult	Self-Identity	Self-Identity: "*Do you see yourself as…* "		
						Mostly/Only European	Neither	Mostly/Only British
Scale	1st PC	(1-4, reverse code)	(1-4)	(1-5, reverse code)	(1-5)	0/1	0/1	0/1
Sample	Full	Full	Full	Full	Full	Full	Full	Full
A. Pooled Treatment	-0.098*	0.038	-0.025	0.067	-0.075**	-0.010	-0.027***	0.037**
	(0.053)	(0.036)	(0.051)	(0.061)	(0.037)	(0.013)	(0.010)	(0.015)
R-squared	0.663	0.599	0.483	0.280	0.466	0.281	0.202	0.297
B.								
EU Complementary	-0.079	-0.002	-0.062	0.021	-0.092*	-0.015	-0.028**	0.043**
	(0.069)	(0.047)	(0.068)	(0.080)	(0.048)	(0.016)	(0.012)	(0.019)
UK Pooled Assets	-0.107*	0.047	-0.022	0.067	-0.080**	-0.008	-0.027**	0.035**
	(0.057)	(0.038)	(0.055)	(0.065)	(0.040)	(0.013)	(0.011)	(0.016)
US Pooled Assets	-0.095	0.050	-0.005	0.099	-0.054	-0.011	-0.026**	0.037**
	(0.063)	(0.044)	(0.063)	(0.073)	(0.044)	(0.015)	(0.011)	(0.018)
R-squared	0.663	0.599	0.483	0.280	0.467	0.281	0.202	0.297
Control Mean	0.0207	2.809	2.692	3.513	1.596	0.0766	0.0464	0.877
SD	1.478	0.917	1.211	1.161	0.876	0.266	0.211	0.329
Observations	2,228	2,306	2,242	2,231	2,327	2,327	2,327	2,327

Each column within each panel represents a separate OLS regression on post-treatment measures of European identity, with the full sample and set of controls as Table 1 Col 2. Panel A provides the pooled treatment ITT, while Panel B breaks that down into EU, UK pooled and US pooled assets. The outcome in Col 1 is the *European Identity Index* . This the first principal component of responses to the following four questions: *Attached to Europe:* (1-Very attached, 4-Not at all attached), *Shared Values:* the closeness of the values of EU member states to the UK ("1-Very Distant"- to "4-Very Close"); *Personal Insult:* When someone from another country criticizes Europe, it feels like a personal insult (1-Strongly Disagree; 5- Strongly Agree); Self-*Identity:* Do you see yourself as (5 point scale, from "1-British only" "2- Mostly British but also European", 3- Neither", "4- Mostly European but also British" to "5-European only"). Cols 2-5 shows the effects on each component of the index separately. Finally, Cols 6-8 further unpacks the effects on specific responses to the `self-identity' question, pooling "Only" and "Mostly" European and British responses for clarity. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table A17: EU Belief Treatment Effects by Identity (Extensive Controls)

	Prosperity		Loss Culture		Waste Money		Bureaucracy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Full Sample								
Pooled Treatment	0.045***		-0.036*		-0.018		-0.025	
	(0.017)		(0.020)		(0.019)		(0.020)	
EU Complementary Assets		0.041*		-0.030		-0.018		-0.021
		(0.023)		(0.026)		(0.026)		(0.027)
UK Pooled Assets		0.044**		-0.030		-0.014		-0.056**
		(0.019)		(0.022)		(0.021)		(0.022)
US Pooled Assets		0.050**		-0.049**		-0.025		0.029
		(0.021)		(0.024)		(0.024)		(0.025)
p-value (one-sided)	0.004		0.038		0.174		0.113	
Control Mean	0.172	0.172	0.413	0.413	0.466	0.466	0.561	0.561
Observations	2333	2333	2333	2333	2333	2333	2333	2333
Panel B: European Identity Above Median								
Pooled Treatment	0.083**		-0.017		-0.012		-0.075**	
	(0.035)		(0.025)		(0.027)		(0.034)	
EU Complementary Assets		0.090*		0.004		-0.002		-0.077*
		(0.048)		(0.031)		(0.036)		(0.046)
UK Pooled Assets		0.070*		-0.004		-0.014		-0.087**
		(0.037)		(0.027)		(0.029)		(0.037)
US Pooled Assets		0.108**		-0.060*		-0.016		-0.049
		(0.044)		(0.031)		(0.035)		(0.041)
p-value (one-sided)	0.009		0.254		0.328		0.013	
Control Mean	0.326	0.326	0.160	0.160	0.210	0.210	0.398	0.398
Observations	1033	1033	1033	1033	1033	1033	1033	1033
Panel C: European Identity Median and Below								
Pooled Treatment	0.030*		-0.058*		-0.028		0.008	
	(0.017)		(0.031)		(0.028)		(0.025)	
EU Complementary Assets		0.013		-0.065		-0.034		0.032
		(0.022)		(0.043)		(0.038)		(0.035)
UK Pooled Assets		0.036*		-0.059*		-0.019		-0.037
		(0.019)		(0.034)		(0.030)		(0.028)
US Pooled Assets		0.028		-0.051		-0.039		0.073**
		(0.021)		(0.038)		(0.035)		(0.031)
p-value (one-sided)	0.041		0.032		0.161		0.625	
Control Mean	0.057	0.057	0.599	0.599	0.656	0.656	0.680	0.680
Observations	1288	1288	1288	1288	1288	1288	1288	1288
Controls	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive	Extensive

Table A18: EU Belief Treatment Effects by Identity (LASSO controls)

	Prosperity		Loss Culture		Waste Money		Bureaucracy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Full Sample								
Pooled Treatment	0.046***		-0.020		-0.017		-0.025	
	(0.018)		(0.022)		(0.021)		(0.024)	
EU Complementary Assets		0.039		-0.007		-0.009		0.015
		(0.024)		(0.029)		(0.028)		(0.031)
UK Pooled Assets		0.044**		-0.021		-0.017		-0.062**
		(0.020)		(0.024)		(0.023)		(0.026)
US Pooled Assets		0.053**		-0.026		-0.021		0.014
		(0.022)		(0.026)		(0.026)		(0.029)
p-value (one-sided)	0.005		0.189		0.212		0.149	
Control Mean	0.172	0.172	0.413	0.413	0.466	0.466	0.561	0.561
Observations	2333	2333	2333	2333	2333	2333	2333	2333
Panel B: European Identity Above Median								
Pooled Treatment	0.064*		0.001		-0.018		-0.062*	
	(0.036)		(0.028)		(0.028)		(0.038)	
EU Complementary Assets		0.066		0.009		-0.015		-0.046
		(0.048)		(0.035)		(0.036)		(0.048)
UK Pooled Assets		0.052		0.015		-0.016		-0.077*
		(0.038)		(0.029)		(0.030)		(0.040)
US Pooled Assets		0.086*		-0.031		-0.023		-0.045
		(0.044)		(0.032)		(0.034)		(0.045)
p-value (one-sided)	0.037		0.516		0.261		0.048	
Control Mean	0.326	0.326	0.160	0.160	0.210	0.210	0.398	0.398
Observations	1033	1033	1033	1033	1033	1033	1033	1033
Panel C: European Identity Median and Below								
Pooled Treatment	0.031*		-0.033		-0.020		0.011	
	(0.016)		(0.032)		(0.030)		(0.032)	
EU Complementary Assets		0.017		-0.019		-0.014		0.071*
		(0.021)		(0.043)		(0.040)		(0.041)
UK Pooled Assets		0.037**		-0.045		-0.021		-0.040
		(0.018)		(0.036)		(0.033)		(0.035)
US Pooled Assets		0.030		-0.022		-0.021		0.062*
		(0.020)		(0.040)		(0.037)		(0.038)
p-value (one-sided)	0.025		0.154		0.258		0.642	
Control Mean	0.057	0.057	0.599	0.599	0.656	0.656	0.680	0.680
Observations	1288	1288	1288	1288	1288	1288	1288	1288
Controls	LASSO	LASSO	LASSO	LASSO	LASSO	LASSO	LASSO	LASSO

Table A19: ITT Effect on Willingness to Take Risks

	Intent to Treat			Treatment on the Treated	
	(1)	(2)	(3)	(4)	(5)
	Full	Full	Outside London	Full	Outside London
Pooled Treatment	0.045	0.019	0.058	0.025	0.075
	(0.128)	(0.123)	(0.130)	(0.149)	(0.159)
Observations	2184	2184	1991	2184	1991
R-squared	0.232	0.356	0.359	0.171	0.170
Control Mean	4.849	4.849	4.849	4.706	4.706
SD	2.578	2.578	2.578	2.542	2.542
Strata FE	✓	✓	✓	✓	✓
Pre-Treat Brexit Intention	✓	✓	✓	✓	✓
Extensive Controls		✓	✓	✓	✓
p-value (one-sided)	0.362	0.438	0.329	0.434	0.318

This table shows ITT treatment effect estimates on the willingness to take risk. This is a discrete variable with support in $\{0, 1, ..., 10\}$, where 10 means very willing to take risks and 0 means not at all willing to take risks.

Table A20: Heterogeneity by Willingness to Take Risks

	Intent to Treat			Treatment on the Treated	
	(1)	(2)	(3)	(4)	(5)
	Full	Full	Outside London	Full	Outside London
Pooled Treatment	0.041	0.019	-0.005	0.029	-0.003
	(0.065)	(0.065)	(0.065)	(0.084)	(0.083)
Treatment × Willingness to Take Risks	-0.001	0.006	0.015	0.006	0.019
	(0.013)	(0.013)	(0.013)	(0.016)	(0.016)
Observations	2184	2184	1991	2184	1991
R-squared	0.670	0.708	0.714	0.198	0.199
Control Mean	-0.190	-0.190	-0.190	-0.187	-0.187
SD	0.949	0.949	0.949	0.944	0.944
Strata FE	✓	✓	✓	✓	✓
Pre-Treat Brexit Intention	✓	✓	✓	✓	✓
Extensive Controls		✓	✓	✓	✓
p-value (one-sided)	0.265	0.387	0.470	0.366	0.484

This table shows treatment effect estimates on the Remain Index, with an interaction with pre-treatment willingness to take risks. Willingness to take risks is a discrete variable with support in $\{0, 1, ..., 10\}$, where 10 means very willing to take risks and 0 means not at all willing to take risks.

Table A21: Bounds: Effect on Remain Index- imputing pre-treatment intentions to attritted units

	Intent to Treat			Treatment on Treated	
	(1)	(2)	(3)	(4)	(5)
Panel A: Remain Index [-1, 0, +1]					
Pooled Treatment	0.027	0.039	0.058**	0.054	0.080**
	(0.027)	(0.028)	(0.029)	(0.036)	(0.037)
Control Mean	-0.134	-0.134	-0.134	-0.134	-0.134
Control SD	0.954	0.954	0.954	0.954	0.954
p-value (one-sided)	0.156	0.078	0.022	0.068	0.016
q-value	0.185	0.085	0.023	0.073	0.017
Panel B: Remain [0/1]					
Pooled Treatment	0.018	0.023	0.035**	0.032	0.049**
	(0.015)	(0.015)	(0.016)	(0.020)	(0.020)
Control Mean	0.397	0.397	0.397	0.397	0.397
Control SD	0.489	0.489	0.489	0.489	0.489
p-value (one-sided)	0.114	0.065	0.012	0.055	0.009
q-value	0.129	0.070	0.013	0.059	0.009
Panel C: Leave [0/1]					
Pooled Treatment	-0.009	-0.016	-0.023	-0.023	-0.031
	(0.015)	(0.015)	(0.016)	(0.020)	(0.020)
Control Mean	0.531	0.531	0.531	0.531	0.531
Control SD	0.499	0.499	0.499	0.499	0.499
Observations	2533	2533	2303	2533	2303
p-value (one-sided)	0.263	0.138	0.074	0.126	0.063
q-value	0.358	0.161	0.081	0.144	0.068
Strata FE	✓	✓	✓	✓	✓
Pre-treat Brexit Intention	✓	✓	✓	✓	✓
Extensive Controls		✓	✓	✓	✓
Sample	Full	Full	Outside London	Full	Outside London

Table A22: Fantasy Treatment Effects

Estimation	OLS									
Sample	Full									
	Baseline	Age	Patient	Labour '15	A-Levels	European ID	Degree	Inc>2.5K	Cons '15	Female
Remain Index [-1: Leave, 0: Abstain, +1: Remain]										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fantasy	0.043	0.011	-0.034	0.055	0.069	0.041	0.038	0.001	0.018	-0.008
	(0.038)	(0.137)	(0.061)	(0.045)	(0.047)	(0.037)	(0.044)	(0.041)	(0.045)	(0.048)
Fantasy x Covariate		0.001	0.143*	-0.036	-0.102	-0.016	0.019	0.252**	0.089	0.109
		(0.003)	(0.077)	(0.085)	(0.080)	(0.023)	(0.088)	(0.107)	(0.085)	(0.078)
Observations	2,333	2,333	2,333	2,333	2,333	2,332	2,333	2,333	2,333	2,333
R-squared	0.705	0.705	0.705	0.705	0.705	0.705	0.705	0.706	0.705	0.705
Control Mean	-0.148	-0.148	-0.148	-0.148	-0.148	-0.148	-0.148	-0.148	-0.148	-0.148
SD	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958	0.958
Strata FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Figure A1: **European Identity vs Brexit Voting Intentions: Partial Residual Plots**. This figure plots the residuals of the pre-treatment Remain Vote Intention Index [-1: Leave, 0:No Idea, +1: Remain], and separately by Intent to Vote Remain or Leave [0/1] against the residuals of the European Identity Index, controlling for the demographics in Table A1. Note that pre-treatment Brexit voting intentions show a strong correlation with cultural identity, even controlling for demographics, but there remains substantial variation at each level of cultural identity.

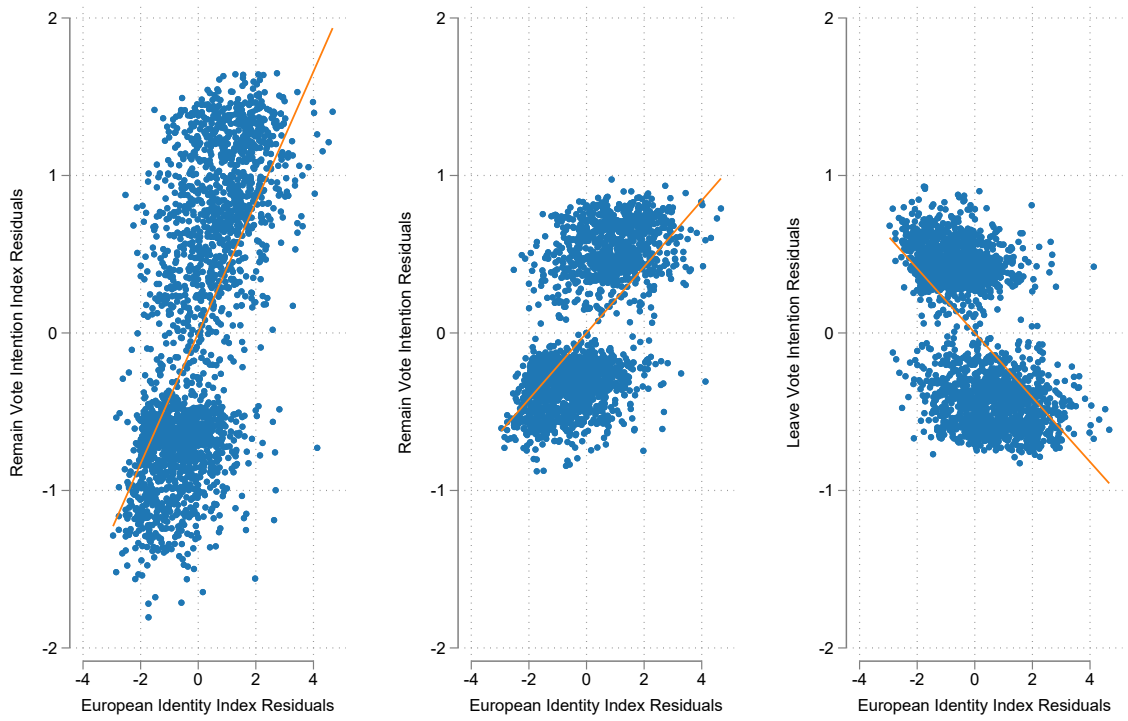
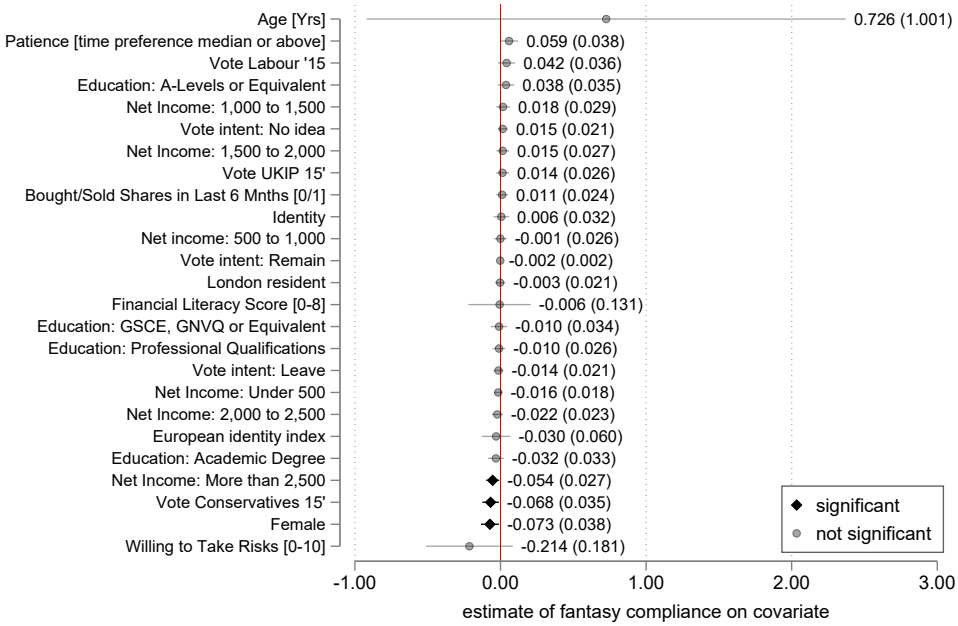
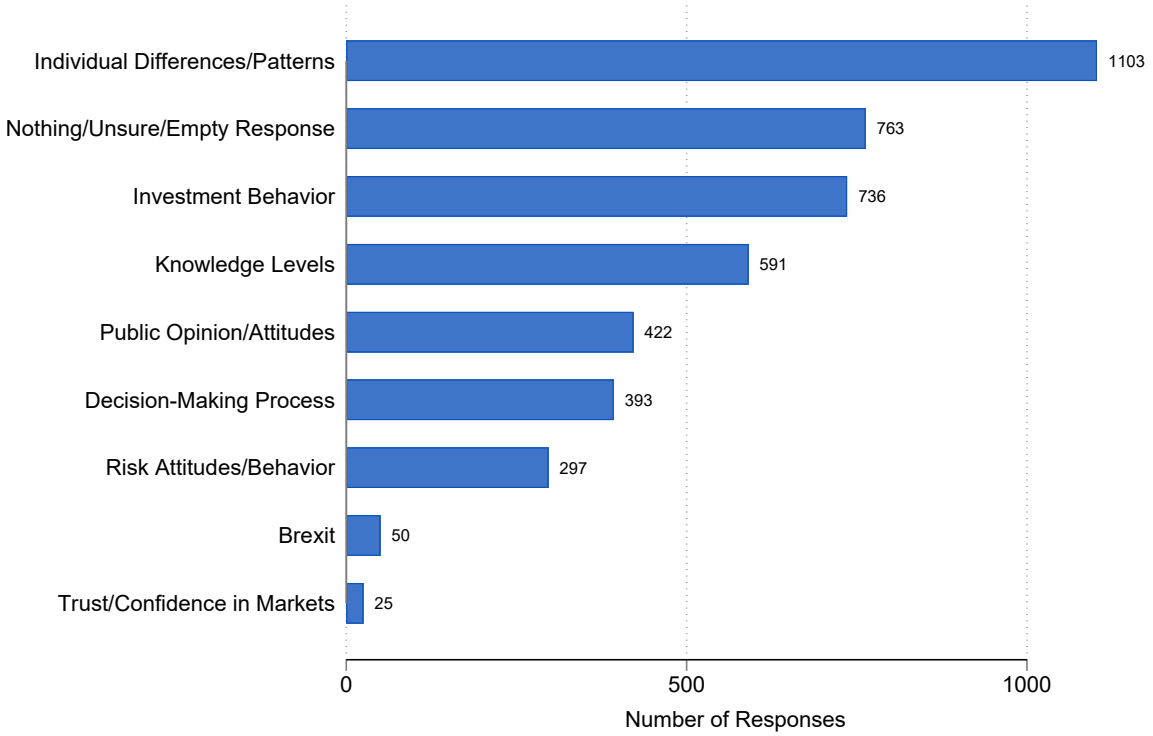


Figure A2: Correlation between Fantasy Compliance and Covariates



This figure shows estimates of the association between Fantasy treatment compliance and pre-treatment covariates. Estimates are from regressing each individual covariate on and indicator for Fantasy treatment compliance and stratification block fixed effects. Lines represent 90% confidence intervals. Numbers next to confidence intervals are estimates and numbers in parentheses are standard errors.

Figure A3: "What can the researchers learn from the study?"



This figure shows the frequency of thematic categories in participants' open-ended survey responses at study conclusion to the question "What can researchers learn from this study?" (N=2,132 non-empty responses). Categories were constructed using keyword-based classification with pre-defined keyword sets (e.g., "Risk Awareness" includes "risk," "gamble," "careful", "Brexit" captures "Brexit," "referendum," "voted leave/remain"). Of these mentions, only 2 that could be construed as a causal claim in the direction of the hypothesis, 19 make the reverse claim (the effects of Brexit on financial decisions). Categories are non-exclusive. Responses can belong to multiple categories if they contain keywords from different thematic domains. The "Nothing/Unsure/Empty Response" category includes blank responses or phrases indicating no substantive content (e.g., "nothing," "not sure," "N/A").

A Appendix: Formal Mediation Analyses

In order to assess the mechanism through which the treatment effect acts on the Remain Index, we can supplement the simple attenuation approach with two formal mediation frameworks: those of Kwon and Roth (2026) and Imai et al. (2010b).

A.1 Kwon and Roth 2026

The Kwon and Roth (2026) framework allows us to test the "sharp null" hypothesis of whether the entire treatment effect works through the proposed mechanism, in our focal case - a change in the belief that the EU means economic prosperity. Further, it also provides lower bounds on the fraction of individuals whose outcome is affected by the treatment despite having the same value of the mediator under both treatments, and allows us to test for violations of monotonicity – e.g. that there are more who believe that EU means prosperity in the untreated group versus the treated group. We can also calculate the "complier share", which shows the first stage effect of the treatment on the proposed mediator (see also the first-stage F-statistics in Figure A4, which shows that the treatment is most relevant for shifting economic prosperity among all the beliefs about the EU, F=7.1).

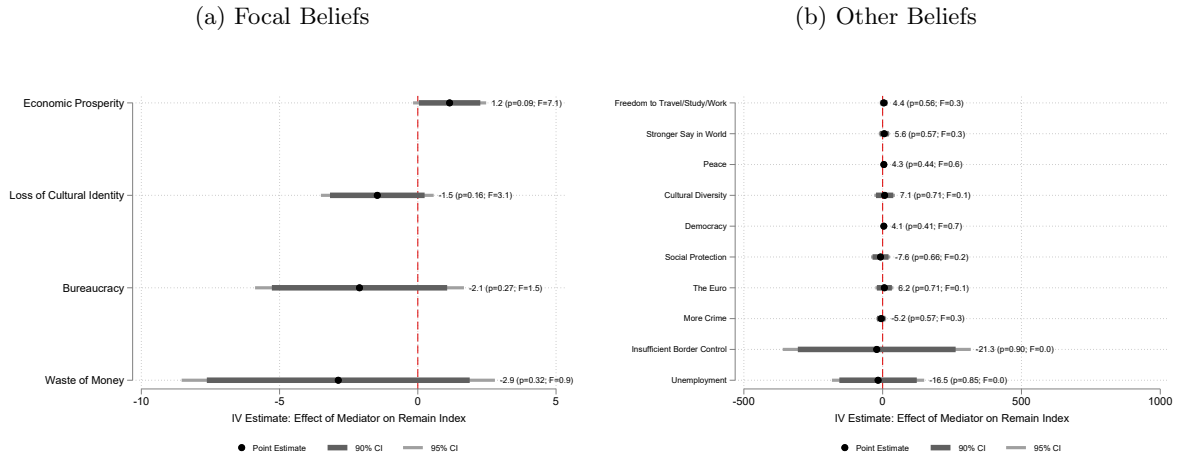
Table A23: Kwon-Roth mediation - Remain Index - Sharp Null tests

	Max	Lower Bound on ν_k		Aggregate	Complier	Permutation	
Mediator	Violation	$\hat{\nu}_0$	$\hat{\nu}_1$	$\bar{\nu}$ LB	Share	p-value	N
Economic Prosperity	0.0000	0.000	0.000	0.000	0.061	1.000	2333
Loss of Cultural Identity	0.0209	0.017	0.036	0.028	0.039	0.455	2333
Waste of Money	0.0110	0.006	0.021	0.014	0.034	0.746	2333
Bureaucracy	0.0184	0.000	0.042	0.019	0.042	0.577	2333

Economic Prosperity: As the Table reveals, the largest violation implied by the sharp null and monotonicity assumptions ($Y \in \{-1, 0, 1\} \times M \in \{0, 1\}$) is precisely 0.000 (i.e., there is no violation for this mediator). Additionally, 6.1% were shifted from $M = 0$ to $M = 1$ because of the treatment—i.e., these are the compliers who came to believe that the EU means economic prosperity due to treatment. Lastly, because the observed largest deviation from the inequalities is exactly 0, we cannot reject the sharp null hypothesis that the treatment effect operates *entirely* through shifting people's beliefs towards believing that the European Union means economic prosperity (with p-value 1.00).

Loss of Cultural Identity: For comparison, we also report a similar exercise for the next strongest potential candidate- the reduction in beliefs that the EU implies at loss of cultural identity. The largest violation of the inequalities implied by the sharp null and monotonicity is 0.0209. The lower bound for the share of never-takers (relative to the mediator) whose outcome is affected by treatment is 1.7%, while the analogous figure for always-takers (also relative to the mediator) is 3.6%. Thus, 3.9% were shifted in their belief about cultural identity threat because of the treatment. In this case, we again cannot reject the sharp null that the treatment effect operates entirely through making people less prone to believing that the EU means loss of our cultural identity, though the p-value is considerably lower (at 0.455).

Figure A4: Kwon-Roth Mediation: IV Estimates



This figure shows 2SLS estimates of a proposed mediator on the remain index, instrumenting by the pooled treatment. Each specification includes the extensive set of controls.

A.2 Imai, Keele and Yamamoto 2010

In Table A24 we report the results of the causal mediation analysis using the framework of Imai et al. (2010b,a).[39] For each candidate mediator, we decompose the total treatment effect on the Remain Index into the Natural Indirect Effect (NIE), which captures the portion of the treatment effect transmitted through the mediator, and the Natural Direct Effect (NDE), which captures the residual effect operating through all other channels.

Note that the belief that EU means Economic Prosperity is the only mediator with a strongly statistically significant indirect effect (NIE = 0.018, $p < 0.01$), accounting for approximately 35.2% of the total effect. That is, the treatment causally shifts beliefs about the EU meaning economic prosperity, and this belief shift in turn causally increases support for Remain. Again, the second strongest candidate is the loss of cultural identity, which has an NIE=0.010, and can explain 19.2% of the total effect. The remaining mediators exhibit small and statistically insignificant indirect effects, with proportion mediated estimates ranging from 0.5% (Unemployment) to 15.0% (Waste of Money). Notably, for Social Protection and The Euro, the indirect effects are slightly negative, yielding undefined proportion mediated estimates — indicating that these mediators, if anything, work in the opposite direction to the total effect.

The Imai et al. decompositions reinforce the finding from the Kwon-Roth sharp null tests: Economic Prosperity is the strongest EU belief channel through which financial asset exposure shifts support for Remain, followed by a reduced belief in the EU implying a loss of Cultural Identity. However, it is worth noting that the direct effects are nevertheless consistently positive (ranging from 0.034 to 0.057), suggesting that the treatment effect also operates through channels other than any of these single mediators in isolation.

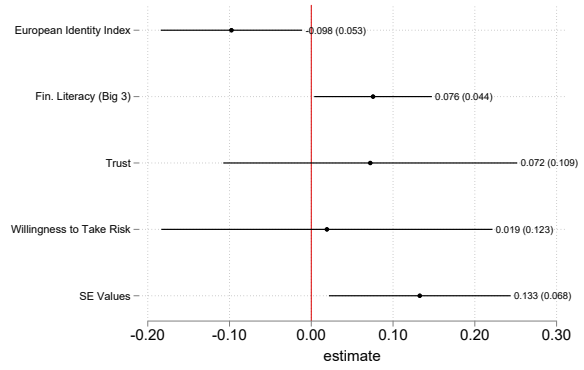
[39]Note, that the assumptions needed for this decomposition are stronger (requiring: that the linear model is correctly specified, sequential ignorability: that the treatment assignment is independent of potential outcomes and potential mediator values, conditional on pre-treatment covariates, independence: that the mediator is independent of the potential outcomes, conditional on treatment status and pre-treatment covariates and SUTVA.)

Table A24: Formal Mediation: Imai, et al. 2010

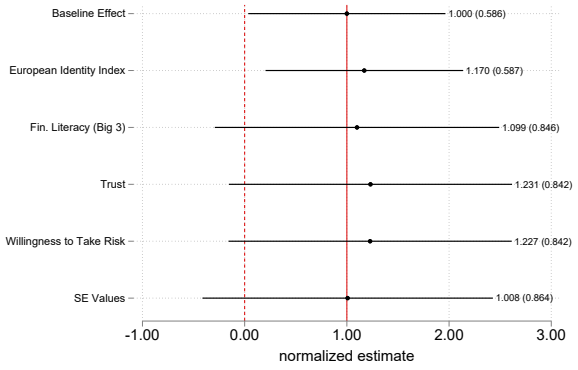
	Indirect Effect (NIE)		Direct Effect (NDE)		Proportion	
Mediator	Coef.	(SE)	Coef.	(SE)	Mediated	N
Economic Prosperity	0.018***	(0.007)	0.034	(0.028)	0.352	2333
Freedom to Travel/Study/Work	0.004	(0.006)	0.051*	(0.029)	0.065	2333
Stronger Say in World	0.005	(0.008)	0.048*	(0.028)	0.086	2333
Peace	0.004	(0.005)	0.049*	(0.028)	0.067	2333
Cultural Diversity	0.001	(0.003)	0.053*	(0.029)	0.018	2333
Democracy	0.002	(0.002)	0.051*	(0.029)	0.035	2333
Social Protection	-0.002	(0.004)	0.057**	(0.029)	.	2333
The Euro	-0.001	(0.003)	0.053*	(0.029)	.	2333
Loss of Cultural Identity	0.010*	(0.006)	0.043	(0.029)	0.192	2333
More Crime	0.002	(0.003)	0.051*	(0.029)	0.034	2333
Insufficient Border Control	0.001	(0.006)	0.052*	(0.029)	0.013	2333
Unemployment	0.000	(0.001)	0.052*	(0.029)	0.005	2333
Bureaucracy	0.006	(0.005)	0.048*	(0.029)	0.109	2333
Waste of Money	0.008	(0.008)	0.045	(0.028)	0.150	2333

Figure A5: Alternative Mechanisms

(a) ITT on Alternative Mechanisms

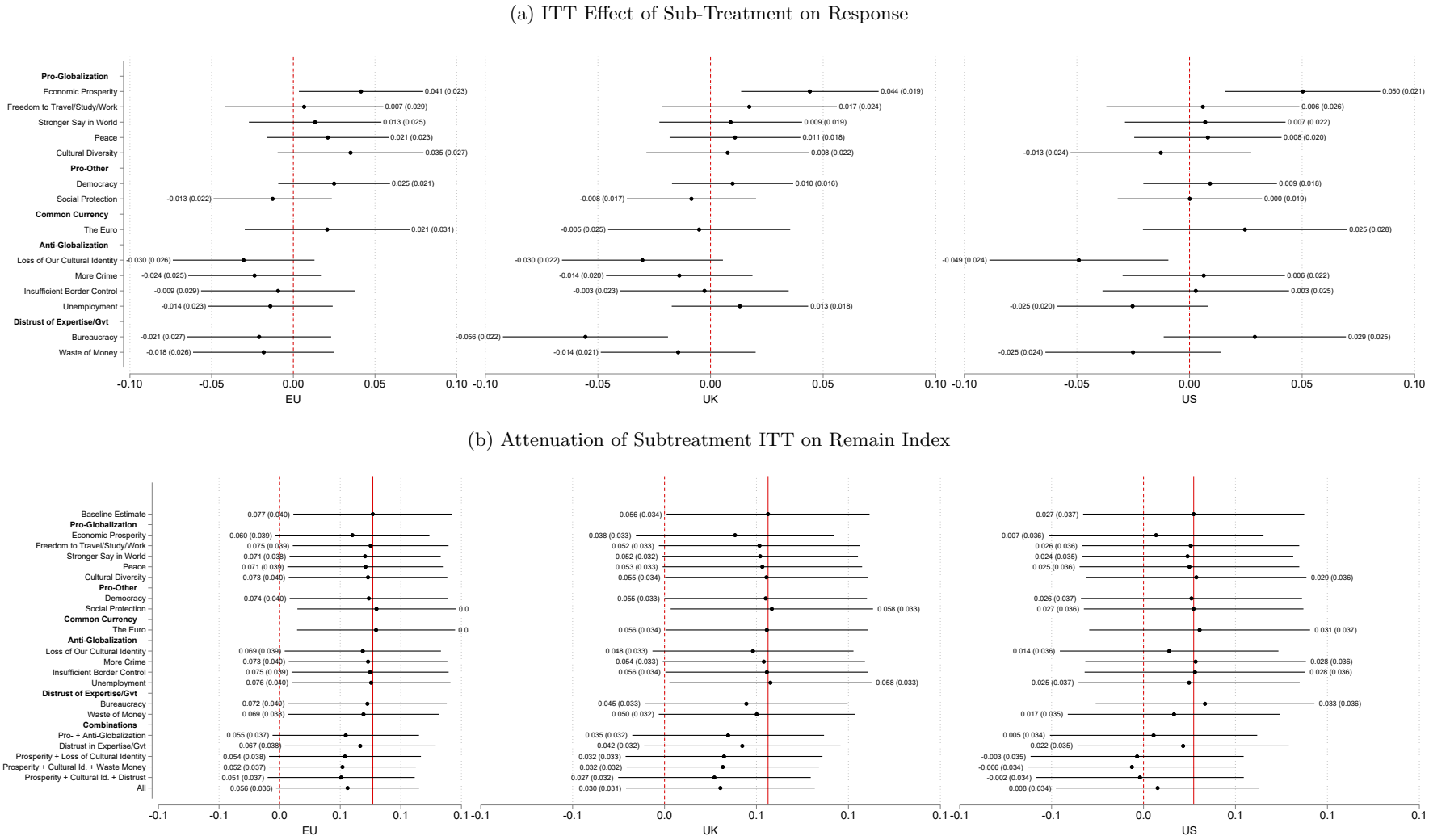


(b) Attenuation of Remain Index ITT by Alternatives



This figure shows Intent to Treat effects of the pooled treatments on potential mediators in Panel (a) and Intent to Treat Effects of the pooled treatment on the Remain Index after controlling for a potential mediator in Panel (b). In Panel (b) we standardize the coefficients by the baseline (i.e. without controlling for mediators) ITT estimate. Horizontal lines represent 90% confidence intervals. Numbers next to the confidence intervals denote the treatment effect left after controlling for the mediator, in percentage terms relative to the baseline.

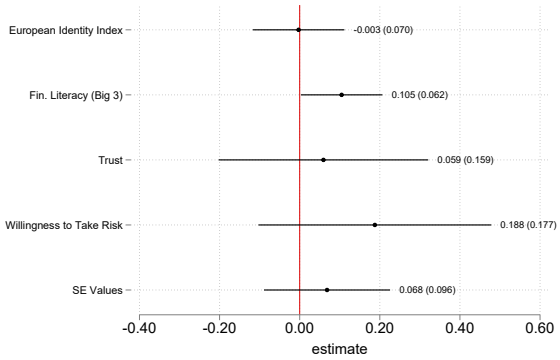
Figure A6: Mechanism- What does European Union mean to you? By Sub-Treatments



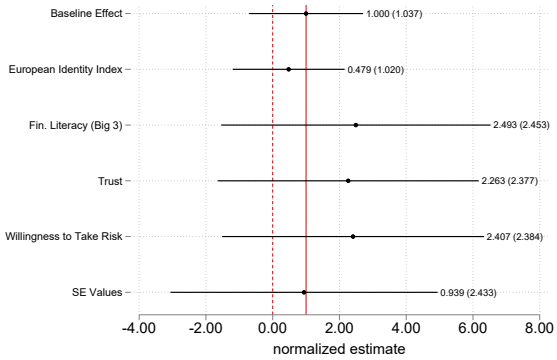
This figure shows Intent to Treat effects of each of the subtreatments on potential mediators in Panel (a) and Intent to Treat Effects of each of the subtreatments on the Remain Index after controlling for a potential mediator in Panel (b). Horizontal lines represent 90% confidence intervals. Numbers next to the confidence intervals denote the treatment effect after controlling for the mediator.

Figure A7: Alternative Mechanisms - by European Identity Index

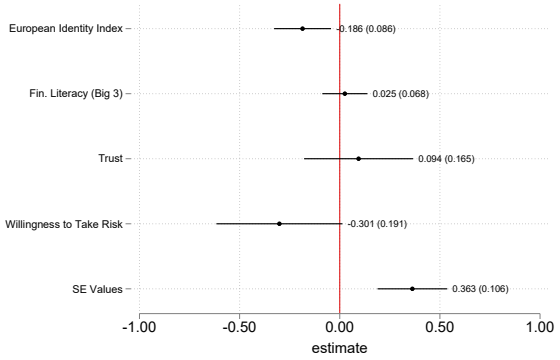
(a) European Identity Median and Below - ITT Effects



(b) European Identity Median and Below - Attenuation



(c) European Identity Above Median - ITT Effects



(d) European Identity Above Median - Attenuation

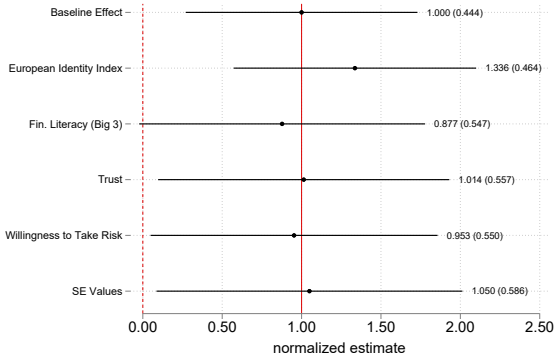
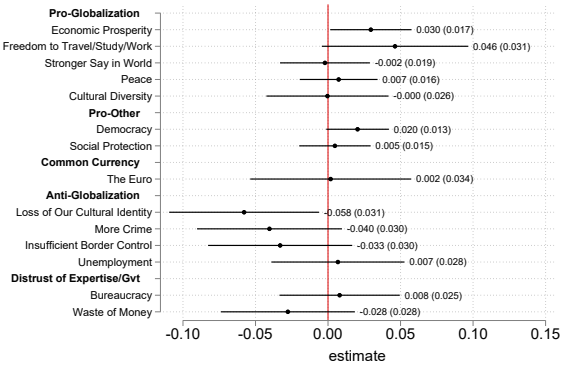
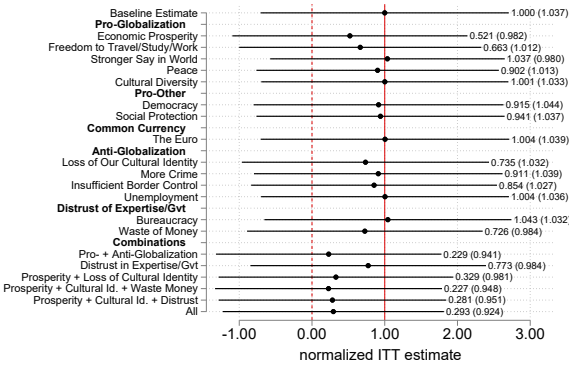


Figure A8: Responses and ITT Attenuation - What does European Union mean to you? By Ex Ante European Identity

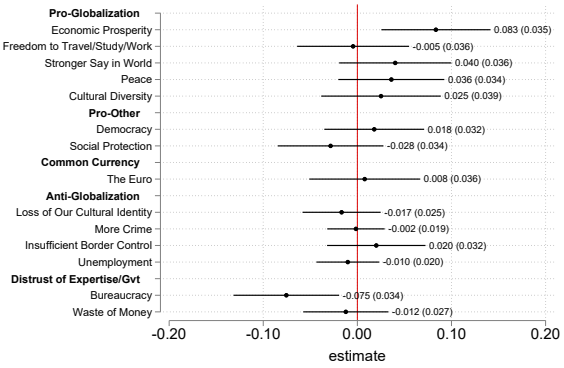
(a) European Identity Median and Below - Effect on Response



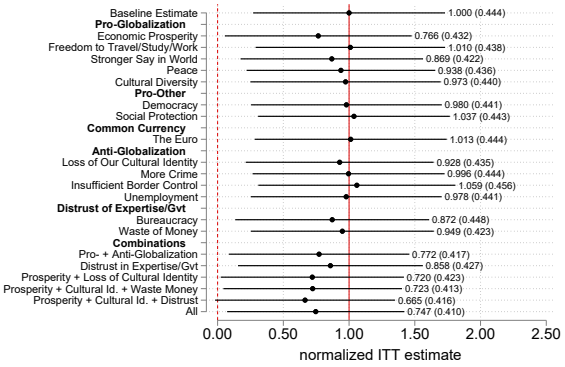
(b) European Identity Median and Below - Attenuation



(c) European Identity Above Median - Effect on Response



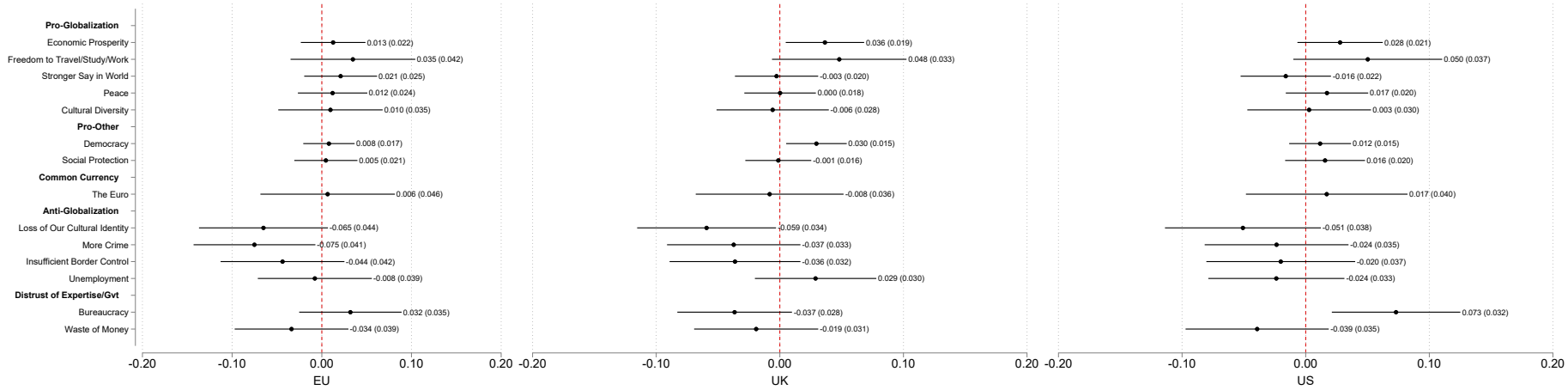
(d) European Identity Above Median - Attenuation



This figure shows Intent to Treat effects of the pooled treatments on potential mediators in Panel (a) and Intent to Treat Effects of the pooled treatment on the Remain Index after controlling for a potential mediator in Panel (b). In Panel (b) we standardize the coefficients by the baseline (i.e. without controlling for mediators) ITT estimate. Horizontal lines represent 90% confidence intervals. Numbers next to confidence intervals are estimates and numbers in parentheses are standard errors.

Figure A9: What does European Union mean to you? Effects By Subtreatment and Ex Ante Identity

(a) European Identity Median and Below - ITT Effect on Response



(b) European Identity Median and Above - ITT Effect on Response

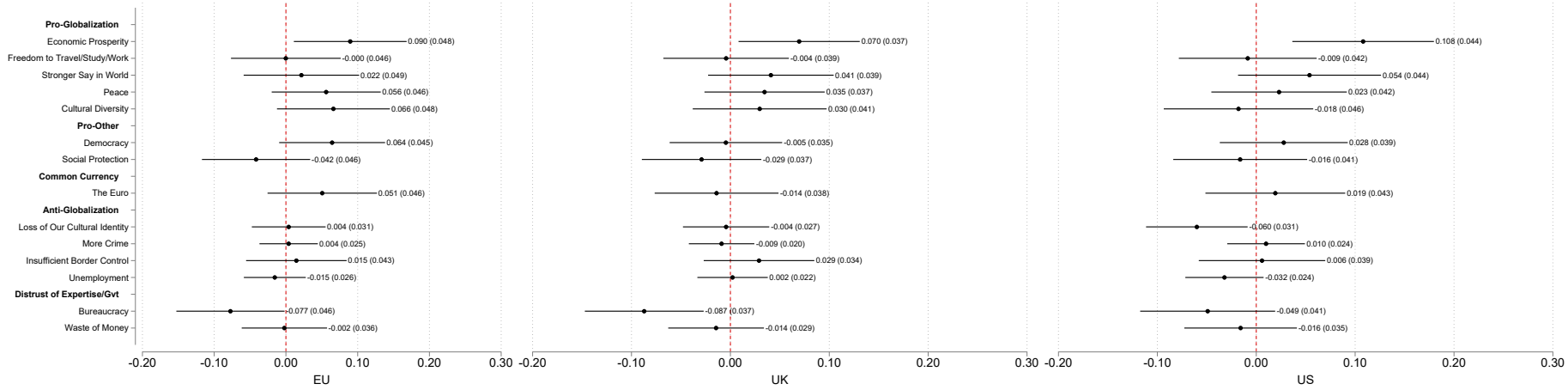
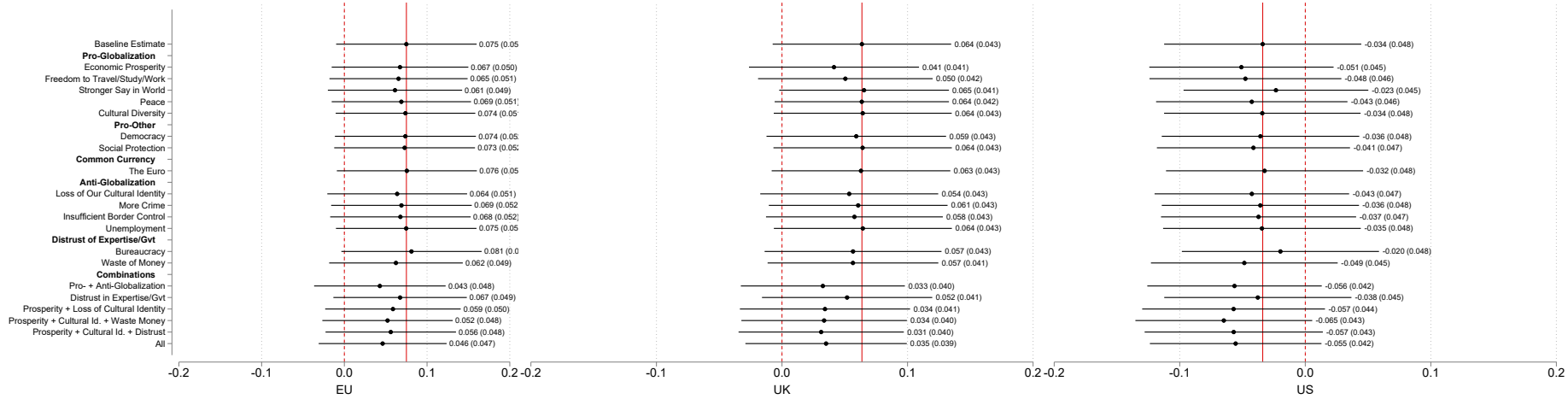


Figure A10: What does European Union mean to you? Attenuation of Remain Index ITT Effect by Subtreatment and Ex Ante Identity

(a) European Identity Median and Below - Attenuation



(b) Above Median European Identity - Attenuation

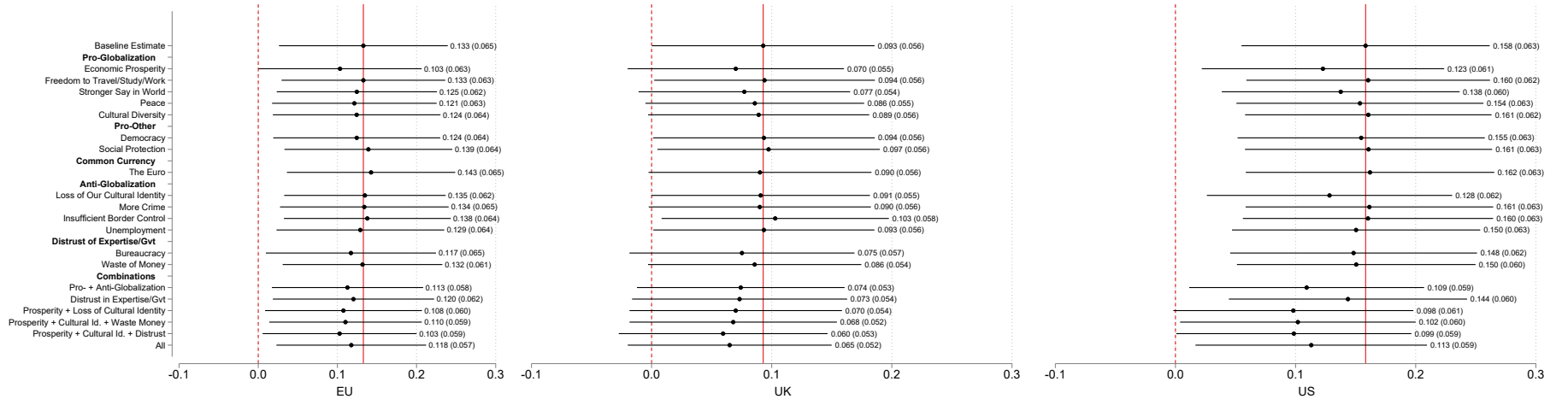
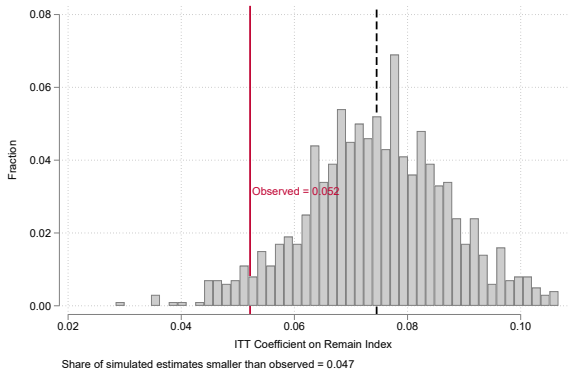
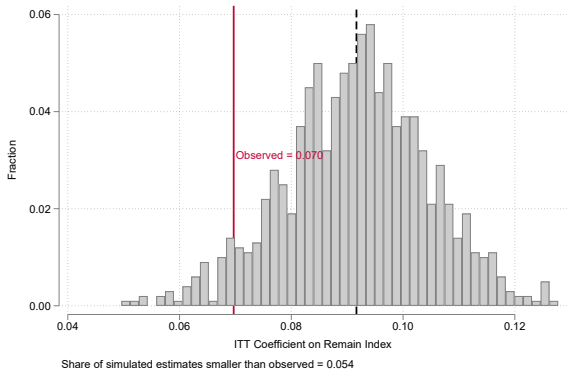


Figure A11: Imputation of attritted respondents

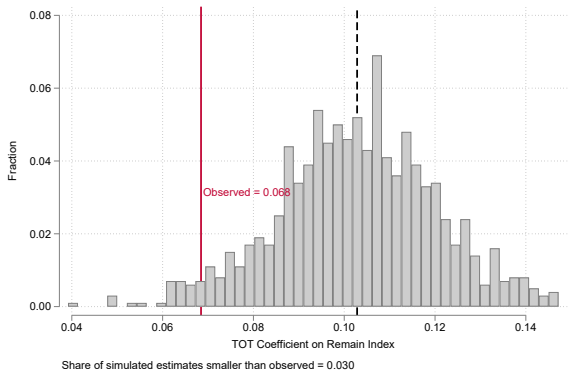
(a) Full Sample - ITT



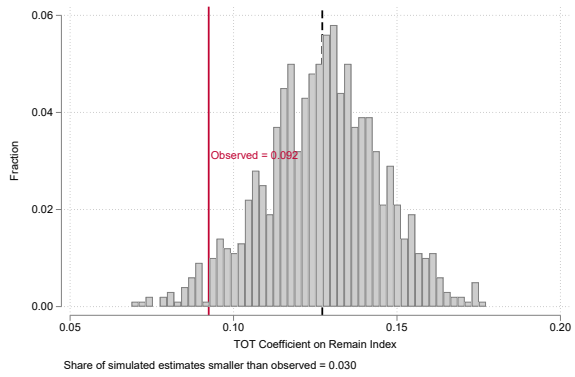
(b) Outside London - ITT



(c) Full Sample - TOT



(d) Outside London - TOT



Note: Given that 57.1 % of the control group did move towards leave (see Table 2), this Figure presents the results of an exercise where we randomly assign an additional set of the attritted to Leave to match that proportion a thousand times, with the rest assigned to their initial voting intent, and then estimate the treatment coefficients on the Remain Index. As the Figure shows, the resultant imputed effects are stronger than our observed estimates without imputation (in red) in 95% of the simulations, and on average are substantially stronger.