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Mitigating Life Challenges to Subjective Well-being through Civic Engagement: Insights from a Global Perspective

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Abstract

This paper investigates the role of civic engagement, an important form of social capital from the supply side, in buffering the adverse effects of challenging life circumstances in three key domains—employment, marriage, and health—on individual subjective well-being, specifically in terms of overall life evaluations. Our findings reveal that the negative association between divorce, separation, or widowhood and overall life evaluations can be mitigated through active associational memberships (of both the Putnam and Olson types), and three forms of civic engagement in broader network structures (i.e., donating money, volunteering, and helping strangers). In situations of poor health, however, only Olson-type memberships, donating money, volunteering, and helping strangers are found to mitigate the negative association with overall life evaluations. Furthermore, the negative association between unemployment and overall life evaluations is alleviated only by Putnam-type memberships. We also explore heterogeneity in the extent of such mitigation across individual characteristics (e.g., gender and age) and country-level factors (e.g., level of development and region). Finally, we find that the most commonly studied measure of social capital, namely, social trust, does not serve as a significant mediator in any of the relationships examined. Our analysis utilizes data from waves 3, 5, 6, and 7 of the *World Values Survey* and the *Gallup World Poll* conducted between 2009 and 2021.

Keywords: Subjective Well-being; Life Satisfaction; Social Capital; Civic Engagement; Challenging Life Conditions
JEL classification: I31; Z13; A13; J64; J12; I10

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1. Introduction

Over the last few decades, a large literature has emerged on how adverse conditions and life challenges, such as unemployment or poor health, can reduce individual or societal level subjective well-being (SWB) (e.g., Clark and Oswald, 1994; Frey and Stutzer, 2010; Deaton and Schreyer, 2021). There has also been a growing literature on how social capital can exert positive effects (e.g., Helliwell and Putnam, 2004; Sarracino, 2013). While, most of this research has focused primarily on only one demand-side constituent component of social capital, namely trust[1] (Fortin, 2008; Helliwell and Wang, 2010; Helliwell and Huang, 2011), there have been only a limited number of studies on social capital from the supply side (Helliwell and Putnam, 2004; Bjørnskov, 2006). Moreover, relatively few studies have tried to examine how social capital can mitigate the negative influence of challenging conditions on well-being, and most of these have also concentrated primarily on trust (Kahn, 2005; Aldrich, 2011 and 2012; Helliwell et al., 2017).

Even though investigations into the effects of trust can be useful in helping to understand people's well-being, trust is by itself intangible, and is often considered to be generated and maintained by one or more civic engagement activities (Putnam, 2000). Civic engagement, i.e., referred to as "actions and behaviors that can be seen as contributing positively to the collective life of a community or society, or of their civic networks", has been less frequently and comprehensively examined, perhaps because of the limited availability of data (Scrivens and Smith, 2013). Yet, since civic engagement has been discussed as a driver of both trust and cooperative norms in societies, a careful investigation of its role in people's SWB should be, not only a matter of academic interest, but also one of importance to policy makers (Putnam, 2000).

This study aims at investigating the direct effects of different forms of civic engagement on SWB and, more importantly, their indirect effects by offsetting various challenging conditions in life. To that end, we make use of relevant data from two important sources of information on civic engagement across countries and over time, namely the *World Values Survey* (*WVS*) and the *Gallup World Poll* (*GWP*), each containing a rich set of measures on different forms of civic engagement. Specifically, we examine the effects of civic engagement of the following different types: joining associations of different types, donating money, volunteering, and helping strangers.

[1] The demand side of social capital is defined as the orientations people need for collective life in pluralistic societies while the supply side of social capital includes the opportunities people have to encounter the experiences necessary to cultivate the capacities for collective life in pluralistic societies (de Vries et al., 2024).

The three challenging life conditions under study include (a) unemployment, (b) separation, divorce, or widowhood, and (c) poor health.

The findings indicate that all forms of civic engagement studied are significantly positively associated with an individual's overall life evaluation, as measured by both overall life satisfaction and the Cantril ladder. Active memberships are also shown to be capable of mitigating the negative impacts of the three challenging life conditions, although their effectiveness in this respect varies considerably between Putnam-type and Olson-type memberships. Specifically, the negative association between unemployment and life satisfaction can only be partially alleviated by Putnam-type memberships, which emphasize the common good. Conversely, Olson-type memberships, characterized by preferential distribution and self-serving objectives, only partially mitigate the adverse effects of poor health. Fortunately, the negative association between divorce, separation, or widowhood and life satisfaction can be fully moderated by both Putnam- and Olson-type memberships. So too, broader forms of civic engagement, such as donating money, volunteering, and helping strangers, can fully mitigate the negative association between divorce, separation, or widowhood and the Cantril ladder, though they only partially alleviate the Cantril ladder's negative association with poor health. However, none of these types of civic engagement can effectively mitigate the negative association between unemployment and the Cantril ladder.

In general, this study contributes to the scarce literature on how the more commonly investigated forms of social capital can help people protect their well-being when they face life challenges. A more specific contribution, however, is its exploration of the role of several specific measures of civic engagement made possible by drawing on data from the two aforementioned large-scale cross-national datasets *WVS* and *GWP*. Still another contribution is to examine the effects of these different forms of civic engagement on each of three important life domains, namely, unemployment, marriage problems, and poor health. The findings of this study should be able to provide valuable insights for policymakers throughout the world in crafting initiatives or policies aimed at assisting individuals in confronting challenging life circumstances.

The remainder of the paper is organized as follows. Section 2 provides a review of relevant literature. Section 3 discusses the theoretical background. Section 4 describes the data and the measures constructed and presents the estimation model. Section 5 presents the empirical results. Finally, Section 6 presents further discussions of the results and our conclusions.

2. Literature Review

As indicated above, two streams in the literature relevant to this paper have been growing rather impressively, namely, one relating various negative life events to SWB,[2] and another relating various kinds of social capital to SWB. Yet, a third stream, one that would mesh the two, i.e., SWB, evaluating the extent to which social capital can offset the negative effects of unfortunate life events on remains quite underdeveloped. For this reason, extending this third stream of analysis is the major objective of this paper. Since some background on relevant literature from the first two themes is essential to an appropriate extension to the third stream, our literature review pertains to all three streams of the literature.

2.1 Negative Life Events and Subjective Well-being

It is well known that there are several individual characteristics and circumstances that are very likely to lower SWB or related phenomena in virtually any given country and time period. Among the most common are being unemployed (e.g., Clark and Oswald 1994; Winkelmann and Winkelmann 1998), being divorced, separated or widowed (e.g., Blanchflower and Oswald, 2004; Frey and Stutzer, 2010), and suffering from poor health (Steptoe et al., 2015; Case and Deaton, 2015; Deaton and Schreyer, 2021)[3]. There have been discussions about whether these events can have a lasting influence on individuals' well-being. For example, some research has found the SWB of the unemployed remains at lower levels even after they get reemployed (Clark et al., 2008; Clark and Georgellis, 2013; Lucas et al., 2004; Winkelmann and Winkelmann, 1998). Similarly, studies have shown that adaptation to poor health in the form of disability has often been slow and incomplete (e.g., Lucas, 2007a; Anusic et al., 2014). So, too, some have argued that individuals who have gone through divorce or being widowed report what appear to be permanent negative changes in life satisfaction following the event (Lucas et al. 2003; Lucas 2005; Lucas 2007b; Anusic et al. 2014). On the other hand, some others have shown that the adaptation to divorce or widowhood to be relatively rapid and complete (Clark et al. 2008; Clark and Georgellis 2013;

[2] Throughout this paper we consider SWB to be captured by life evaluations.

[3] Despite an enormous number of studies examining the determinants and effect of life challenges in the form of poor health which affect people at such different ages, including several different attempts to undertake mega studies comparing them (including Alvarez et al., 2017; Coll-Planaz et al., 2017; Ehsan et al., 2019; McPherson et al., 2014), there are still major gaps in the analysis attributable to the many different kinds of health adversities and the inability to relate them to both well-being, on the one hand, and offsets through social capital or civic engagement, on the other.

Gardner and Oswald 2006). The observed discrepancies may be attributed, at least in part, to variations in empirical methodologies[4] and the datasets employed across these studies.

An additional source of concern in evaluating the effects of such life challenges on SWB that has been raised in the literature is the possible endogeneity of these negative life events in that they may be related to, or even strictly determined by, the individual's personality traits, on the one hand, or inappropriate behavior, on the other. However, the endogeneity problem cannot be easily resolved without proper experimental design or exogenous shocks coming from sources such as government policy interventions. As a result, we acknowledge potential endogeneity in the research reported here and thus suggest that the results reported in the paper should not be interpreted as causal, but only as associational.

2.2 Social Capital and Subjective Well-being

There has been a growing literature on the consequences of social capital in various fields of social science. Research with an economics perspective has focused on the role of different forms of social capital in explaining different economic outcomes, e.g., differences in income levels or more commonly differences in economic growth rates across time (Fukuyama, 1995; Knack and Keefer, 1997; Zak and Knack, 2001). Narayan and Pritchett (1999), in particular, demonstrated, in an individual country context, that social capital was both "capital," in the sense that it tended to raise income, and "social" in the sense that it depended on factors lying outside of individual households and firms. A few studies have examined the associations between economic growth and social capital of three distinct forms: social trust, social norms and associational activity. In particular, Knack and Keefer (1997) used data from a sample of 29 market economies from the first two waves of the *World Values Survey*, and showed that social trust and social norms were positively associated with economic performance, even though associational activity (i.e., group memberships) was not. On the other hand, Beugelsdijk and van Schaik (2005), focusing on 54 European regions, showed that economic growth is positively associated with social capital in the form of *active* group memberships, but not with either *passive* group memberships or social trust. A few studies have found more support for positive effects on economic performance and

[4] Lucas et al. (2003), Lucas (2005), Lucas (2007a), and Anusic et al. (2014) use hierarchical linear modelling techniques, while Clark et al. (2008), Clark and Georgellis (2013), and Gardner and Oswald (2006) use fixed-effects analysis. Hierarchical linear models require the strong assumption that the unobservables should be uncorrelated with all the observables. However, fixed-effects models allow some associations between unobservables with observables by controlling for the effects of time-invariant variables.

social trust of group memberships of the Putnam et al. (1994) variety in which the associations "instill in their members habits of cooperation, solidarity, and public spiritedness" but little if any such support for group memberships of the more distributional Olson (1982) type (Knack, 2003).[5]

The largest number of studies examining the relationships between social capital and SWB have focused on the dimension of trust. Some of these have pointed to the relative importance of different types of trust in determining SWB. For example, Helliwell and Huang (2011) and Fortin (2008) showed that trust in management (at one's work) can be more important to life satisfaction than household income; and Helliwell et al. (2009) found that trust in family or friends has a significant effect on life satisfaction of individuals worldwide. Many others have used a measure of "social or generalized" trust, represented by a positive answer to the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" Helliwell and Wang (2010) showed social trust to be highly correlated with life satisfaction, even when using each of several different datasets.

A few studies relating SWB to social capital have gone beyond trust to investigate the association between SWB and various forms of civic engagement, which can have the effect of cultivating trust and cooperative norms within societies. Using large samples of data from waves 1-3 of the *World Values Survey* and the 2000 US Benchmark Survey, Helliwell and Putnam (2004) conducted large individual-level analyses showing overall associational membership to be positively associated with SWB. However, when using waves 2-4 of the *World Values Survey* for only middle- and high- income countries, Bjørnskov (2006) found associational memberships to be negatively associated with life satisfaction at the country level. Yet, in going beyond overall associational memberships, Helliwell and Wang (2010) showed that other forms of civic engagement, in particular, donating money and helping strangers, were positively associated with the Cantril Ladder life evaluation based on 2006 data from the *Gallup World Poll*. Similarly, Borgonovi (2008), using data from the USA, showed that voluntary work leads to greater self-reported happiness. Also, using UK data from European Social Survey, Kroll (2011) found civic engagement, represented by an index of the respondents' involvement in work for voluntary or charitable organizations, as well as the frequency of help or attendance in activities in the local area, was *not* associated with life satisfaction of mothers, even though they were *positively*

[5] Smulders and Beugelsdijk (2003) showed that not all types of social capital are good for growth, especially not those based on strengthening very small, closed, groups (instead of broad open networks).

associated with life satisfaction of childless women and men. Using the large-scale British Household Panel Survey (BHPS), Binder and Freytag (2013) found that the impact of volunteering on SWB is positive, especially for the less happy groups, a finding that suggests that role of volunteering could be protective, partially offsetting the life challenges that may have made the respondents less happy. As to the magnitude of the effects, Okulicz-Kozaryn and Morawski (2021) found that the effect on SWB of volunteering can be comparable to the effect of pensions for older adults in Europe.

2.3 The Ability of Social Capital to Offset the Negative Effects of Life Challenges on Subjective Well-being

A common source of stimulating the development of this third, but still somewhat underdeveloped, stream of relevant literature has been occasions when there have been large scale incidences of health or survival shocks. Indeed, a number of studies have investigated the ability of social capital to mitigate the effects of challenging conditions in the form of natural disasters and other community-level shocks. For example, Kahn (2005) showed that the death tolls from natural disasters were lower in those countries where their pre-disaster trust scores were higher. Aldrich (2011 and 2012) showed the same thing based on differences between different regions within countries (India and Japan, respectively). In a similar vein, Helliwell et al. (2014) showed that countries with stronger trust emerged from the global financial crisis with smaller reductions in well-being than did countries with lower trust scores. Helliwell et al. (2017) showed that social trust makes people more resilient in the face of adversities in the forms of discrimination, ill-health, or unemployment.

While much of the analysis surrounding the moderating effect of social capital has been focused on trust, there have recently been increasing efforts to more directly investigate the potential role of civic engagement, such as through associational memberships and prosocial behaviors, in affecting an individual's well-being in the face of various life challenges. Winkelmann (2009), using data from the German Socio-Economic Panel 1984–2004, found that associational activities, including attending cultural or entertainment events, engaging in active sports, voluntary work in political or social organizations, and attending church services, did not moderate the effect of unemployment on life satisfaction. On the other hand, Raposa et al. (2015), using data from daily smartphone assessments completed by a small sample of young American

adults, found that prosocial behaviors, such as asking others if they need help, can buffer the effects of stressful life events across various life domains on positive and negative affect and overall mental health. Also, Vella et al (2023), using survey data from a small sample of young Americans soon after the outbreak of COVID-19, found that mental health problems were much lower when group memberships were maintained, and interpersonal connectedness was the mechanism for mediating the relationship between group membership continuity and mental health problems.

3. Theoretical Background

There has been considerable discussion on the role of social capital in sociology and political science. For example, Coleman (1990) defined social capital as "a variety of different entities…that are consistent with some aspect of social structure" and that "facilitate certain actions of individuals who are within the structure". Even though this idea has been criticized for being too vague, Coleman's view of social capital has been influential, in particular in the work of Robert Putnam. Putnam (1994) referred social capital to norms of reciprocity, trust and networks of civic engagement that are organized horizontally. Civic engagement, referring to actions and behaviors that can be seen as contributing positively to the collective life of a community or society, as well as to the characteristics of these civic networks themselves, lies at the heart of Putnam's view of social capital. In the social capital literature, many types of civic engagement have been discussed, for instance, associational membership, volunteering, political participation, and donating money. Civic engagement can, not only improve individual well-being directly, but can also influence it indirectly through various channels, for instance, by using their interactions to foster trust, by bringing people together to achieve a common goal, or by generating tolerance and reciprocity and other even broader forms of cooperation, including "bridging" to people in other social groups (Putnam 2000, Scrivens and Smith, 2013). As shown in Figure 1, we argue that civic engagement can influence people's SWB both directly and indirectly through mitigating the negative influences of challenging life conditions on SWB.

While some studies have shown that civic engagement is directly linked to people's well-being, our study focuses on the *indirect* effects captured by the vertical arrow in Figure 1. There are several potential mechanisms whereby these indirect effects could be realized. First, civic engagement can improve trust and cooperative norms both among people within civic networks

and among those of different backgrounds (Putnam, 2000; Newton and Norris, 2000). This can also be accomplished by the contact hypothesis, which argues that interactions between members of different groups can reduce prejudice and conflict (Allport et al., 1954). The lowered transaction costs and the rise in mutual help, resulting from improved trust and cooperative norms, can potentially help those in challenging life conditions and improve their well-being (Coleman, 1990). Second, civic engagement also enables people to strengthen and extend their social networks, consequently bringing an increase in the resources available to the individual in terms of social support and information. As suggested by the buffer model provided by Cohen and Will (1985), social support may intervene both between the stressful event and the stress reaction by attenuating or preventing the stress appraisal response; and between the experience of stress and the onset of the adverse well-being outcomes, by reducing or eliminating the stress reaction or directly influencing the physiological process. Therefore, the improvement in social resources can be beneficial for people beset by life challenges. Third, civic engagement, such as helping others and charitable giving, can cultivate self-esteem, which can serve as a protective factor against challenging life conditions (Baumeister et al., 1998; Thoits and Hewitt, 2001; Zhang, 2009). Fourth, civic engagement may also encourage civic skills development, which could potentially improve the individual's ability to handle various issues in life (Musick and Wilson, 2003). As a result, individuals may derive benefits in coping with various challenging life conditions from several different mechanisms cultivated through civic engagement.

Besides, the effects of these different forms of civic engagement may also differ because of differences in their different network structures. Some group memberships tend to build small and closed groups, in which it may be easier to encourage closer relationships and generate trust, social norms and mutually beneficial cooperation among members. Yet, other forms of membership, such as Putnam-type memberships, which cultivate "habits of cooperation, solidarity and public spiritedness" and create "a sense of shared responsibility for collective endeavors" in pursuit of the common good, may be especially helpful in dealing with challenges, such as unemployment and separation, divorce, or widowhood, directly affecting one's social networks (Putnam, 1994). On the other hand, memberships of the Olson type, which are more distributional, and encourage the pursuit of more self-serving goals (instead of the common good), may be more beneficial for individuals who need material or instrumental support, as is often the case for people in the challenging condition of poor health (Olson, 1982). On the other hand, civic engagement in

broader networks, such as helping strangers, donating money, and volunteering, may generate still broader norms of cooperation, trust, and reciprocity and cultivate individuals' self-esteem and skills in interactions with others, which may all be beneficial when people are faced with a variety of different challenges in life.

4. Data and Methodology

4.1 Data and Variables

As mentioned above, the primary data used in this study come from two different sources, the *World Values Survey (WVS)* and *Gallup World Poll (GWP)*. The *WVS* is the "largest non-commercial, cross-national, time series investigation of human beliefs and values ever executed" (Inglehart et al. 2014), having conducted nationally representative surveys in nearly 100 countries using a common questionnaire since 1981. For the variables of relevance to this study, we are able to make use of data from individuals in 96 countries in waves 3 (1995-1998), 5 (2005-2009), 6 (2010-2014) and 7 (2015-2022) of the *WVS*. The *GWP* also conducts surveys using randomly selected and nationally representative samples. Starting from 2005, the *GWP* has surveyed adults in more than 160 countries annually, representing more than 99% of the world's population. For the data needed in this study, we are able to make use of the relevant data from the *GWP* on individuals from 157 countries on an annual basis from 2009 to 2021. When comparing the datasets from the two surveys, it is evident that the *GWP* provides much broader coverage, encompassing well over 1.5 million individuals compared to 269,014 in the *WVS*. The differences in coverage are particularly notable for lower-income countries.

4.1.1 Measures of Subjective Well-being (SWB)

SWB is the general expression used to cover a variety of individual self-reports of quality of life for which a number of different measures have been developed (Helliwell et al. 2012). There are, in general, two types of measures of SWB: cognitive life evaluations and emotional reports. The focus of this study is on life evaluations, the measures of which are considered plausible ones for SWB since they are closely related to life circumstances, consistent over a short period of time, and shown to be strongly correlated with both objective and subjective measures of well-being. The measure used for it from the *WVS* is self-reported life satisfaction taken from individual

responses to the question "All things considered, how satisfied are you with your life as a whole these days?" The response scale ranges from 1 to 10, with a higher value indicating a higher level of life satisfaction. On the other hand, the measure of cognitive life evaluations from the *GWP* is the Cantril Ladder taken from individual responses to the following kind of instruction and query: "Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?"

Tables 1 and 2 present the descriptive statistics for all the individual-level variables to be used in the regression analysis, taken from the *WVS* and the *GWP*, respectively. Overall, the respondents in both surveys report average life evaluation scores slightly above the midpoint on their scales, though there is significant variability among individuals. [6]

[Insert Table 1 here]

[Insert Table 2 here]

4.1.2 Measures of Civic Engagement

Our measures of civic engagement draw on information on both within-group and across-group activities. For within-group activities, we reply on measures of associational memberships; for across-group activities, we use measures on donating money, volunteering, and helping strangers. The measures on memberships in different kinds of activities and organizations are taken from the *WVS* and are reflected in dummy variables, 0 for "Don't belong" or "Inactive member" and 1 for "Active member" for each of the following types of membership: (a) church or religious organization, (b) sports or recreational organization, (c) art, music or educational organization, (d) labor union, (e) political party, (f) environmental organization, (g) professional association, and (h) charitable or humanitarian organization. For an overall measure of associational membership, we use the total number of identified active memberships each individual has, as shown in Table 1. Following Knack and Keefer (1997), Knack (2003), and Beugelsdijk and van Schaik (2005), to

[6] The Cantril Ladder has been generally found to consistently produce a lower mean score than life satisfaction by about 0.5 on an 11-point scale (OECD, 2013).

distinguish between the Putnam and Olson types of memberships, we also construct one measure of Putnam type memberships, specifically the number of active memberships among (a), (b), and (c) on the above list, and one measure of Olson-type memberships, the number of active memberships among (d), (e), and (g).[7] On average, the total number of active memberships is less than 1 (i.e., 0.707) but with considerable variation across individuals. The count of three forms of membership of the Putnam type (0.419) is somewhat higher than the count among the three forms of Olson type (0.173).

Our measures of other forms of civic engagement, namely donating money, volunteering, and helping strangers, are drawn from the *GWP* data, with dummy variables for each of these forms of civic engagement constructed from the question "Have you done any of the following in the past month? A. Donated money to a charity; B. Volunteered your time to an organization; C. Helped a stranger or someone you didn't know who needed help". Each of them is captured as a dummy with 0 for "No" and 1 for "Yes". As shown in Table 2, the percentage of people helping strangers is the highest among the three categories, at 50.1%, followed by donating money at 31.4%, and volunteering time at 21.0%.[8]

4.1.3 Measures of Individual Level Life Challenges and Control Variables

As indicated above, with each of the two data sets, we examine the effects on SWB of the same three challenging conditions, i.e., (1) unemployment, (2) divorce, separation, or widowhood, and (3) poor health. The first two are constructed directly as 0, 1 dummy variables from the survey questions on employment status and marital status, respectively. Poor health, however, is defined differently between the two datasets. From the *WVS*, poor health comes from the answers to the question "All in all, how would you describe your state of health these days?" Possible responses are "very good", "good", "fair", "poor", and "very poor". To assure that the measure represents health adversity, it is constructed as a dummy taking value 1 if the individual answers "poor" or "very poor" and 0 otherwise. From the *GWP*, the variable is derived from the question asking "Do you have any health problems that prevent you from doing any of the things people your age normally can do?" It takes value 1 if the individual answers "Yes" and 0 if the individual answers

[7] Although membership in charitable or humanitarian organizations and that in environmental associations might be important, since it is unclear whether such memberships would be more of the Putnam or Olson type, we have not included such memberships in either of the two types though they are included in the total number of memberships.

[8] We did not construct an overall index for the three items together because, when calculating the Cronbach's alpha for internal consistency, we found the value to be quite low, around 0.464.

"No". As shown in the descriptive statistics from the *WVS* in Table 1, about 8.3 percent of the *WVS* sampled individuals are unemployed, whereas from the *GWP* sample as shown in Table 2, the unemployment rate is only about 6.5 percent. The percentages of divorce, separation, or widowhood average approximately 11% and 13% in the two samples, respectively. The percentages of individuals with poor health, however, differ much more between the two samples, 6.5 percent of the respondents in the *WVS* sample but 25 percent in the *GWP*, presumably reflecting both the quite different measures of poor health used in the two surveys and the greater coverage of lower-income countries in the *GWP*.

We also include in the same two tables descriptive statistics on controls for the same relevant characteristics of individuals in the *WVS* and *GWP* analyses. The individual-level controls include age (i.e., dummy variables for age groups 25-34, 35-44, 45-54, and 65+, with those aged 15-24 as a reference group), gender (measured by a dummy variable for female), marital status (a dummy for married, with single and never married as a reference group), and education (i.e., dummy variables for secondary and postsecondary schooling, with below secondary school as a reference group)[9]. The employment status and income controls for the two different data sources, however, are slightly different between the two surveys. For the *WVS*, employment status is measured by dummies for part-time, self-employed, and out of workforce, with full-time employed as the reference group. For the *GWP*, however, the dummies are for part-time employed or self-employed and out of workforce, with full-time employed or self-employed as the reference group. Likewise, for household income, the income measure included in the *WVS* is a self-reported household income according to the question "On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is. Please, specify the appropriate number, counting all wages, salaries, pensions and other incomes that come in." As such, that score ranges from 1 to 10. For the *GWP*, however, a more objective income measure is included: the natural logarithm of household income per capita in international dollars. Finally, we include a measure of religiosity. For the *WVS*, we include the importance of God on a 1-10 scale based on the question "How

[9] The definitions of "secondary education" and "postsecondary education" are slightly different in the *WVS* and the *GWP*. For the *WVS*, "secondary education" is defined as those who completed some secondary education and "postsecondary education" is defined as those who completed some education at the university level or above. For the *GWP*, "secondary education" is defined as those who completed some secondary education up to three years tertiary education, and "postsecondary education" is defined as those who completed at least four years of education beyond high school.

important is God in your life?" For the *GWP*, we include the importance of religion based on the question "Is religion an important part of your daily life?", which takes value 1 for those answering "Yes" and 0 for those answering "No". Besides, we use country fixed effects to control for time-invariant country-level characteristics, and wave or year fixed effects to control for factors changing between waves or years but common to all the countries for a given wave or year.

4.2 Estimation Model

The specification of the principal model employed in the subsequent empirical analysis is:

$$Y_{ijt} = \beta_0 + \beta_1^k CE_{ijt}^k + \beta_2^{kl}\left(CE_{ijt}^k \times Z_{ijt}^l\right) + \beta_3' X_{ijt} + \theta_j + \delta_t + \varepsilon_{ijt} \quad (1)$$

where Y_{ijt} represents a measure of cognitive life evaluations (life satisfaction or Cantril Ladder) of individual i in country j at time t, CE_{ijt}^k represents a measure of civic engagement k, Z_{ijt}^l represents challenging condition l, X_{ijt} is a vector of individual-level characteristics (including the challenging conditions under study), θ_j and δ_t are fixed effects for country and wave/year, respectively, and ε_{ijt} is an error term. The standard errors are clustered at the country-wave or country-year level to allow the correlation of error terms for individuals who live in the same country during the same wave/year. The key coefficient of interest is β_2^{kl}, which represents the indirect (offsetting or alternatively strengthening) effect on SWB of each type of civic engagement on each type of adversity.

5. Results

5.1 Main Results

5.1.1 Evidence from the World Values Survey

In Table 3, we report the results on the association between associational membership and life satisfaction from the *WVS*, as well as the coefficients on the controls. The results in column (1) show that the direct relationships between the count of overall active memberships and life satisfaction are all positive and significant. Those in columns (2) and (3) show that the counts of both Putnam and Olson-type memberships are also positively and significantly directly related to life satisfaction, respectively. The magnitude of those for the Putnam type, however, is about 1.7 times that for the Olson type. When they are both included in the same column as in column (4),

we find that the magnitudes of both direct relationships become smaller and the statistical significance of that for the Olson type is also reduced quite considerably. This may be attributable to the positive correlation between these two measures (correlation coefficient=0.318). In summary, we observe Putnam-type memberships are more strongly directly related to life satisfaction than those of the Olson-type. With respect to life challenges, we find all three of the challenges under study, unemployment, divorce, separation, or widowhood, and poor health, are strongly negatively associated with life satisfaction in all the columns, consistent with the findings from the literature. Notably, however, the effects of poor health are several times as large as those for unemployment and divorce, separation or widowed. The coefficients on the other control variables are all as expected. Consistent with existing literature, the coefficients for the different age group dummies reflect a non-linear (U-shaped) relationship between age and life satisfaction. Females, homemakers, students, individuals with postsecondary education, those with higher household incomes, and those who consider God to be more important all report significantly higher levels of life satisfaction compared to others.

[Insert Table 3 here]

In Table 4, we turn to what, as noted above, is the main focus of the paper, namely, that of the indirect and potentially moderating effects of associational memberships, based on the interaction between the different types of memberships and each type of adversity, again using the *WVS* data as in Table 3. In column (1) of panel A, we show that the count of overall active memberships can at least marginally significantly mitigate the negative association between life satisfaction and unemployment, but also that its magnitude is less than 10 percent of magnitude of the direct negative effect of unemployment. As shown in columns (2) and (3) of the same panel, moreover, it is the Putnam-type memberships, rather than Olson-type ones, that play the significant role in mitigating adversity in the form of unemployment. These results are, in general, consistent, when we put the two together in the same specification as in column (4). In panel B, we focus on divorce, separation or widowhood. The results show that overall active memberships can significantly mitigate the negative association between divorce, separation or widowhood and life satisfaction, as can memberships of both the Putnam and Olson types. The results in column (4)

indicate that, when the effects of both the Putnam- and Olson-type memberships are taken into consideration, they can **fully** offset the negative association between divorce, separation, or widowhood and life satisfaction. In view of the possibility that the moderating effects for divorce or separation could be quite different than those of widowhood, in Appendix Table 1, we investigate the relationships separately for divorce or separation in panel A and for widowhood in panel B. We find that active memberships, especially those of Putnam type, can significantly but only partially mitigate the negative association between divorce or separation and life satisfaction whereas in the case of widowhood, overall active memberships, specifically the combination of Putnam and Olson-type memberships, can significantly and **fully** mitigate its negative association with life satisfaction. In the case of poor health, in panel C of Table 4, we find overall active memberships can at least partially mitigate the negative association between poor health and life satisfaction. In this case, however, the results show that it is the memberships of the Olson type that play a larger and more significant role in offsetting the relation between this form of adversity and life satisfaction even though the direct effects of memberships of the Olson type are in general smaller than those of the Putnam type.

[Insert Table 4 here]

To distinguish more precisely the effects of the different types of memberships, in Appendix Table 2, we examine the effects of each of the eight specific membership types separately. The results show that membership in art, music, or educational organizations is the most helpful type of membership among the eight since it can significantly mitigate the negative effects of all three types of adversity. Membership in political parties appears to be the most beneficial Olson-type membership. We also find that membership in charitable or humanitarian organizations, which does not fit into either the Putnam or Olson categories, can mitigate the negative association between divorce, separation, or widowhood and poor health with life satisfaction. That same Appendix Table 2 also shows that membership in environmental organizations, not characterized as either Putnam or Olson type, can mitigate the negative association between poor health and life satisfaction. Overall, these results in the appendix are consistent with those in Table 4.

5.1.2 Evidence from the Gallup World Poll

We now move on to the results from the *Gallup World Poll* which allow us to use its much larger set of observations and the inclusion of the three other measures of civic engagement (namely, donating money, volunteering time and helping strangers). In columns (1), (2), and (3) of Table 5, we show the results obtained when investigating the direct relationships between each of the three forms of the civic engagement and the Cantril Ladder life evaluation, while controlling for all the other measures listed in the table. First, we find each of these forms of civic engagement is positively and significantly associated with the Cantril Ladder. In column (4), where all three of these measures are included at the same time, the magnitudes of the three coefficients become slightly smaller, attributable to the mild positive correlation among the three. Yet, notably, each of these measures remains highly significant and the ranking among their magnitudes remains the same, with donating money having the largest direct effect, and helping strangers the smallest. Second, it can be seen that each of the three types of adversity in life is negatively associated with the Cantril Ladder, with unemployment and poor health being somewhat more seriously associated with the position on the Cantril Ladder than divorced, separated or widowed. The coefficients on all the remaining control variables in the table are generally consistent with both expectations based on existing literature and the results presented in Table 3 based on data from the *WVS*.

[Insert Table 5 here]

In Table 6, we focus on the potential moderating effects of these three forms of civic engagement on the three different types of adversity, based on the *Gallup World Poll* data. The results in panel A show that, even though each of these forms of civic engagement is directly and positively associated with well-being (measured with respect to the Cantril Ladder life evaluation), none of these three forms of civic engagement is able to mitigate the negative association between unemployment and the Cantril Ladder. Yet, as shown in Panel B for adversity in the form of divorce, separated or widowed, each of the three types of civic engagement is able to significantly mitigate the negative association between this type of adversity and the Cantril Ladder life evaluation even though, as shown in the column (4), the combination of their offsets is only partial. In a further analysis, we also investigate divorce or separation separately from widowhood. As shown in Appendix Table 3, only volunteering is able to even only partially mitigate the negative

association between divorce or separation and the Cantril Ladder, while all three forms of civic engagement can significantly mitigate the negative association between widowhood and the Cantril Ladder. The results also suggest that, when these three forms of civic engagement are combined, they can fully mitigate the negative association between this adversity and the Cantril Ladder. In panel C of Table 6, we find that all these three types of civic engagement can significantly mitigate the negative association between poor health and the Cantril Ladder even though the combination of the three can by no means fully offset the direct negative association between poor health and the Cantril Ladder measure of life satisfaction.[10]

[Insert Table 6 here]

Overall, the results in Table 6 suggest that the negative well-being effect of unemployment cannot be mitigated by any of the three forms of civic engagement whereas the negative effects of both divorce, separation, or widowhood and poor health can be at least partially mitigated by all three types of civic engagement.

5.2 Heterogeneity in the Mitigating Effects

It is also important to explore whether there is heterogeneity in the effectiveness of different forms of civic engagement in mitigating life challenges across groups with varying individual and contextual characteristics. Specifically, we examine how this relationship varies by gender, age, the economic development of the country, and world region. This approach recognizes that men and women may have different attitudes due to social or gender norms, that preferences and attitudes can shift over the life cycle, and that the role of civic engagement may be influenced by societal affluence and cultural factors. By leveraging the richness of the data across countries and time periods, we aim to explore these variations comprehensively. For brevity, we present only the coefficients on the moderating effects from regressions using different subsamples in figures and only a concise discussion on the most telling differences in a few figures.

[10] Alternatively, we replace the current poor health variable with a measure of physical pain, which is based on the responses to the question "Did you experience the following feelings during a lot of the day yesterday? How about physical pain?" in the *GWP*. The results, which are shown in Appendix Table 4, appear to be consistent to those in panel C of Table 6.

For instance, Figure 2 shows that the moderating effect of Putnam-type memberships for unemployment is significant for men, but not for women, and in high-income countries only. Figure 3 shows that the moderating effect of Putnam-type memberships for divorce, separation, or widowhood is significant for those in higher income countries while that of Olson-type memberships is only marginally significant for women. Regarding donating money, volunteering time, and helping strangers, the effects for divorce, separation, or widowhood are only significant for those in higher income countries. Figure 4 shows that the moderating effects of Olson-type memberships for poor health are significant only for men, for those who are older, and for those living in middle-income countries.

From the perspective of culture differences, we investigate the heterogeneity by world region in Appendix Figures 1, 2, and 3. For instance, Appendix Figure 1 shows that the moderating effects of Putnam-type memberships for unemployment are most significant for those living in either East Asia or Southeast Asia. In the case of divorce, separation, or widowhood, it seems that Western Europe is the region where people with this adversity can be helped by all the three types of civic engagement beyond group memberships. In the case of poor health, the moderating effects of Olson-type memberships are more influential in the Commonwealth of Independent States, South Asia, and Middle East and North Africa, while those of volunteering time are more significant in Europe, East Asia, North America, Australia and New Zealand. Besides, those living in East Asia with this adversity can be significantly helped by both Putnam- and Olson-type memberships while those in Central and Eastern Europe in the same situation can significantly benefit from donating money, volunteering time, and helping strangers.

5.3 What About Trust?

As mentioned above, much of the existing literature on social capital has focused on trust, which can be generated and maintained through civic engagement. Therefore, it is relevant to examine whether or not trust can be an important mediator in the relationships we studied. In Table 7, we add the variable social trust[11], as well as its interactions with each of the three forms of adversity, into the models as in Table 4 using the *WVS* data. Overall, we find that the results on active memberships remain robust even after adding social trust and its interaction terms, suggesting that

[11] The dummy on social trust is constructed based on the responses to the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"

memberships can have significant mitigating effects for challenging life conditions regardless of whether or not social trust is included. While we find that social trust can significantly mitigate the association between poor health and life satisfaction, the magnitude of its effect in this case is much smaller than that of memberships of the Olson type, and it exerts no significant mitigation effects in the case of the unemployment or divorce, separation or widowhood adversities.

[Insert Table 7 here]

We also consider it relevant to examine what happens when we introduce trust into the analysis involving the three other types of civic engagement based on use of the *GWP* data. Unfortunately, we only have three years (2009-2011) with information on social trust in the *GWP* data. Consequently, the sample size decreases by more than 90 percent when the variable on social trust is included in the models. Despite this significant reduction in sample size, the results on civic engagement remain generally robust [12] and social trust again does not appear to be a strong mediator. These results are presented in Appendix 5.

6. Conclusions

This study uses data from two of the largest-scale surveys in the world, the *World Values Survey* (WVS) and *Gallup World Poll (GWP*, to investigate the importance of civic engagement—a form of social capital from the supply side—in well-being. Specifically, it focuses on the potential buffering effects of civic engagement on life challenges in three very different domains, namely, employment, marriage, and health. For civic engagement, we examine both associational memberships, which involve within-group activities, and engagement in wider network structures, including donating money, volunteering time, and helping strangers.

We have uncovered several significant findings. Notably, different types of memberships seem to play quite different roles in mitigating the effects of each type of challenging condition in life. Overall, it seems that Putnam-type memberships are more effective in protecting well-being

[12] We found that the less significant results for civic engagement variables are primarily due to the reduced sample size, not the inclusion of the trust variable.

against unemployment and issues such as divorce, separation, or widowhood. In contrast, Olson-type memberships seem to offer better protection against poor health. On the other hand, engagement in different civic activities within broader networks appears to yield similar benefits in the same challenging conditions. Specifically, donating money, volunteering time, and helping strangers can significantly mitigate Cantril ladder's negative association with divorce, separation, or, widowhood as well as poor health. Yet, none of these activities significantly alleviates Cantril ladder's negative association with unemployment. Comparing across the three types of life challenges under study, we find that civic engagement most frequently and strongly helps with adversity in marriage, while it is least effective for unemployment. The findings underscore the importance of promoting diverse forms of civic engagement to buffer against life challenges, particularly in marriage and health.

A significant policy implication is that, in addition to strengthening formal institutions, policymakers should do more to promote civic engagement in societies. The findings on the heterogeneity of mitigating effects suggest that the impact of different types of civic engagement can vary significantly depending on factors such as age, gender, and country income levels. This underscores the importance of identifying the most effective forms of civic engagement for addressing specific life challenges across diverse groups.

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Figures

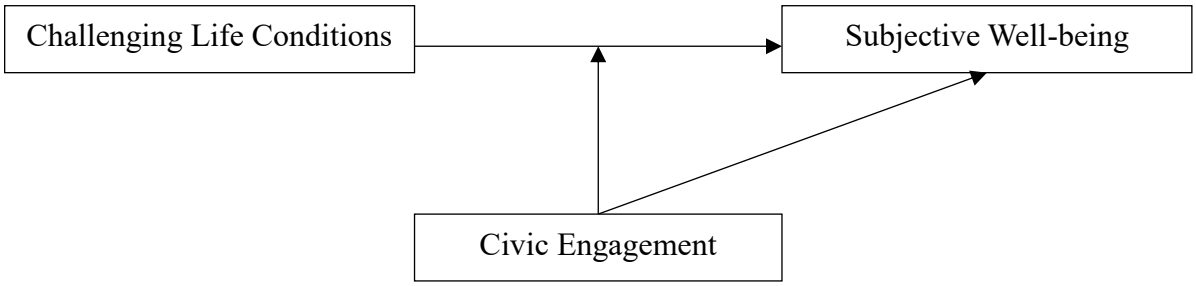


Figure 1. Challenging Conditions, Civic Engagement, and Subjective Well-being

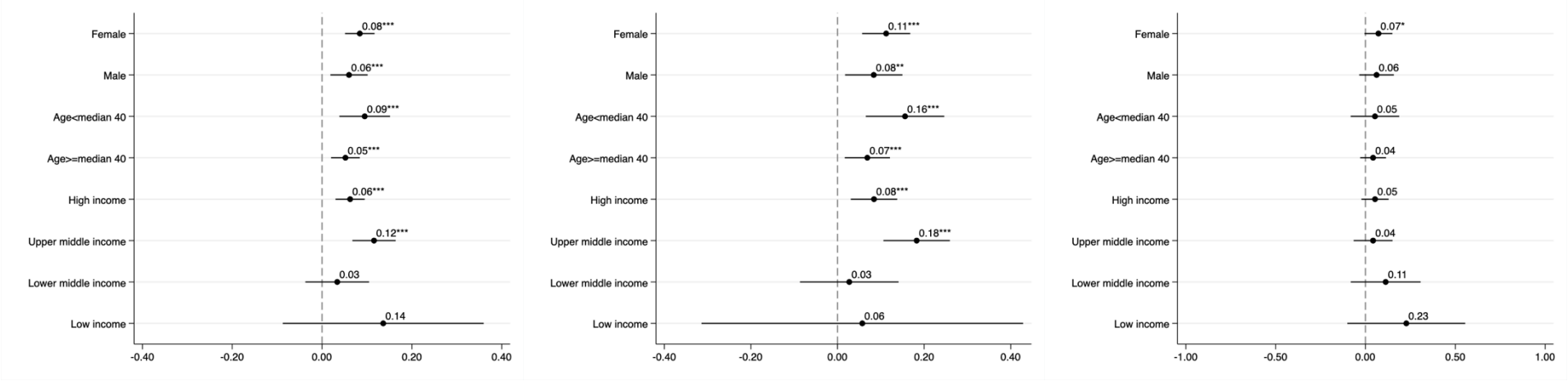
Figure 2. Moderating effects for unemployment: heterogeneous analysis by age, gender, and country's economic development

(a) Overall Memberships (b) Putnam-type Memberships (c) Olson-type Memberships

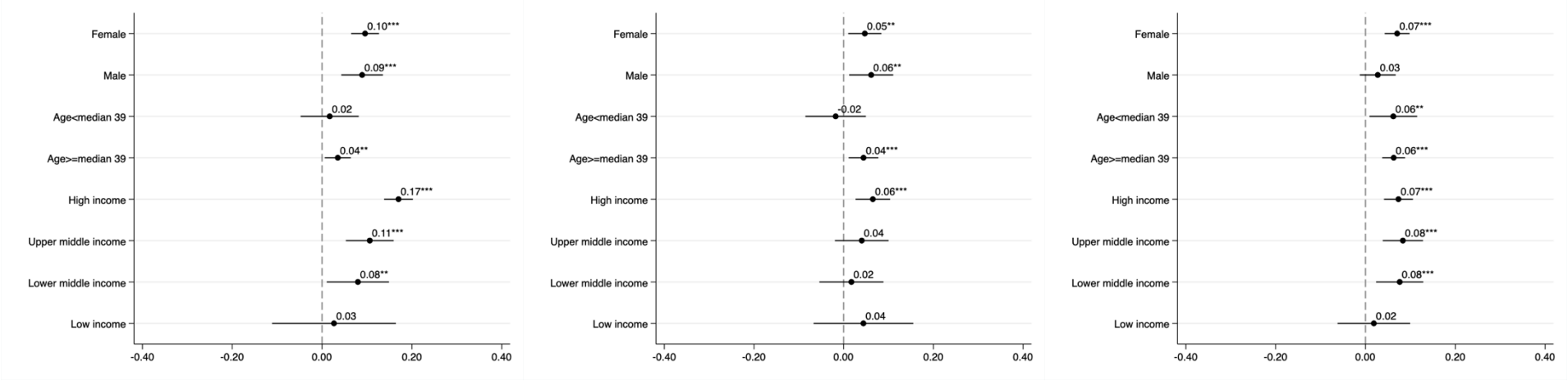
(d) Donating Money (e) Volunteering Time (f) Helping Stranger

Notes: This figure shows the moderating effects of various forms of civic engagement for unemployment across different groups.
The y-axis lists the corresponding groups. In particular, we divide the samples based on gender (male versus female), age (those below the sample median age versus those above that), and country's economic development (high, upper middle, lower middle, and low income according to the classification by World Bank based on 2022 gross national income (GNI) per capita). The x-axis shows the value of the estimated coefficients on the interaction between unemployment and a corresponding form of civic engagement mentioned in the subtitle.
Panel (a) is derived from the regressions with the same specification as column (1) of Panel A in Table 4; Panels (b) and (c) are derived from the regressions with the same specification as columns (4) of Panel A in Table 4; Panels (d)-(f) are derived from the regressions with the same specification as column (4) of Panel A in Table 6. Panels (a)-(c) use data from the World Values Survey; Panels (d)-(f) use data from the Gallup World Poll.
The lines surrounding the point estimates represent the 95% confidence intervals. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Figure 3. Moderating effects for divorce, separation, or widowhood: heterogeneous analysis by age, gender, and country's economic development



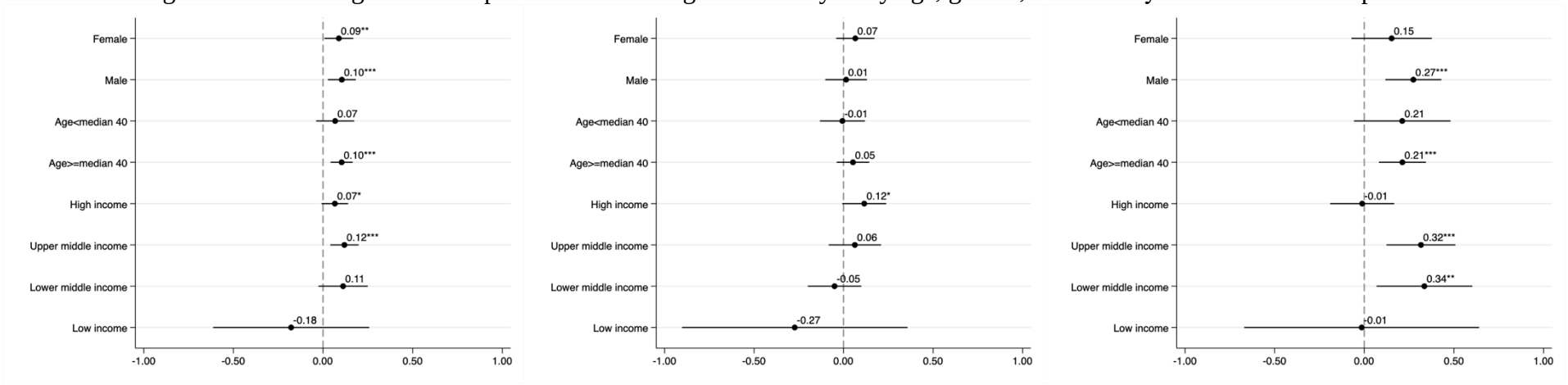
(a) Overall Memberships (b) Putnam-type Memberships (c) Olson-type Memberships



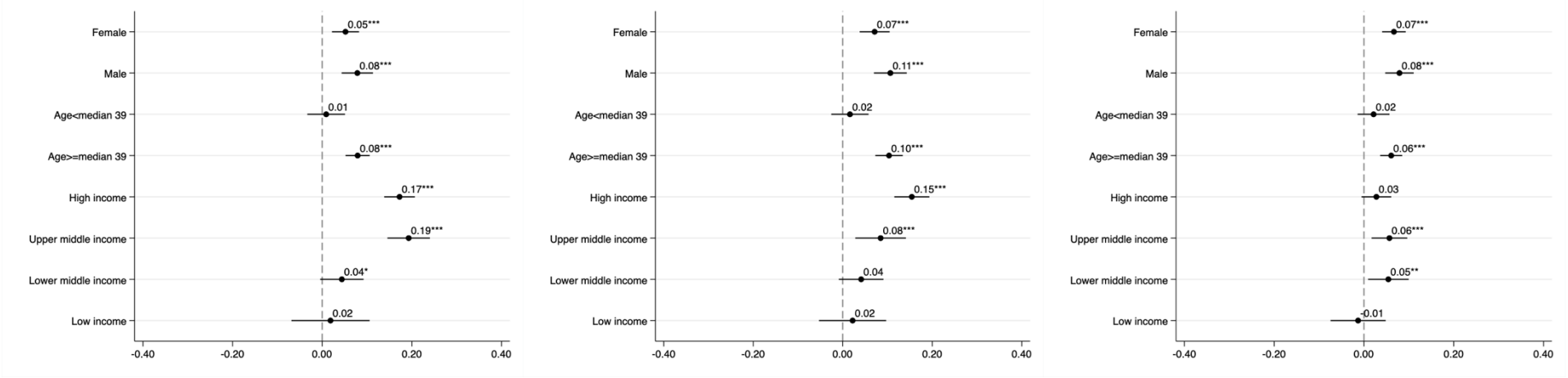
(d) Donating Money (e) Volunteering Time (f) Helping Stranger

Notes: This figure shows the moderating effects of various forms of civic engagement for divorce, separation, or widowhood across different groups.
The y-axis lists the corresponding groups. In particular, we divide the samples based on gender (male versus female), age (those below the sample median age versus those above that), and country's economic development (high, upper middle, lower middle, and low income according to the classification by World Bank based on 2022 gross national income (GNI) per capita). The x-axis shows the value of the estimated coefficients on the interaction between unemployment and a corresponding form of civic engagement mentioned in the subtitle.
Panel (a) is derived from the regressions with the same specification as column (1) of Panel B in Table 4; Panels (b) and (c) are derived from the regressions with the same specification as columns (4) of Panel B in Table 4; Panels (d)-(f) are derived from the regressions with the same specification as column (4) of Panel B in Table 6. Panels (a)-(c) use data from the World Values Survey; Panels (d)-(f) use data from the Gallup World Poll.
The lines surrounding the point estimates represent the 95% confidence intervals. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Figure 4. Moderating effects for poor health: heterogeneous analysis by age, gender, and country's economic development



(a) Overall Memberships (b) Putnam-type Memberships (c) Olson-type Memberships



(d) Donating Money (e) Volunteering Time (f) Helping Stranger

Notes: This figure shows the moderating effects of various forms of civic engagement poor health across different groups.
The y-axis lists the corresponding groups. In particular, we divide the samples based on gender (male versus female), age (those below the sample median age versus those above that), and country's economic development (high, upper middle, lower middle, and low income according to the classification by World Bank based on 2022 gross national income (GNI) per capita). The x-axis shows the value of the estimated coefficients on the interaction between unemployment and a corresponding form of civic engagement mentioned in the subtitle.
Panel (a) is derived from the regressions with the same specification as column (1) of Panel C in Table 4; Panels (b) and (c) are derived from the regressions with the same specification as columns (4) of Panel C in Table 4; Panels (d)-(f) are derived from the regressions with the same specification as column (4) of Panel C in Table 6. Panels (a)-(c) use data from the World Values Survey; Panels (d)-(f) use data from the Gallup World Poll.
The lines surrounding the point estimates represent the 95% confidence intervals. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Tables

Table 1. Descriptive Statistics: pooled over WVS waves 3, 5, 6, 7 of the World Values Survey

	Mean	Standard deviation	Minimum	Maximum
Life satisfaction	6.824	2.322	1	10
Active memberships	0.707	1.181	0	8
Active Putnam-type memberships	0.419	0.698	0	3
Active Olson-type memberships	0.173	0.48	0	3
Reference group: full-time employed				
Unemployed	0.09	0.286	0	1
Part-time employed	0.083	0.276	0	1
Self-employed	0.123	0.328	0	1
Out of workforce	0.343	0.475	0	1
Reference group: single and never married				
Divorced, separated, or widowed	0.119	0.324	0	1
Married or partnered	0.634	0.482	0	1
Poor health	0.065	0.247	0	1
Female	0.517	0.5	0	1
Reference group: age 15-24				
Age 25-34	0.229	0.42	0	1
Age 35-44	0.206	0.404	0	1
Age 45-54	0.166	0.372	0	1
Age 55-64	0.129	0.336	0	1
Age 65+	0.111	0.314	0	1
Reference group: primary education				
Secondary education	0.502	0.5	0	1
Postsecondary education	0.304	0.46	0	1
Self-rated household income	4.778	2.234	1	10
The importance of God	7.478	3.124	1	10

Number of observations: 269,014

Table 2. Descriptive Statistics: pooled over the years 2009-2021 of the Gallup World Poll

	Mean	Standard deviation	Minimum	Maximum
Cantril ladder	5.484	2.406	0	10
Donating money	0.314	0.464	0	1
Volunteering time	0.21	0.407	0	1
Helping strangers	0.501	0.5	0	1
Reference group: full-time employed or self-employed				
Unemployed	0.065	0.247	0	1
Part-time employed or self-employed	0.152	0.359	0	1
Out of workforce	0.372	0.483	0	1
Reference group: single and never married				
Divorced, separated, or widowed	0.134	0.341	0	1
Married or partnered	0.572	0.495	0	1
Poor Health	0.25	0.433	0	1
Female	0.536	0.499	0	1
Reference group: age 15-24				
Age 25-34	0.217	0.412	0	1
Age 35-44	0.181	0.385	0	1
Age 45-54	0.152	0.359	0	1
Age 55-64	0.124	0.329	0	1
Age 65+	0.128	0.334	0	1
Reference group: primary education				
Secondary education	0.515	0.5	0	1
Postsecondary education	0.171	0.377	0	1
Household income per capita	8583.658	185009.753	0	224500000
The importance of religion	0.707	0.455	0	1

Number of observations: 1,576,091

Table 3. Associational Membership and Life Satisfaction (World Values Survey, waves 3, 5, 6, 7)

Dependent variable: Life satisfaction				
	(1)	(2)	(3)	(4)
Active memberships	0.0779***			
	(0.00918)			
Active Putnam-type memberships		0.135***		0.129***
		(0.0136)		(0.0126)
Active Olson-type memberships			0.0800***	0.0309*
			(0.0180)	(0.0169)
Unemployed	-0.373***	-0.379***	-0.377***	-0.376***
	(0.0283)	(0.0282)	(0.0284)	(0.0283)
Divorced, separated, or widowed	-0.123***	-0.120***	-0.126***	-0.120***
	(0.0246)	(0.0246)	(0.0248)	(0.0246)
Poor health	-1.528***	-1.527***	-1.532***	-1.527***
	(0.0393)	(0.0393)	(0.0397)	(0.0392)
Female	0.0582***	0.0571***	0.0554***	0.0581***
	(0.0136)	(0.0136)	(0.0136)	(0.0136)
Age 25-34	-0.213***	-0.208***	-0.220***	-0.209***
	(0.0195)	(0.0196)	(0.0193)	(0.0195)
Age 35-44	-0.335***	-0.328***	-0.342***	-0.329***
	(0.0274)	(0.0274)	(0.0273)	(0.0274)
Age 45-54	-0.353***	-0.343***	-0.358***	-0.345***
	(0.0316)	(0.0315)	(0.0316)	(0.0315)
Age 55-64	-0.243***	-0.231***	-0.247***	-0.234***
	(0.0370)	(0.0371)	(0.0370)	(0.0371)
Age 65+	0.0105	0.0213	0.00821	0.0192
	(0.0441)	(0.0442)	(0.0442)	(0.0442)
Secondary education	0.0413	0.0419	0.0466	0.0415
	(0.0305)	(0.0305)	(0.0309)	(0.0305)
Postsecondary education	0.0863**	0.0916**	0.102***	0.0889**
	(0.0363)	(0.0362)	(0.0367)	(0.0364)
Part-time employed	-0.0311	-0.0341	-0.0256	-0.0331
	(0.0225)	(0.0225)	(0.0224)	(0.0225)
Self-employed	-0.00708	-0.0104	-0.00497	-0.00890
	(0.0229)	(0.0229)	(0.0230)	(0.0229)
Out of workforce	0.0620***	0.0524***	0.0621***	0.0558***
	(0.0184)	(0.0182)	(0.0185)	(0.0185)
Married or partnered	0.267***	0.270***	0.264***	0.270***
	(0.0205)	(0.0205)	(0.0206)	(0.0205)
Self-rated household income	0.189***	0.189***	0.190***	0.189***
	(0.00914)	(0.00914)	(0.00916)	(0.00915)
The importance of God	0.0733***	0.0720***	0.0759***	0.0722***
	(0.00533)	(0.00533)	(0.00523)	(0.00533)
Constant	3.405***	3.418***	3.394***	3.413***
	(0.0627)	(0.0629)	(0.0629)	(0.0628)
Observations	269,014	269,014	269,014	269,014
R-squared	0.230	0.230	0.229	0.230

Notes:
Controls in all columns include wave fixed effects, and country fixed effects.

Robust standard errors clustered at the country*wave level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Moderating Effects of Associational Membership for Life Challenges (World Values Survey, waves 3, 5, 6, 7)

	Dependent variable: Life satisfaction			
	(1)	(2)	(3)	(4)
Panel A: Unemployment				
Unemployed*Active memberships	0.0357*			
	(0.0182)			
Unemployed*Active Putnam-type memberships		0.0923***		0.105***
		(0.0305)		(0.0333)
Unemployed*Active Olson-type memberships			0.0123	-0.0591
			(0.0457)	(0.0520)
Active memberships	0.0748***			
	(0.00927)			
Active Putnam-type memberships		0.127***		0.120***
		(0.0137)		(0.0127)
Active Olson-type memberships			0.0791***	0.0351**
			(0.0185)	(0.0176)
Unemployed	-0.396***	-0.416***	-0.379***	-0.411***
	(0.0309)	(0.0309)	(0.0298)	(0.0312)
R-squared	0.230	0.230	0.229	0.230
Panel B: Divorce, Separation, or Widowhood				
Divorced, separated, or widowed*Active memberships	0.0760***			
	(0.0139)			
Divorced, separated, or widowed*Active Putnam-type memberships		0.119***		0.107***
		(0.0218)		(0.0219)
Divorced, separated, or widowed*Active Olson-type memberships			0.105***	0.0598*
			(0.0312)	(0.0315)
Active memberships	0.0706***			
	(0.00955)			
Active Putnam-type memberships		0.124***		0.119***
		(0.0142)		(0.0130)
Active Olson-type memberships			0.0701***	0.0255
			(0.0191)	(0.0179)
Divorced, separated, or widowed	-0.171***	-0.165***	-0.142***	-0.170***
	(0.0264)	(0.0262)	(0.0253)	(0.0263)
R-squared	0.230	0.230	0.229	0.230
Panel C: Poor health				
Poor health*Active memberships	0.0948***			
	(0.0332)			

Poor health*Active Putnam-type memberships		0.0882*		0.0401
		(0.0494)		(0.0416)
Poor health*Active Olson-type memberships			0.230***	0.214***
			(0.0813)	(0.0745)
Active memberships	0.0738***			
	(0.00942)			
Active Putnam-type memberships		0.131***		0.127***
		(0.0140)		(0.0129)
Active Olson-type memberships			0.0698***	0.0214
			(0.0183)	(0.0171)
Poor health	-1.575***	-1.552***	-1.560***	-1.564***
	(0.0375)	(0.0383)	(0.0371)	(0.0379)
R-squared	0.230	0.230	0.229	0.230
Observations	269,014	269,014	269,014	269,014

Notes:

Controls in all columns include age, gender, marital status, education, employment status, the importance of God, income, poor health, wave fixed effects, and country fixed effects.

Robust standard errors clustered at the country*wave level in parentheses

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

Table 5. Donating Money, Volunteering Time, Helping strangers, and Life Satisfaction (Gallup World Poll, 2009-2021)

Dependent variable: Cantril ladder				
	(1)	(2)	(3)	(4)
Donating money	0.325***			0.285***
	(0.00817)			(0.00774)
Volunteering time		0.190***		0.101***
		(0.00787)		(0.00768)
Helping strangers			0.150***	0.0813***
			(0.00766)	(0.00729)
Unemployed	-0.508***	-0.523***	-0.521***	-0.505***
	(0.0141)	(0.0142)	(0.0143)	(0.0142)
Divorced, separated, or widowed	-0.257***	-0.255***	-0.256***	-0.255***
	(0.00969)	(0.00974)	(0.00971)	(0.00969)
Poor health	-0.537***	-0.537***	-0.538***	-0.540***
	(0.0106)	(0.0108)	(0.0108)	(0.0106)
Female	0.162***	0.170***	0.168***	0.166***
	(0.00646)	(0.00649)	(0.00649)	(0.00647)
Age 25-34	-0.369***	-0.363***	-0.366***	-0.367***
	(0.0101)	(0.0100)	(0.0101)	(0.00998)
Age 35-44	-0.449***	-0.438***	-0.439***	-0.447***
	(0.0128)	(0.0127)	(0.0128)	(0.0128)
Age 45-54	-0.489***	-0.475***	-0.473***	-0.487***
	(0.0145)	(0.0145)	(0.0145)	(0.0145)
Age 55-64	-0.473***	-0.453***	-0.450***	-0.470***
	(0.0164)	(0.0163)	(0.0163)	(0.0164)
Age 65+	-0.370***	-0.340***	-0.331***	-0.361***
	(0.0191)	(0.0190)	(0.0191)	(0.0190)
Secondary education	0.395***	0.405***	0.403***	0.389***
	(0.0113)	(0.0114)	(0.0114)	(0.0114)
Postsecondary education	0.783***	0.811***	0.810***	0.771***
	(0.0136)	(0.0138)	(0.0136)	(0.0137)
Part-time employed or self-employed	-0.0229***	-0.0297***	-0.0258***	-0.0261***
	(0.00879)	(0.00888)	(0.00886)	(0.00879)
Out of workforce	0.00306	-0.00428	-0.000663	0.0136*
	(0.00779)	(0.00778)	(0.00780)	(0.00774)
Married or partnered	0.0862***	0.0958***	0.0973***	0.0882***
	(0.00798)	(0.00804)	(0.00807)	(0.00798)
Ln (household income per capita)	0.179***	0.184***	0.183***	0.179***
	(0.00458)	(0.00463)	(0.00461)	(0.00457)
The importance of religion	0.0288***	0.0439***	0.0448***	0.0208***
	(0.00765)	(0.00779)	(0.00776)	(0.00766)
Constant	5.218***	5.265***	5.258***	5.160***
	(0.0671)	(0.0674)	(0.0676)	(0.0666)
Observations	1,576,091	1,576,091	1,576,091	1,576,091

R-squared	0.245	0.243	0.243	0.246

Notes:
Controls in all columns include year fixed effects and country fixed effects.
Robust standard errors clustered at the country*year level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Moderating Effects of Donating Money, Volunteering Time, Helping Strangers for Life Challenges (Gallup World Poll, 2009-2021)

Dependent variable: Cantril ladder				
	(1)	(2)	(3)	(4)
Panel A: Unemployment				
Unemployed*Donating money	-0.0204			-0.0263
	(0.0208)			(0.0205)
Unemployed*Volunteering time		-0.0106		-0.00139
		(0.0213)		(0.0209)
Unemployed*Helping strangers			-0.00488	0.00681
			(0.0195)	(0.0193)
Donating money	0.326***			0.286***
	(0.00807)			(0.00766)
Volunteering time		0.191***		0.101***
		(0.00792)		(0.00775)
Helping strangers			0.150***	0.0809***
			(0.00766)	(0.00729)
Unemployed	-0.503***	-0.521***	-0.518***	-0.503***
	(0.0154)	(0.0153)	(0.0185)	(0.0193)
R-squared	0.245	0.243	0.243	0.246
Panel B: Divorce, Separation, or Widowhood				
Divorced, separated, or widowed*Donating money	0.119***			0.0912***
	(0.0137)			(0.0139)
Divorced, separated, or widowed*Volunteering time		0.109***		0.0574***
		(0.0153)		(0.0154)
Divorced, separated, or widowed*Helping strangers			0.101***	0.0679***
			(0.0118)	(0.0119)
Donating money	0.309***			0.272***
	(0.00852)			(0.00815)
Volunteering time		0.177***		0.0942***
		(0.00803)		(0.00789)
Helping strangers			0.136***	0.0722***
			(0.00794)	(0.00760)
Divorced, separated, or widowed	-0.294***	-0.277***	-0.303***	-0.326***
	(0.0105)	(0.0102)	(0.0112)	(0.0117)
R-squared	0.245	0.243	0.243	0.246
Panel C: Poor health				
Poor health*Donating money	0.105***			0.0620***

	(0.0126)			(0.0132)
Poor health*Volunteering time		0.149***		0.0930***
		(0.0137)		(0.0139)
Poor health*Helping strangers			0.119***	0.0781***
			(0.0114)	(0.0116)
Donating money	0.298***			0.268***
	(0.00846)			(0.00802)
Volunteering time		0.154***		0.0778***
		(0.00800)		(0.00780)
Helping strangers			0.120***	0.0617***
			(0.00801)	(0.00765)
Poor health	-0.570***	-0.569***	-0.596***	-0.618***
	(0.0117)	(0.0113)	(0.0125)	(0.0129)
R-squared	0.245	0.243	0.243	0.246
Observations	1,576,091	1,576,091	1,576,091	1,576,091

Notes:
Controls in all columns include age, gender, marital status, education, employment status, the importance of religion, income, poor health, year fixed effects, and country fixed effects.
Robust standard errors clustered at the country*year level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7. Effects on Life Satisfaction when Social Trust also Serves as a Mediator (World Values Survey waves 3,5,6,7)

	Dependent variable: Life satisfaction			
	(1)	(2)	(3)	(4)
Panel A: Unemployment				
Unemployed*Active memberships	0.0343*			
	(0.0181)			
Unemployed*Active Putnam-type memberships		0.0883***		0.100***
		(0.0307)		(0.0337)
Unemployed*Active Olson-type memberships			0.0112	-0.0574
			(0.0457)	(0.0523)
Unemployed*Trust	-0.0821*	-0.0787	-0.0826*	-0.0776
	(0.0475)	(0.0480)	(0.0480)	(0.0480)
Active memberships	0.0730***			
	(0.00930)			
Active Putnam-type memberships		0.124***		0.118***
		(0.0138)		(0.0128)
Active Olson-type memberships			0.0758***	0.0329*
			(0.0185)	(0.0175)
Trust	0.0853	0.0857	0.0908	0.0852
	(0.0594)	(0.0593)	(0.0599)	(0.0593)
Unemployed	-0.390***	-0.410***	-0.374***	-0.405***
	(0.0334)	(0.0335)	(0.0325)	(0.0337)
R-squared	0.230	0.230	0.229	0.230
Panel B: Divorce, Separation, or Widowhood				
Divorced, separated, or widowed*Active memberships	0.0749***			
	(0.0140)			
Divorced, separated, or widowed*Active Putnam-type memberships		0.118***		0.106***
		(0.0220)		(0.0222)
Divorced, separated, or widowed*Active Olson-type memberships			0.102***	0.0575*
			(0.0313)	(0.0316)
Divorced, separated, or widowed*Trust	0.0626*	0.0650*	0.0632*	0.0637*
	(0.0339)	(0.0334)	(0.0367)	(0.0334)
Active memberships	0.0687***			
	(0.00951)			
Active Putnam-type memberships		0.121***		0.116***
		(0.0141)		(0.0130)
Active Olson-type memberships			0.0669***	0.0235
			(0.0190)	(0.0178)
Trust	0.0677	0.0682	0.0731	0.0678
	(0.0555)	(0.0554)	(0.0558)	(0.0554)

Divorced, separated, or widowed	-0.180***	-0.174***	-0.151***	-0.179***
	(0.0268)	(0.0266)	(0.0260)	(0.0267)
R-squared	0.230	0.230	0.229	0.230
Panel C: Poor Health				
Poor health*Active memberships	0.0927***			
	(0.0320)			
Poor health*Active Putnam-type memberships		0.0885*		0.0425
		(0.0481)		(0.0411)
Poor health*Active Olson-type memberships			0.222***	0.205***
			(0.0783)	(0.0719)
Poor health*Trust	0.0943***	0.100***	0.0903***	0.0936***
	(0.0320)	(0.0328)	(0.0319)	(0.0315)
Active memberships	0.0719***			
	(0.00940)			
Active Putnam-type memberships		0.129***		0.125***
		(0.0140)		(0.0129)
Active Olson-type memberships			0.0666***	0.0194
			(0.0182)	(0.0170)
Trust	0.0688	0.0694	0.0744	0.0691
	(0.0588)	(0.0584)	(0.0592)	(0.0585)
Poor health	-1.581***	-1.560***	-1.565***	-1.571***
	(0.0377)	(0.0384)	(0.0371)	(0.0383)
R-squared	0.230	0.230	0.229	0.230
Observations	269,014	269,014	269,014	269,014

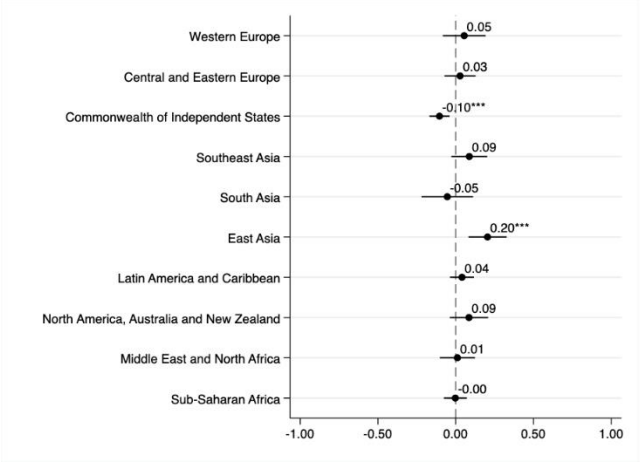
Notes:

Controls in all columns include age, gender, marital status, education, employment status, the importance of God, income, poor health, wave fixed effects, and country fixed effects.

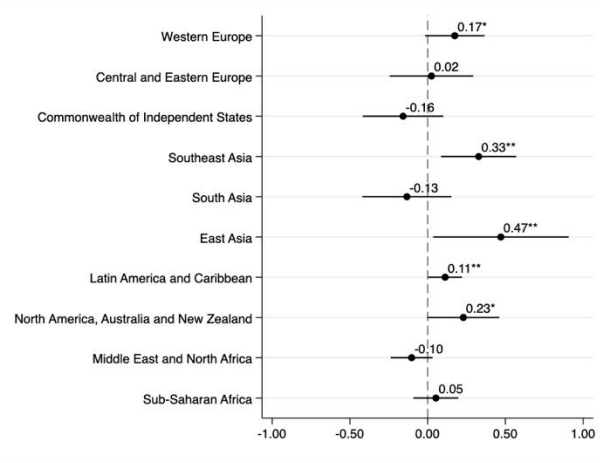
Robust standard errors clustered at the country*wave level in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendices

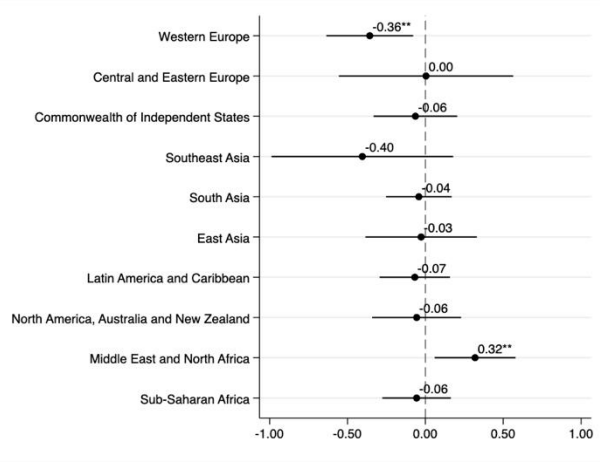
Appendix Figure 1. Moderating effects for unemployment: heterogeneous analysis by world region



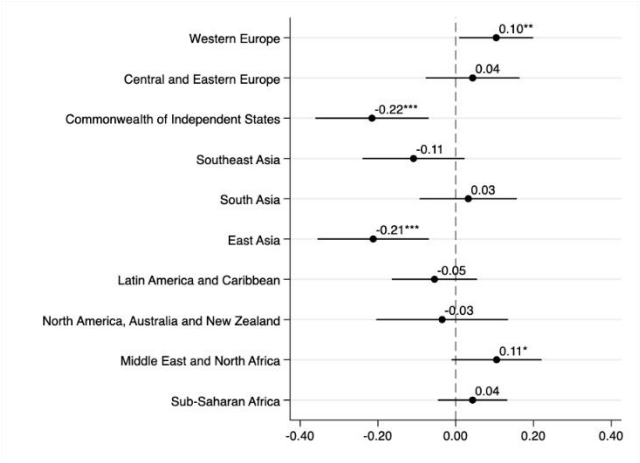
(g) Overall Memberships



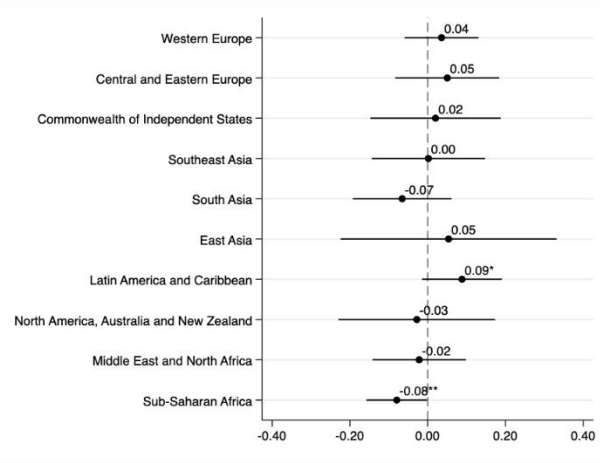
(h) Putnam-type Memberships



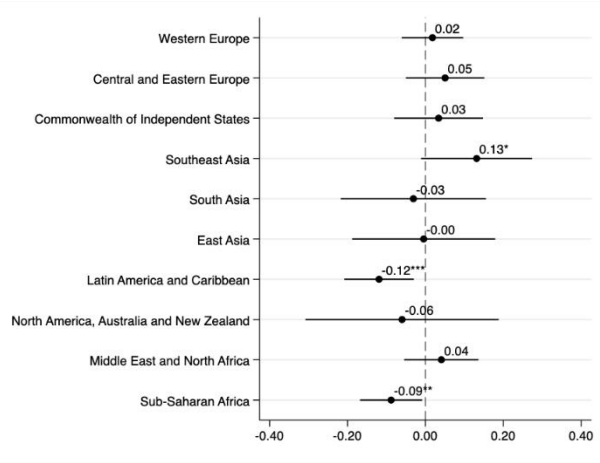
(i) Olson-type Memberships



(j) Donating Money



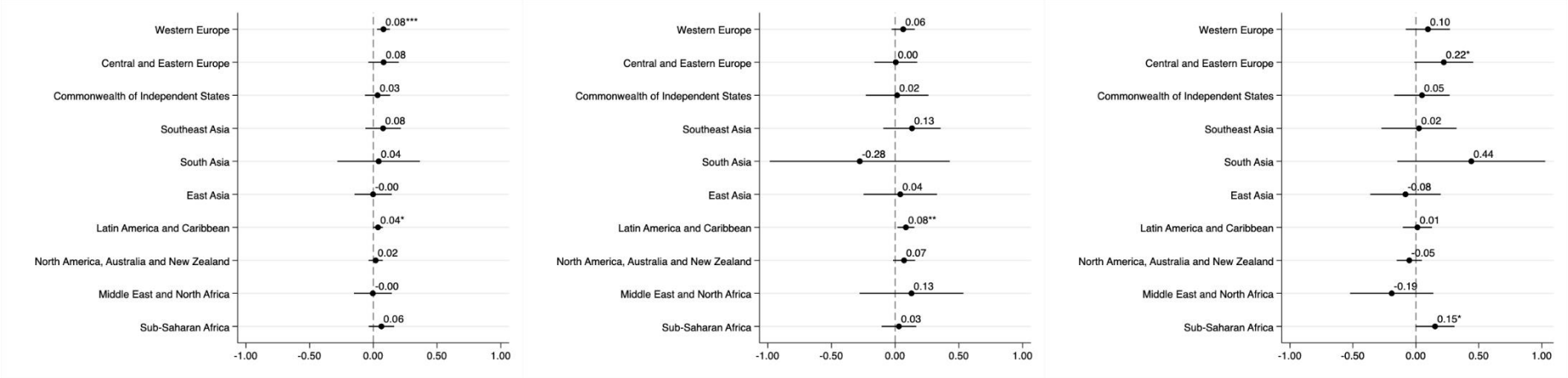
(k) Volunteering Time



(l) Helping Stranger

Notes: This figure shows the moderating effects of various forms of civic engagement for unemployment across different groups.
The y-axis lists the corresponding groups. In particular, we divide the samples based on gender (male versus female), age (those below the sample median age versus those above that), and country's economic development (high, upper middle, lower middle, and low income according to the classification by World Bank based on 2022 gross national income (GNI) per capita). The x-axis shows the value of the estimated coefficients on the interaction between unemployment and a corresponding form of civic engagement mentioned in the subtitle.
Panel (a) is derived from the regressions with the same specification as column (1) of Panel A in Table 4; Panels (b) and (c) are derived from the regressions with the same specification as columns (4) of Panel A in Table 4; Panels (d)-(f) are derived from the regressions with the same specification as column (4) of Panel A in Table 6. Panels (a)-(c) use data from the World Values Survey; Panels (d)-(f) use data from the Gallup World Poll.
The lines surrounding the point estimates represent the 95% confidence intervals. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Appendix Figure 2. Moderating effects for divorce, separation, or widowhood: heterogeneous analysis by world region



(a) Overall Memberships (b) Putnam-type Memberships (c) Olson-type Memberships

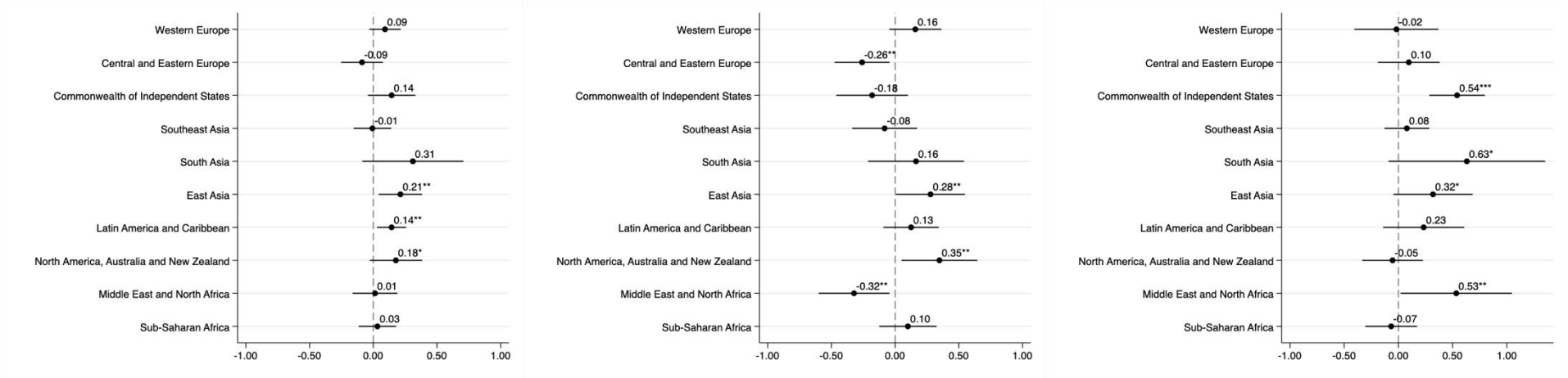
(d) Donating Money (e) Volunteering Time (f) Helping Stranger

Notes: This figure shows the moderating effects of various forms of civic engagement for divorce, separation, or widowhood across different groups. The y-axis lists the corresponding groups. In particular, we divide the samples based on gender (male versus female), age (those below the sample median age versus those above that), and country's economic development (high, upper middle, lower middle, and low income according to the classification by World Bank based on 2022 gross national income (GNI) per capita). The x-axis shows the value of the estimated coefficients on the interaction between unemployment and a corresponding form of civic engagement mentioned in the subtitle.

Panel (a) is derived from the regressions with the same specification as column (1) of Panel B in Table 4; Panels (b) and (c) are derived from the regressions with the same specification as columns (4) of Panel B in Table 4; Panels (d)-(f) are derived from the regressions with the same specification as column (4) of Panel B in Table 6. Panels (a)-(c) use data from the World Values Survey; Panels (d)-(f) use data from the Gallup World Poll.

The lines surrounding the point estimates represent the 95% confidence intervals. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

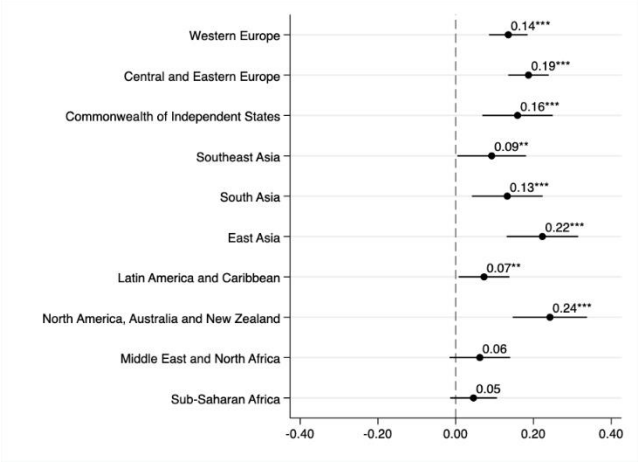
Appendix Figure 3. Moderating effects for poor health: heterogeneous analysis by world region



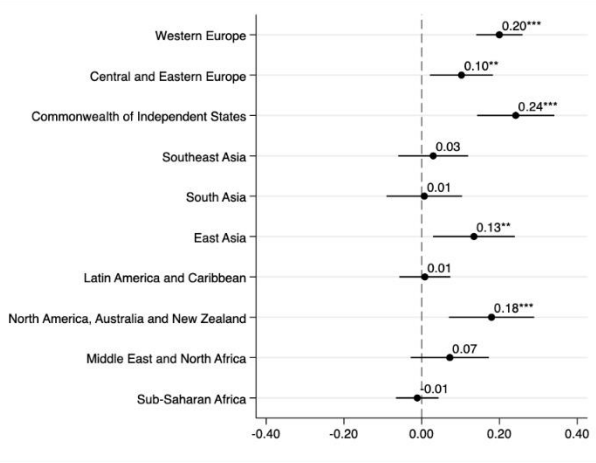
(a) Overall Memberships

(b) Putnam-type Memberships

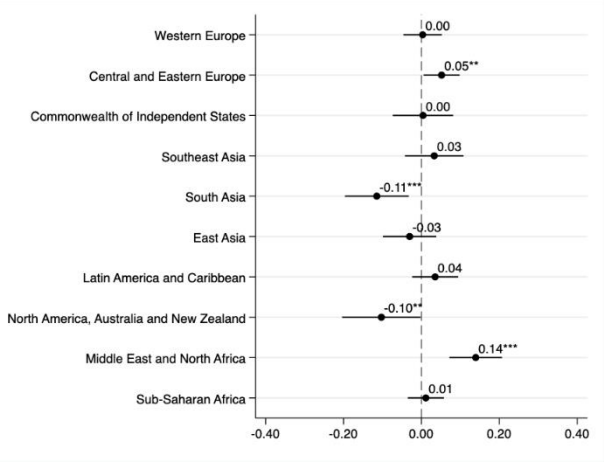
(c) Olson-type Memberships



(d) Donating Money



(e) Volunteering Time



(f) Helping Stranger

Notes: This figure shows the moderating effects of various forms of civic engagement for poor health across different groups.
The y-axis lists the corresponding groups. In particular, we divide the samples based on gender (male versus female), age (those below the sample median age versus those above that), and country's economic development (high, upper middle, lower middle, and low income according to the classification by World Bank based on 2022 gross national income (GNI) per capita). The x-axis shows the value of the estimated coefficients on the interaction between unemployment and a corresponding form of civic engagement mentioned in the subtitle.
Panel (a) is derived from the regressions with the same specification as column (1) of Panel C in Table 4; Panels (b) and (c) are derived from the regressions with the same specification as columns (4) of Panel C in Table 4; Panels (d)-(f) are derived from the regressions with the same specification as column (4) of Panel C in Table 6. Panels (a)-(c) use data from the World Values Survey; Panels (d)-(f) use data from the Gallup World Poll.
The lines surrounding the point estimates represent the 95% confidence intervals. Statistical significance: *** p<0.01, ** p<0.05, * p<0.

Appendix Table 1. Moderating Effects of Associational Membership for Divorce or Separation and for Widowhood (World Values Survey, waves 3, 5, 6, 7)

	Dependent variable: Life satisfaction			
	(1)	(2)	(3)	(4)
Panel A: Divorce or Separation				
Divorced or separated*Active memberships	0.0507***			
	(0.0165)			
Divorced or separated*Active Putnam-type memberships		0.0830***		0.0734**
		(0.0278)		(0.0284)
Divorced or separated*Active Olson-type memberships			0.0673*	0.0415
			(0.0397)	(0.0407)
Active memberships	0.0748***			
	(0.00945)			
Active Putnam-type memberships		0.130***		0.125***
		(0.0140)		(0.0129)
Active Olson-type memberships			0.0759***	0.0284
			(0.0188)	(0.0176)
Divorced or separated	-0.211***	-0.204***	-0.192***	-0.208***
	(0.0311)	(0.0315)	(0.0289)	(0.0316)
R-squared	0.230	0.230	0.229	0.230
Panel B: Widowhood				
Widowed*Active memberships	0.111***			
	(0.0206)			
Widowed*Active Putnam-type memberships		0.156***		0.134***
		(0.0319)		(0.0326)
Widowed*Active Olson-type memberships			0.193***	0.122**
			(0.0476)	(0.0492)
Active memberships	0.0736***			
	(0.00926)			
Active Putnam-type memberships		0.128***		0.123***
		(0.0138)		(0.0127)
Active Olson-type memberships			0.0738***	0.0277
			(0.0183)	(0.0171)
Widowed	-0.111***	-0.103***	-0.0722**	-0.109***
	(0.0315)	(0.0317)	(0.0302)	(0.0316)
R-squared	0.230	0.230	0.229	0.230
Observations	269,014	269,014	269,014	269,014

Notes:

Controls in all columns include age, gender, marital status, education, employment status, the importance of God, income, poor health, wave fixed effects, and country fixed effects.

Robust standard errors clustered at the country*wave level in parentheses

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

Appendix Table 2. Moderating Effects of Different Types of Associational Membership for Life Challenges (World Values Survey, waves 3, 5, 6, 7)

	Dependent variable: Life satisfaction							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Unemployment								
Unemployed*Active memberships in church or religious organizations	0.173***							
	(0.0499)							
Unemployed*Active memberships in sports or recreational organizations		0.0483						
		(0.0557)						
Unemployed*Active memberships in art, music or educational organizations			0.164**					
			(0.0654)					
Unemployed*Active memberships in charitable or humanitarian organizations				0.0598				
				(0.0743)				
Unemployed*Active memberships in labor union					0.0578			
					(0.0943)			
Unemployed*Active memberships in political parties						-0.0263		
						(0.0857)		
Unemployed*Active memberships in environmental organizations							-0.0382	
							(0.0876)	
Unemployed*Active memberships in professional associations								0.0743
								(0.0941)
Unemployed	-0.421***	-0.385***	-0.396***	-0.388***	-0.383***	-0.383***	-0.383***	-0.383***
	(0.0313)	(0.0284)	(0.0284)	(0.0288)	(0.0288)	(0.0294)	(0.0284)	(0.0290)
R-squared	0.229	0.229	0.229	0.229	0.228	0.228	0.229	0.229
Panel B: Divorce, Separation, or Widowhood								
Divorced, separated, or widowed*Active memberships in church or religious organizations	0.153***							
	(0.0345)							
Divorced, separated, or widowed*Active memberships in sports or recreational organizations		0.128***						
		(0.0446)						

Divorced, separated, or widowed*Active memberships in art, music or educational organizations			0.160***					
			(0.0525)					
Divorced, separated, or widowed*Active memberships in charitable or humanitarian organizations				0.207***				
				(0.0544)				
Divorced, separated, or widowed*Active memberships in labor union					0.0396			
					(0.0611)			
Divorced, separated, or widowed*Active memberships in political parties						0.255***		
						(0.0685)		
Divorced, separated, or widowed*Active memberships in environmental organizations							0.131	
							(0.0831)	
Divorced, separated, or widowed*Active memberships in professional associations								0.140**
								(0.0589)
Divorced, separated, or widowed	-0.154***	-0.135***	-0.134***	-0.140***	-0.127***	-0.137***	-0.130***	-0.133***
	(0.0266)	(0.0247)	(0.0248)	(0.0253)	(0.0249)	(0.0250)	(0.0249)	(0.0251)
R-squared	0.229	0.229	0.229	0.229	0.228	0.229	0.229	0.229
Panel C: Poor health								
Poor health*Active memberships in church or religious organizations	0.0767							
	(0.0689)							
Poor health*Active memberships in sports or recreational organizations		0.136						
		(0.0953)						
Poor health*Active memberships in art, music or educational organizations			0.210*					
			(0.120)					
Poor health*Active memberships in charitable or humanitarian organizations				0.328***				
				(0.118)				
Poor health*Active memberships in labor union					0.438***			
					(0.133)			
Poor health*Active memberships in political parties						0.308**		
						(0.132)		

Poor health*Active memberships in environmental organizations							0.304**	
							(0.145)	
Poor health*Active memberships in professional associations								0.255
								(0.174)
Poor health	-1.541***	-1.536***	-1.544***	-1.547***	-1.548***	-1.546***	-1.541***	-1.542***
	(0.0393)	(0.0394)	(0.0378)	(0.0382)	(0.0384)	(0.0381)	(0.0382)	(0.0380)
R-squared	0.229	0.229	0.229	0.229	0.229	0.229	0.229	0.229
Observations	269,014	269,014	269,014	269,014	269,014	269,014	269,014	269,014

Notes:

All the level terms associated with the interaction terms are included.

Controls in all columns of each panel include age, gender, marital status, education, employment status, the importance of God, church attendance, income, poor health, wave fixed effects, and country fixed effects.

Robust standard errors clustered at the country*wave level in parentheses

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

Appendix Table 3. Moderating Effects of Donating Money, Volunteering Time, and Helping Strangers for Divorce or Separation and for Widowhood (Gallup World Poll, 2009-2021)

	Dependent variable: Cantril ladder			
	(1)	(2)	(3)	(4)
Panel A: Divorce or Separation				
Divorced or separated*Donating money	0.0184			0.00278
	(0.0158)			(0.0163)
Divorced or separated*Volunteering time		0.0633***		0.0625***
		(0.0185)		(0.0190)
Divorced or separated*Helping strangers			0.0239	0.0103
			(0.0153)	(0.0155)
Donating money	0.324***			0.284***
	(0.00835)			(0.00794)
Volunteering time		0.186***		0.0969***
		(0.00797)		(0.00782)
Helping strangers			0.148***	0.0808***
			(0.00784)	(0.00746)
Divorced or separated	-0.280***	-0.287***	-0.287***	-0.293***
	(0.0122)	(0.0117)	(0.0136)	(0.0142)
R-squared	0.245	0.243	0.243	0.246
Panel B: Widowhood				
Widowed*Donating money	0.191***			0.154***
	(0.0189)			(0.0194)
Widowed*Volunteering time		0.149***		0.0492**
		(0.0227)		(0.0232)
Widowed*Helping strangers			0.166***	0.119***
			(0.0157)	(0.0159)
Donating money	0.311***			0.273***
	(0.00829)			(0.00790)
Volunteering time		0.182***		0.0985***
		(0.00791)		(0.00775)
Helping strangers			0.138***	0.0731***
			(0.00772)	(0.00738)
Widowed	-0.297***	-0.260***	-0.303***	-0.339***
	(0.0129)	(0.0123)	(0.0132)	(0.0139)
R-squared	0.245	0.243	0.243	0.246
Observations	1,576,091	1,576,091	1,576,091	1,576,091

Notes:

Controls in all columns include age, gender, marital status, education, employment status, the importance of religion, income, poor health, year fixed effects, and country fixed effects.

Robust standard errors clustered at the country*year level in parentheses

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

Appendix Table 4. Moderating Effects of Donating Money, Volunteering Time, and Helping Strangers for Physical Pain (Gallup World Poll, 2009-2021)

	Dependent variable: Cantril ladder			
Physical pain*Donating money	0.0784***			0.0513***
	(0.0111)			(0.0119)
Physical pain*Volunteering time		0.0890***		0.0480***
		(0.0127)		(0.0131)
Physical pain*Helping strangers			0.0835***	0.0609***
			(0.00985)	(0.0100)
Donating money	0.299***			0.266***
	(0.00824)			(0.00785)
Volunteering time		0.163***		0.0851***
		(0.00789)		(0.00778)
Helping strangers			0.128***	0.0674***
			(0.00812)	(0.00777)
Physical pain	-0.481***	-0.476***	-0.502***	-0.518***
	(0.00950)	(0.00907)	(0.0102)	(0.0106)
R-squared	0.244	0.242	0.242	0.245
Observations	1,579,716	1,579,716	1,579,716	1,579,716

Notes:

Controls in all columns include age, gender, marital status, education, employment status, the importance of religion, income, year fixed effects, and country fixed effects.

Robust standard errors clustered at the country*year level in parentheses

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

Appendix Table 5. Effects of Adding Social Trust as a Mediator (Gallup World Poll, 2009-2011)

Dependent variable: Cantril ladder				
	(1)	(2)	(3)	(4)
Panel A: Unemployment				
Unemployed*Donating money	-0.125*			-0.121*
	(0.0694)			(0.0701)
Unemployed*Volunteering time		-0.000630		0.0692
		(0.0705)		(0.0685)
Unemployed*Helping strangers			-0.0959	-0.0812
			(0.0603)	(0.0615)
Unemployed*Trust	-0.0954	-0.0865	-0.0896	-0.0934
	(0.0630)	(0.0618)	(0.0614)	(0.0632)
Donating money	0.314***			0.268***
	(0.0200)			(0.0190)
Volunteering time		0.188***		0.0837***
		(0.0214)		(0.0213)
Helping strangers			0.174***	0.107***
			(0.0179)	(0.0185)
Trust	-0.238***	-0.244***	-0.249***	-0.234***
	(0.0210)	(0.0209)	(0.0212)	(0.0209)
Unemployed	-0.317**	-0.378***	-0.325***	-0.295**
	(0.122)	(0.122)	(0.122)	(0.128)
R-squared	0.289	0.287	0.287	0.290
Panel B: Divorce, Separation, or Widowhood				
Divorced, separated, or widowed*Donating money	0.0874*			0.0438
	(0.0450)			(0.0463)
Divorced, separated, or widowed*Volunteering time		0.115**		0.0597
		(0.0495)		(0.0505)
Divorced, separated, or widowed*Helping strangers			0.124***	0.0923**
			(0.0350)	(0.0377)
Divorced, separated, or widowed*Trust	-0.0285	-0.0297	-0.0307	-0.0259
	(0.0403)	(0.0406)	(0.0400)	(0.0405)
Donating money	0.298***			0.257***
	(0.0211)			(0.0202)
Volunteering time		0.174***		0.0798***
		(0.0227)		(0.0221)
Helping strangers			0.154***	0.0910***
			(0.0184)	(0.0192)
Trust	-0.238***	-0.244***	-0.248***	-0.234***
	(0.0216)	(0.0215)	(0.0218)	(0.0215)
Divorced, separated, or widowed	-0.273***	-0.263***	-0.294***	-0.312***
	(0.0777)	(0.0767)	(0.0748)	(0.0795)
R-squared	0.289	0.287	0.287	0.290
Panel C: Poor health				
Poor health*Donating money	0.137***			0.105***
	(0.0370)			(0.0383)
Poor health*Volunteering time		0.133***		0.0717**
		(0.0356)		(0.0361)
Poor health*Helping strangers			0.0804**	0.0324
			(0.0321)	(0.0333)
Poor health*Trust	-0.0432	-0.0463	-0.0480	-0.0430

	(0.0311)	(0.0310)	(0.0311)	(0.0310)
Donating money	0.275***			0.236***
	(0.0223)			(0.0214)
Volunteering time		0.154***		0.0686***
		(0.0225)		(0.0219)
Helping strangers			0.149***	0.0936***
			(0.0203)	(0.0206)
Trust	-0.231***	-0.237***	-0.240***	-0.227***
	(0.0226)	(0.0224)	(0.0226)	(0.0225)
Poor health	-0.448***	-0.427***	-0.434***	-0.467***
	(0.0667)	(0.0632)	(0.0662)	(0.0688)
R-squared	0.289	0.287	0.287	0.290
Observations	142,279	142,279	142,279	142,279

Notes:
Controls in all columns include age, gender, marital status, education, employment status, the importance of religion, income, poor health, year fixed effects, and country fixed effects.
Robust standard errors clustered at the country*year level in parentheses
*** p<0.01, ** p<0.05, * p<0.1