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

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Résumé / Abstract

FR
Cet article étudie le rôle de l'engagement civique, une forme importante de capital social, dans l'atténuation des effets négatifs de circonstances de vie difficiles dans trois domaines clés - l'emploi, le mariage et la santé - sur le bien-être subjectif individuel. Nos résultats révèlent que l'association négative entre le divorce, la séparation ou le veuvage et les évaluations globales de la vie peut être atténuée par la participation active à des associations (de type Putnam et Olson) et par trois formes d'engagement civique (don d'argent, bénévolat et aide aux étrangers). Toutefois, dans les situations de mauvaise santé, seule la participation dans des associations de type Olson, les dons d'argent, le bénévolat et l'aide aux étrangers atténuent l'association négative avec les évaluations globales de la vie. En outre, l'association négative entre le chômage et les évaluations globales de la vie n'est atténuée que par la participation à des associations de type Putnam. Nous explorons également l'hétérogénéité de cette atténuation en fonction des caractéristiques individuelles (par exemple, le sexe et l'âge) et des facteurs nationaux (par exemple, le niveau de développement et la région). En outre, notre analyse montre que la mesure du capital social la plus couramment étudiée, la confiance sociale, ne sert de médiateur significatif dans aucune des relations examinées. Notre analyse utilise les données des vagues 3, 5, 6 et 7 du World Values Survey et du Gallup World Poll menées entre 2009 et 2021.

EN
This paper investigates the role of civic engagement, an important form of social capital, in buffering the adverse effects of challenging life circumstances in three key domains—employment, marriage, and health—on individual subjective well-being. Our findings reveal that the negative association between divorce, separation, or widowhood and overall life evaluations can be mitigated through active associational memberships (both Putnam and Olson types), and three forms of civic engagement (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 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). Additionally, our analysis shows that the most commonly studied measure of social capital, 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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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 (both 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). Additionally, our analysis shows that the most commonly studied measure of social capital, 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.

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1. Introduction

Over the last few decades, a large literature has emerged on how 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 trust, i.e., only one demand-side constituent component of social capital[1] (Fortin, 2008; Helliwell and Wang, 2010; Helliwell and Huang, 2011), there have been 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 into 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, its 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 unemployment, separation, divorce, or widowhood, and 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 various 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 discussion 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., evaluating the extent to which social capital can offset the negative effects of unfortunate life events on SWB, 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 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; Gardner and

[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.

Oswald 2006). The observed discrepancies may be attributed, at least in part, to variations in empirical methodologies[4] and 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 a 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 of 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 for 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. 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 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 events, attending 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. 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. 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 if 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

Even from quite early on there has been considerable discussion on the definition 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, is 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 directly improve individual well-being, 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.

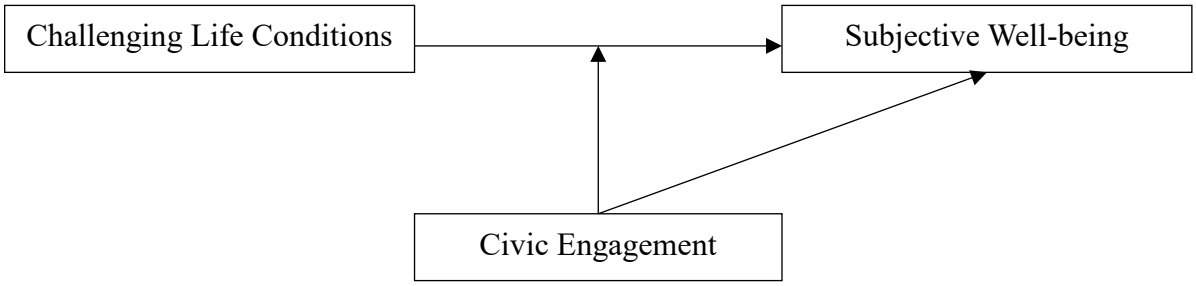


Figure 1. Challenging Conditions, Civic Engagement, and Subjective Well-being

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 is also supported 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 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 in two ways: first, between the stressful event and the stress reaction by attenuating or preventing the stress appraisal response; and second, 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 could be beneficial for people beset by life challenges. Third, civic engagement, such as 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). Forth, 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. Yet, 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 the 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 wider 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 the 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. One can observe that overall the respondents in both surveys report average life evaluation scores that are somewhat above the mid-point on its respective scale but which also reflects considerable variability across individuals.[6]

[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).

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

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 on associational memberships; for across-group activities, we use measures on donating money, volunteering, and helping strangers. Variables 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 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, draw 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 helping strangers is about half (0.501), highest among the three, followed by donating money (0.314) and volunteering time (0.210).[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. For 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

[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.

health adversity, it is constructed as a dummy taking value 1 if an individual answers "poor" or "very poor" and 0 otherwise. For 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 an individual answers "Yes" and 0 if an individual answers "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 are around 11 and 13 percent 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 school and postsecondary and above, 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 a 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 a 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,

[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.

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 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 the 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, although 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, those with postsecondary education, higher household income, and those thinking of God as more important all have significantly higher levels of life satisfaction.

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

In Table 4, we turn to 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 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, it is the Putnam-type memberships, rather than Olson-type ones, that play the significant role in mitigating adversity in the form of unemployment. The 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 the adversity in the form of 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. Regarding the adversity 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, 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.

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

To distinguish more precisely the effects of the different types of memberships, in Appendix Table 2, we examine the eight specific membership types. 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 the 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 is not categorized as either Putnam or Olson type, 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 additional 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 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.

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

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 partially mitigate the negative association between divorce or separation and the Cantril Ladder while all the 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 Cantil Ladder measure of life satisfaction.[10]

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)

[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.

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

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

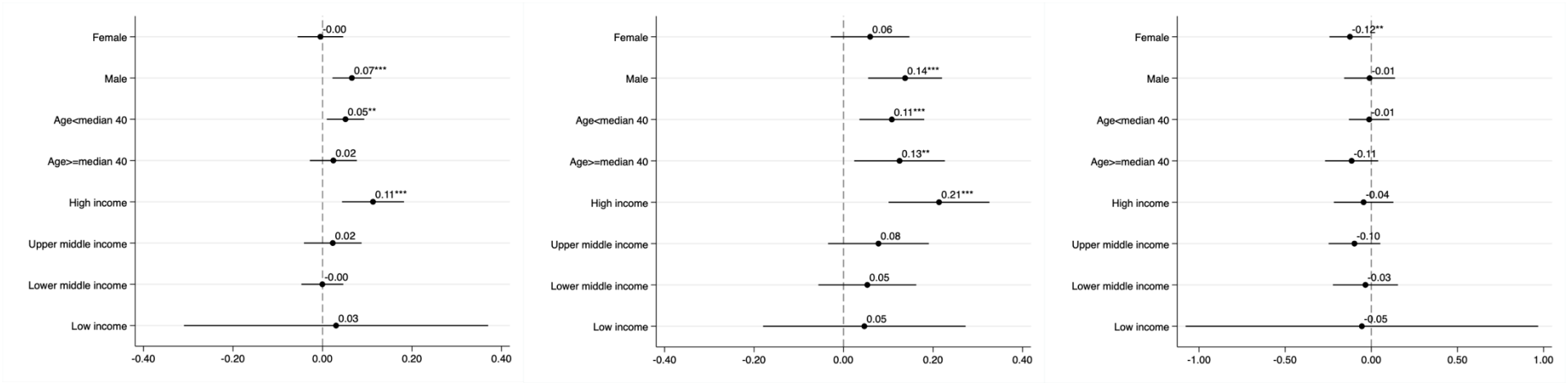
It is also relevant to explore whether or not there is any heterogeneity in the ability of various forms of civic engagement to mitigate the challenges of different types across individuals of different characteristics such as gender, age and those living in countries with different levels of income or culture. Specifically, we investigate the heterogeneity in the relationship by gender, age, country's economic development, and world region since men and women may have different attitudes due to social or gender norms, people's preferences and attitudes can change over the life cycle, the role of civic engagement can be influenced by the affluence of a society, and culture also matters. 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.

For instance, Figure 2 shows that the moderating effect of Putnam-type memberships for unemployment is significant for men but not 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, those who are older, and those living in middle-income countries.

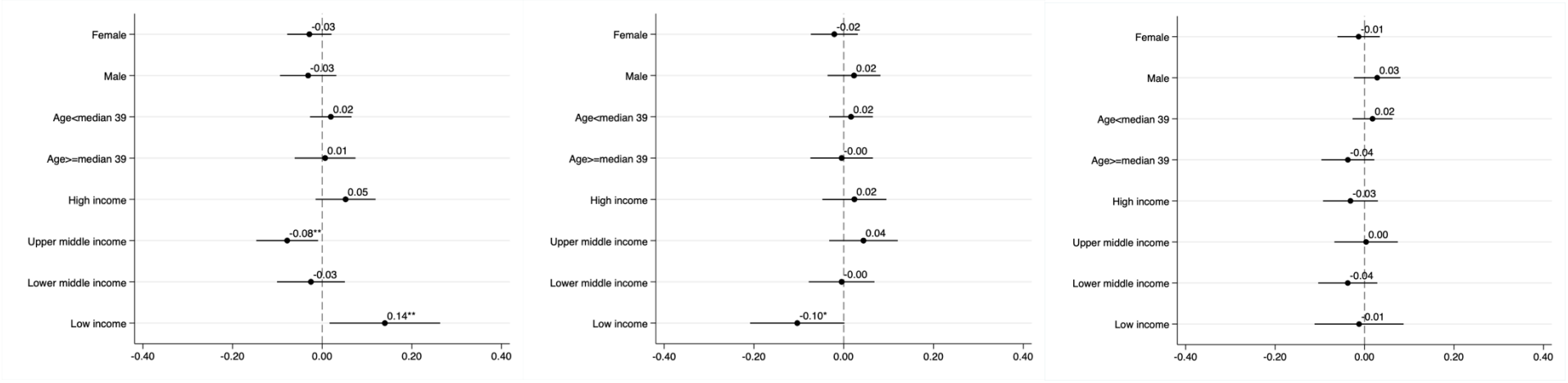
From the perspective of culture differences, we investigate the heterogeneity by world region in Appendix Figures 1, 2, and 3. For instance, Appendix Figure 1 shows that the moderating effects of Putnam-type memberships for unemployment are most significant for those living in East Asia and Southeast Asia. In the case of divorce, separation, or widowhood, it seems that Western Europe is the region where people in this adversity can be helped by all the three types of civic engagement of wider network structures. 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.

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



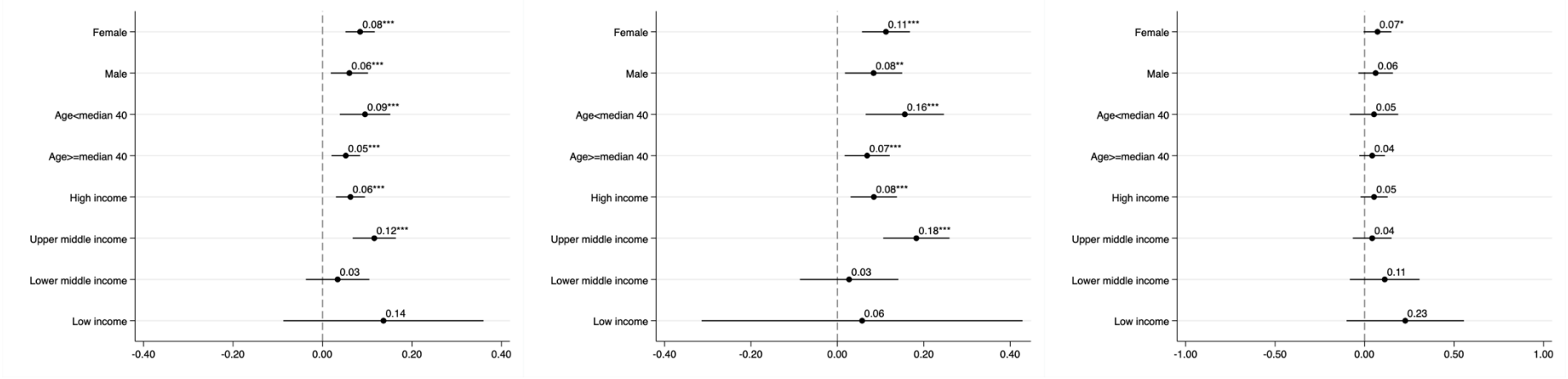
(a) Overall Memberships (b) Putnam-type Memberships (c) Olson-type Memberships



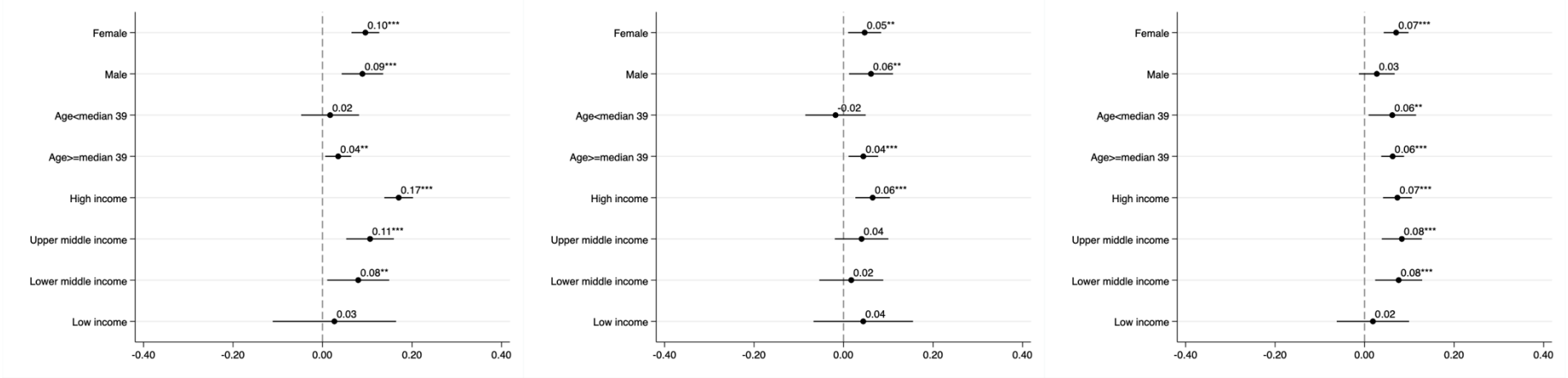
(d) Donating Money (e) Volunteering Time (f) Helping Stranger

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



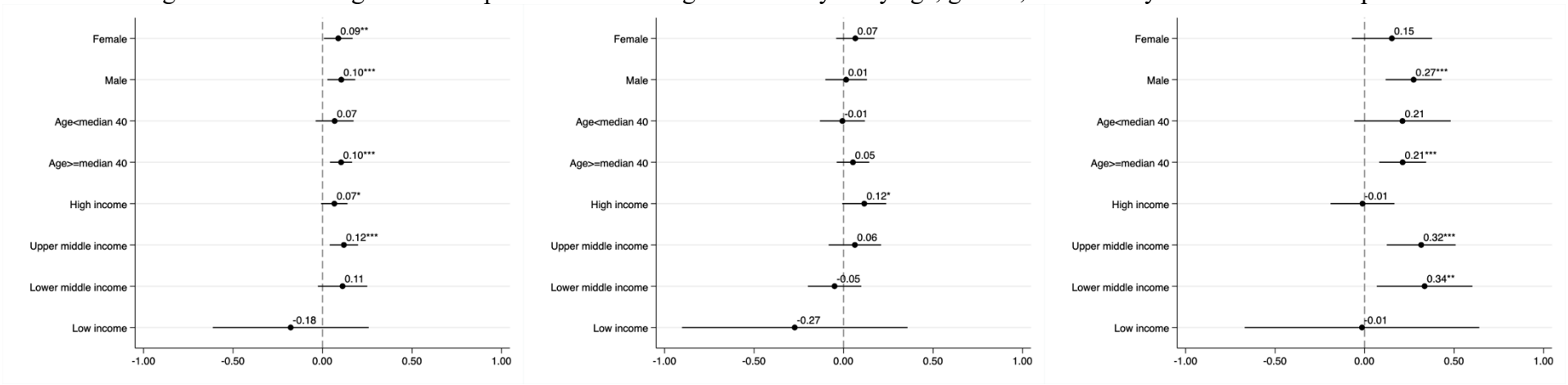
(a) Overall Memberships (b) Putnam-type Memberships (c) Olson-type Memberships



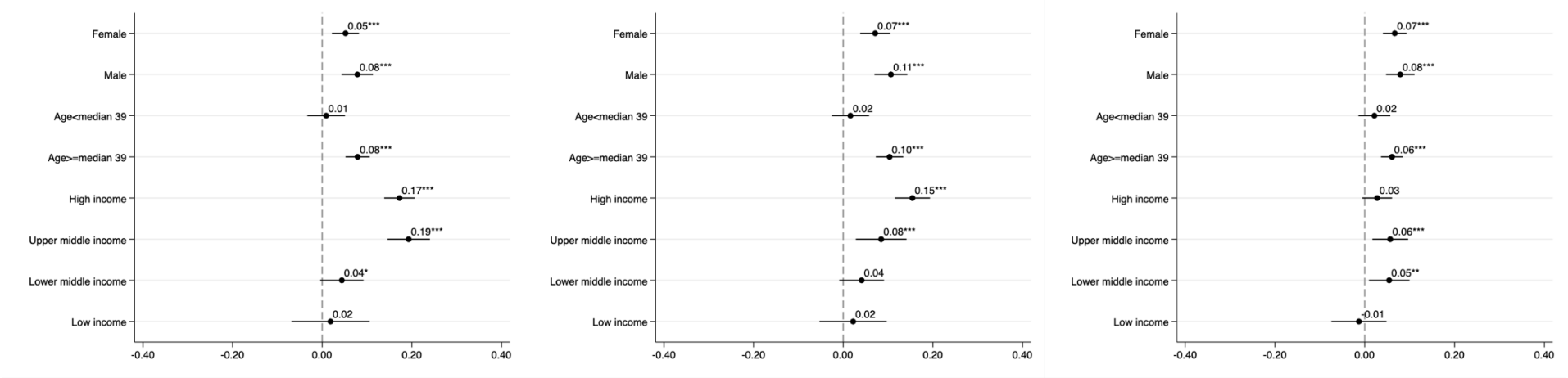
(d) Donating Money (e) Volunteering Time (f) Helping Stranger

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<

5.3 What About Trust?

As mentioned above, much of the 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, therefore, 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 memberships can have significant mitigating effects for challenging life conditions regardless of whether or not social trust is included. However, we do find also find that social trust can play a significant role in offsetting poor health, even if it is not as strong a mediator than Olson-type memberships. Social trust may also play a minor and not very significant role in mitigating the negative association between divorce, separation, or widowhood and SWB.

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.

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

[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?"

[12] We checked that the less significant results are mainly due to the decrease in the sample size instead of the inclusion of the trust variable.

	(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

6. Conclusions

This study uses data from two of the largest-scale surveys worldwide, the World Values Survey and Gallup World Poll, 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 different roles in mediating the effects of each type of challenging condition in life. Conversely, engagement in various civic activities within broader networks appears to yield similar benefits for the same challenging conditions. 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 as a means of buffering against adversity, especially in critical areas such as marriage and health. A significant policy implication

is the recognition that, alongside enhancing formal institutions, policymakers should do more to promote civic engagement in societies.

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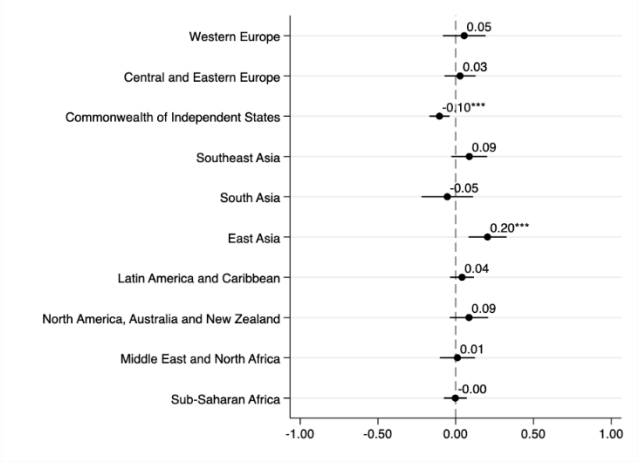
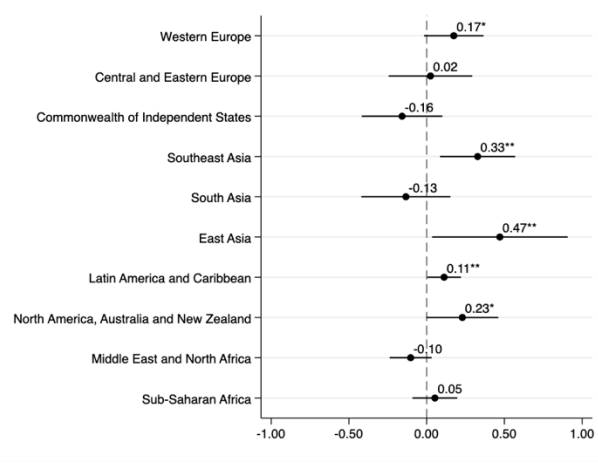
Appendices

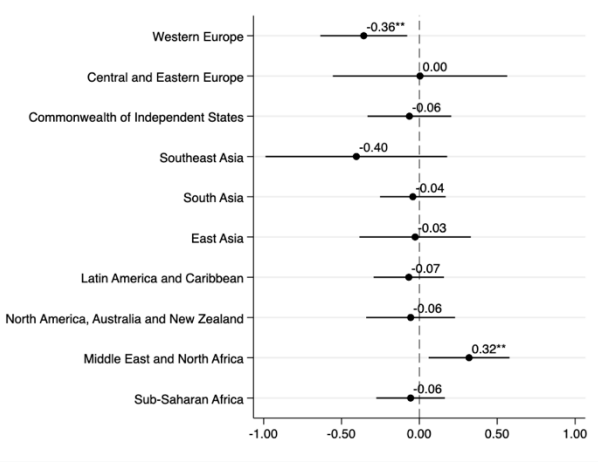
Appendix Figure 1. Moderating effects for unemployment: heterogeneous analysis by world region



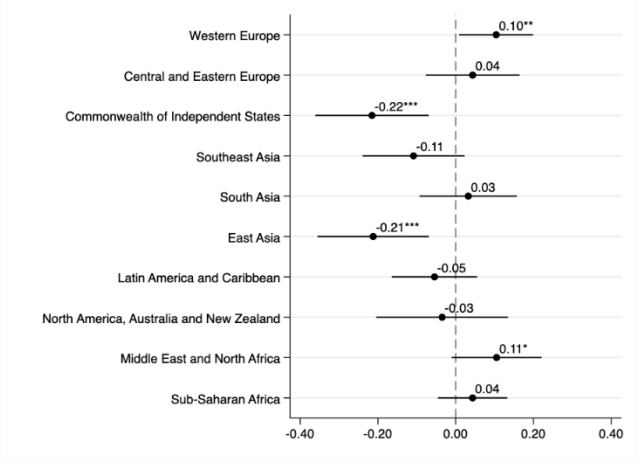
(g) Overall Memberships



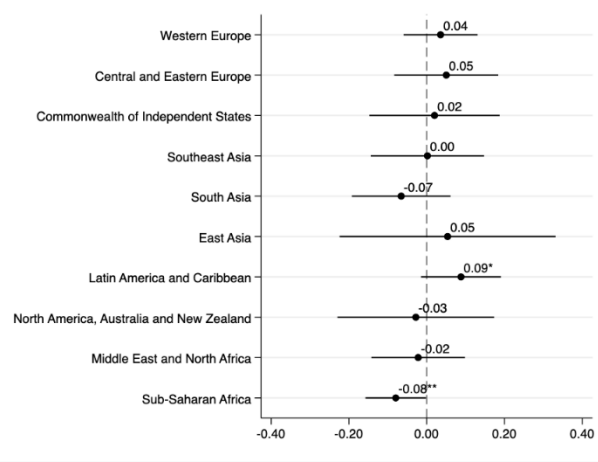
(h) Putnam-type Memberships



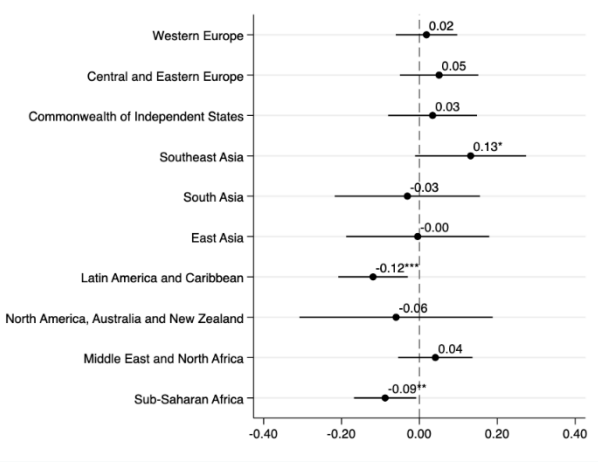
(i) Olson-type Memberships



(j) Donating Money



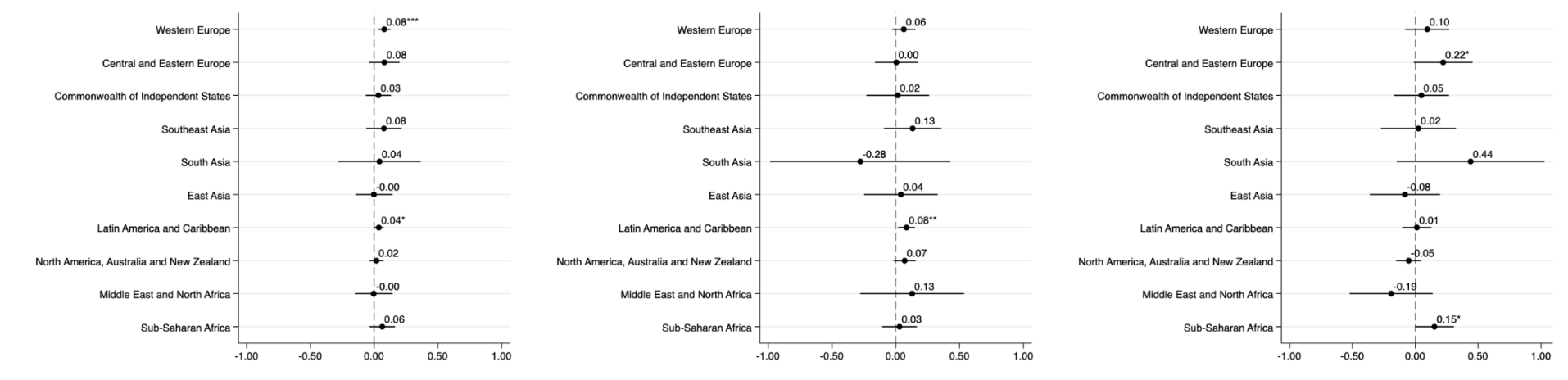
(k) Volunteering Time



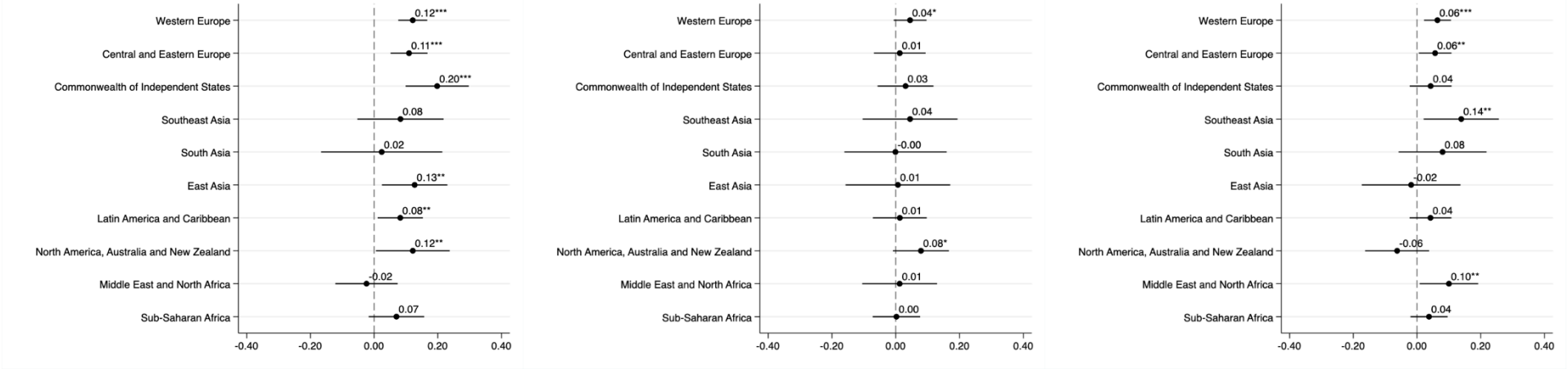
(l) Helping Stranger

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



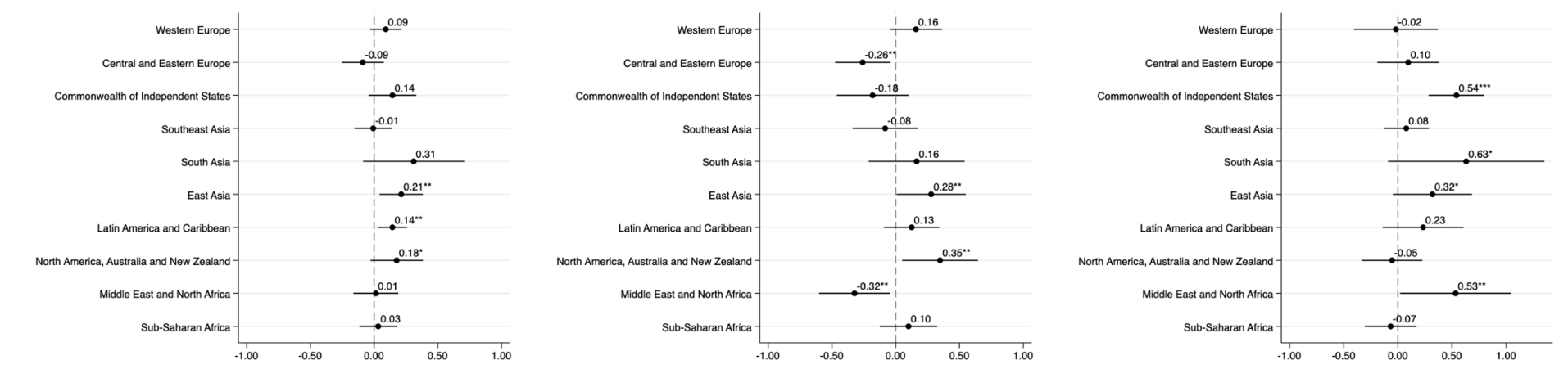
(a) Overall Memberships (b) Putnam-type Memberships (c) Olson-type Memberships



(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.

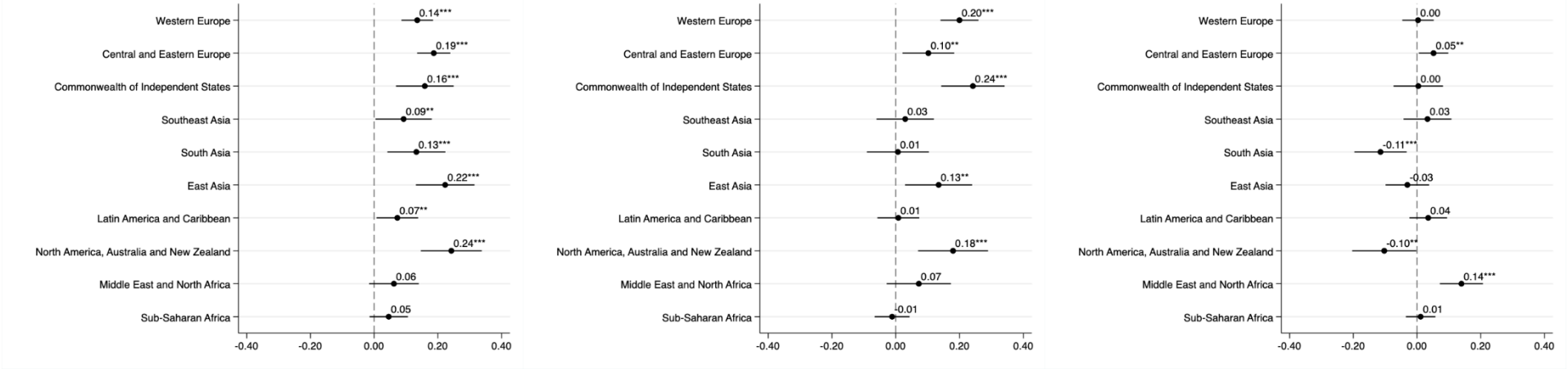
Appendix Figure 3. Moderating effects for poor health: heterogeneous analysis by world region



(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