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Social Policy, Social Capital, and Self-Rated Health: Synergistic or Trade Off?

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Social Policy, Social Capital, and Self-Rated Health: Synergistic or Trade Off?*

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Abstract

Although previous international comparative research has focused on social policy and social capital as crucial factors in promoting self-rated health, notable gaps remain. First, few studies have explored the interaction effect of these factors on self-rated health. Second, in terms of the proxies of social policy, earlier publications may mingle the levels and distribution of welfare provisions. To overcome these limitations, this study adopts three dimensions of welfare transfers as proxies of social policy to analyze the cross-level interaction effects of welfare transfers and social capital on self-rated health. For the analysis, this study utilizes data from the Luxembourg Income Study Database, the World Values Survey, and the European Values Study including multiple rounds. An international comparative analysis revealed that transfer share may strengthen the health impact of social trust, whereas low-income targeting may weaken the correlations between two types of civic participation, in particular, Olson-type and Putnam-type associations, and self-rated health.

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Keywords

Social policy, social capital, self-rated health, Luxembourg Income Study Database, World Values Survey, European Values Study

INTRODUCTION

In the past few decades, much attention has been given to the determinants of health in a wide variety of research fields. With respect to this issue, social capital has received considerable global attention as a crucial factor in promoting health (Kawachi et al., 1997; Moore and Kawachi, 2017). From the perspective of social capital, many researchers have conducted international comparative analyses to explore the association between various aspects of social capital and health outcomes (Jen et al., 2010; Story and Glanville, 2019).

On the other hand, at the macrolevel, social policy has been regarded as one of the important determinants of health (Rostila, 2013; Sieber et al., 2022). In this body of research, a great deal of research involving international comparative analysis has clarified that public social expenditures are positively associated with several health variables (Lundberg et al., 2008; Sieber et al., 2022).

While these studies effectively explain the determinants of health, they leave several important questions unaddressed. First, although earlier publications focused on the main effects of social policy and social capital, little research has focused on their interaction effects on health. However, Islam et al. (2006) noted that “[t]he next issue to resolve is whether greater (lower) intensity of... egalitarianism [and social policy] can modify the health impact of social capital in a society” (Islam et al., 2006, p. 2).

Second, whereas three approaches to compute proxies of social policy, namely, the social expenditure, social rights, and benefit reciprocity data approaches, have been discussed in social policy research, previous studies on social policy and health have mainly considered public social expenditures based on the social expenditure approach and the decommodification index built on the social rights approach as proxies of social policy (Álvarez-Gálvez and Jaime-

Castillo, 2018; Jacques and Noël, 2022). However, these studies may jumble up two aspects of social policy, namely, the levels and the distributional aspects of welfare provisions.

Building on these discussions, this study employs an approach with benefit reciprocity data from the Luxembourg Income Study (LIS) database to compute three dimensions of welfare provisions, namely, transfer share, low-income targeting, and universalism, as proxies of social policy.¹ By doing so, it is possible to divide the levels and the distribution of welfare provisions and to explore both low-income targeting and universalism. Furthermore, this approach enables us to analyze the main and interaction effects of three dimensions of welfare transfers and social capital on self-rated health. This approach is helpful for revealing the new consequences of social policy and new determinants of health. By utilizing data from the World Values Survey (WVS) and the European Values Study (EVS) and the country fixed-effects model, this work analyzes the abovementioned issues.

SOCIAL CAPITAL AND HEALTH

Since the ground-breaking works conducted by Kawachi et al. (1997) and Kawachi et al. (1999), the association between social capital and health has been treated as one of the most debated issues in public health research (Ehsan et al., 2019; Moore and Kawachi, 2017). According to the definition provided by Putnam, social capital is “social networks and the norms of reciprocity and trustworthiness that arise from them” (Putnam, 2000, p. 19). On this topic, previous studies have adopted two approaches: the cohesion approach, which sheds light on cognitive and

¹ Earlier publications suggested that there are two types of benefit reciprocity data; record-based reciprocity data and social survey-based reciprocity data. On this issue, this analysis adopts social survey-based reciprocity data because record-based reciprocity data mainly cover European countries and the number of countries and years covered by this record is limited despite of precise information (van Oorschot 2013). On the other hand, social survey-based reciprocity data cover a wide variety of countries in several continents in many years, while social survey-based reciprocity data have limitations in terms of over- and underreporting of benefit amounts (van Oorschot 2013).

structural social capital, and the network approach, which employs social network analysis to analyze social resources and networks (Ehsan et al., 2019; Moore and Kawachi, 2017). Because prior research on public health has employed mainly the former approach, the current study is based on the cohesion approach (Ehsan et al., 2019). Dividing cognitive and structural social capital, this section provides a state-of-the-art understanding of the health impacts of social capital (Ehsan et al., 2019; Moore and Kawachi, 2017).

Cognitive Social Capital

According to previous studies, cognitive social capital is related to “individuals’ perceptions of trust and reciprocity” (Giordano and Lindström, 2011, p. 1219). Social trust, which is defined as “the belief or confidence that someone or something is reliable, truthful and honest” (Moore and Kawachi 2017, p. 513), has largely been regarded as a core notion of cognitive social capital (Ehsan et al., 2019; Putnam, 2000; Rostila, 2013). Therefore, the association between social trust and health is at the center of understanding the link between social capital and health (Kawachi et al., 1997; Moore and Kawachi, 2017; Rostila, 2013).

Thus far, numerous studies have argued that social trust is positively associated with health for the following reasons. First, because trustful people are likely to have higher expectations that other citizens will provide a helping hand when needed, trustful citizens are supposed to have less fear about the future and distress and therefore better health status (Rodríguez-Pose and von Berlepsch, 2014). Second, by reducing fear about the future and distress, social trust may also curb damaging behaviors, such as alcoholism and smoking, and facilitate access to local facilities, such as sports gyms, to promote healthy behavior (Giordano and Lindström, 2011).

Building on these discussions, extensive empirical analyses have clarified the robust correlation between social trust and health (Giordano et al., 2019). In the United States, particularly, the seminal works of Kawachi et al. (1997) and Kawachi et al. (1999) and others have revealed that social mistrust is associated with a high age-adjusted mortality rate and fair or poor health status (Kim et al., 2006; Subramanian et al., 2002). In addition to studies from the United States, many studies in other countries have reported similar results. For example, early publications have shown that high social trust is associated with a low mortality rate and good self-rated and psychological health status in Nordic countries, such as Sweden and Finland (Mohseni and Lindström, 2008; Nummela et al., 2012); other European countries, such as Germany and the United Kingdom (Pollack and von dem Knesebeck, 2004; Snelgrove et al., 2009); and countries on other continents, such as Australia and Japan (Berry and Welsh, 2010; Ichida et al., 2009). Furthermore, by employing international comparative data from the European Social Survey and the WVS, more recent studies have conducted international comparative analyses to explore the correlation between social trust and health (Kim et al., 2011; Rostila, 2013; Story and Glanville, 2019).

Structural Social Capital

In addition to cognitive social capital, structural social capital is also an important dimension of social capital in public health research (Ehsan et al., 2019; Moore and Kawachi, 2017).

According to a previous study, structural social capital can be defined as “the quantity of relationships and membership in institutions that can bring individuals and groups together” (Ehsan et al., 2019, p. 2). As a form of structural social capital, civic participation, such as voluntary organizations, has been adopted as one of the main proxies of this aspect of social

capital. In the literature on structural social capital, earlier publications have noted two types of associations: Olson-type associations and Putnam-type associations (Moore and Kawachi, 2017; Olson, 1982; Putnam, 2000).

In terms of civic participation, Olsonian groups, such as labor unions and professional associations, are related to bonding social capital (Patulny, 2009). According to earlier publications, bonding social capital can be characterized by strong and exclusive connections within groups on the basis of the high levels of homophily (familiarity) among members in terms of demographic characteristics, attitudes, and values (Claridge, 2018; Granovetter, 1973; Putnam, 2000). As Putnam has noted, although bonding social capital is helpful for getting by through helping among members (Putnam, 2000), it can be the basis of the pursuit of narrow interest and the exclusion of outsiders (Claridge, 2018; Sarracino, 2012). According to Olson (1982), the accumulation of bonding social capital may produce interest groups called Olson-type associations (i.e., labor unions and professional associations) that provide benefits for members even at the cost of the rest of society (Patulny, 2009).

In contrast, Putnam-type associations are pertinent to bridging social capital, which are “outward looking and encompass people across diverse social cleavages” (Putnam 2000, p. 22). In particular, Putnam et al. (1993) and Putnam (2000) focused on civic participation related to Putnam-type associations, such as educational, arts, cultural, sports, and youth work pursuits. This is because, by bridging communities, groups, and associations, Putnamian groups can provide open-minded and creative values and therefore activate a public sense of cooperation among citizens (Claridge, 2018; Patulny, 2009). This is the basis of liberal democracy for getting ahead (Putnam, 2000). According to Putnam, although bonding social capital plays a role as a superglue, bridging social capital can serve as WD40 in society (Putnam, 2000).

On the basis of these discussions, many studies have examined the relationships between civic participation and health (Kawachi et al., 1997; Rostila, 2013). In this body of research, most studies have reported that civic participation plays a positive role in enhancing several aspects of health, such as reducing mortality rates and improving psychological and self-rated health, in the United States (Kawachi et al., 1999; Kawachi et al., 1997; Kim et al., 2006); in Nordic countries, such as Sweden and Finland (Nieminen et al., 2010; Nyqvist and Nygård, 2013); in other European countries, such as Germany (Pollack and von dem Knesebeck, 2004); and in other countries, such as Australia and Japan (Berry and Welsh, 2010; Zaitis et al., 2018). Moreover, previous studies that have conducted international comparative analyses have reported a positive association between civic participation through the use of data from European Social Survey (Pinillos-Franco and Kawachi, 2018; Rostila, 2013) and the World Values Survey (Elgar et al., 2011; Kim et al., 2011; Mansyur et al., 2008).

Although previous studies have contributed to the understanding of social capital and health, several limitations exist. First, with only a few exceptions, a relatively small number of studies have explored the interaction effects of macrolevel country characteristics and social capital on health (Hamamura et al., 2017; Story and Glanville, 2019). On this issue, by utilizing data from the WVS, Hamamura et al. (2017) and Story and Glanville (2019) suggested that social trust plays a more important role in facilitating health in more affluent countries with higher GDP per capita and a higher Human Development Index. However, the question of whether other macrolevel country characteristics influence the role of social capital in health has remained largely unanswered.

Second, in terms of the association between civic participation and health, little research has examined whether Olsonian and Putnamian groups play distinct roles in facilitating health.

However, several studies have reported that bonding, which is related to Olson-type associations, and bridging social capital, which is pertinent to Putnam-type associations, may have different roles in health (Moore and Kawachi, 2017; Szreter and Woolcock, 2004). Hence, it is preferable to explore the correlations between two types of associations and health.

SOCIAL POLICY AND HEALTH

In contrast, social policy has been regarded as another crucial factor in promoting health. In the field of public health research, previous studies have adopted three main approaches to evaluate the association between social policy and health: the regime approach, the expenditure approach, and the institutional approach (Dahl and van der Wel, 2013; Sieber et al., 2022). The regime approach adopts welfare regime terminology (i.e., social-democratic, liberal, and conservative regimes), building on decommodification, social stratification, and defamilialization, which were derived by Esping-Andersen (1990, 1999). On the basis of this typology, a great deal of research has examined the association between the welfare regime and health. On this issue, the research findings to date are inconsistent. For example, whereas several health outcomes, such as child mortality and oral health, are better among countries with social-democratic regimes than among countries with other regimes, other health outcomes, such as life expectancy and self-rated health, are not (Brennenstuhl et al., 2012; Eikemo et al., 2008; Pförtner et al., 2019).

Furthermore, several studies have suggested the “Scandinavian welfare paradox of health” (Pförtner et al., 2019, p. 470), indicating that the social-democratic regime does not necessarily have the lowest levels of health inequality. Although this approach has been adopted by numerous studies, recent studies have noted several limitations. First, this approach remains a black box regarding the mechanisms linking social policy and health (Álvarez-Gálvez and Jaime-

Castillo, 2018). Second, because welfare regime typology is a constant country characteristic, evaluating the within-country variations in the association between social policy and health is difficult.²

The expenditure approach adopts social spending on social protection as the proxy of social policy (Álvarez-Gálvez and Jaime-Castillo, 2018). Specifically, studies based on this approach have utilized social expenditures as a percentage of the gross domestic product (GDP) and the per-head measures of social expenditures as the extent of welfare provisions (de Breij et al., 2020; Rostila, 2013). According to earlier publications of this approach, social spending is likely to increase life expectancy, decrease mortality rates, improve self-rated health, and buffer health inequality (Álvarez-Gálvez and Jaime-Castillo, 2018; Dahl and van der Wel, 2013). Although this approach has several advantages, such as international comparability and analysis of within-country variation, it also has several drawbacks. For example, when using social expenditures, it is difficult to distinguish the welfare effort from the need (Dahl and van der Wel, 2013).³

The institutional approach is based on social rights and citizenship, as discussed by Marshall (Bergqvist et al., 2013; de Breij et al., 2020). Given these discussions, the institutional approach focuses on the measures of social policy reflecting the notions of decommodification derived by Esping-Andersen and welfare state generosity because these concepts are related to social citizenship in modern society (Esping-Andersen, 1990, 1999). Specifically, this approach has adopted proxies for specific social policies, such as pensions, unemployment benefits, and

² Previous studies also noted the possibility of the problem in terms of misclassification of countries (Eikemo et al., 2008)

³ Earlier publications also suggested that social expenditures do not necessarily reflect welfare provisions but rather mirror monetary budget of the welfare state (Álvarez-Gálvez and Jaime-Castillo, 2018; Dahl and van der Wel, 2013).

their replacement rates, as well as the decommodification index and the generosity index (de Breij et al., 2020; Ferrarini et al., 2014). For instance, by adopting the generosity index, which focuses on the generosity of sickness and unemployment insurance and pensions to reflect the extent of decommodification, Jacques and Noël (2022) analyzed data from OECD Health Statistics and reported that the generosity index is negatively associated with the age-standardized death rate. Although the institutional approach is a realistic approach, earlier publications have noted several limitations, such as the assumption of a model of a family and a standard worker in terms of unemployment replacement rates (Dahl and van der Wel, 2013; de Breij et al., 2020).

In addition to the main effects of social policy on health, more recent studies have addressed the new question of how social policy affects the role of social capital in health (Akaeda, 2021; Reeskens and van Oorschot, 2014; Rostila, 2013). On this issue, Rostila (2013) employed data from the European Social Survey and suggested that social trust is more strongly associated with self-rated health in a post-socialist regime with a relatively lower level of welfare effort than in a social-democratic regime with generous welfare policies. Furthermore, by analyzing data from the WVS, Akaeda (2021) reported that public total expenditures increase the role of social trust and civic participation in promoting self-rated health.

Although previous studies have contributed to an understanding of this issue, we still have much to learn. First, recent studies have suggested that the proxies of social policy building on the three approaches stated above may mix the levels and the distribution of welfare provisions and therefore do not necessarily mirror whether welfare provisions are provided to mainly targeted citizens or are universally provided (Otto, 2018a, 2018b; van Oorschot, 2013). However, not only the levels of welfare effort but also the question of whether welfare

provisions should be targeted or universal have been regarded as crucial topics in social policy research (Brady and Bostic, 2015; Korpi and Palme, 1998).

Second, with only a few exceptions, a relatively small number of studies have analyzed the interaction effect of social policy and social capital on self-rated health (Akaeda, 2021; Rostila, 2013).

TRANSFER SHARE, LOW-INCOME TARGETING, AND UNIVERSALISM: THEORY AND HYPOTHESES

To overcome these limitations, this study adopts three dimensions of welfare transfers—transfer share, low-income targeting, and universalism—as measures of social policy (Brady and Bostic, 2015; Korpi and Palme, 1998). In doing so, it is possible to divide the levels and the distribution of welfare provisions and to capture two distributional aspects of social policy. Moreover, this approach enables us to examine the interaction effects of social policy and social capital on self-rated health in more detail. This section provides an explanation of three dimensions of welfare transfers and hypotheses concerning the interaction effects of three dimensions of welfare transfers and social capital on health.

Transfer share can be defined as “the share of household income that is socialized or publicly provided” (Brady and Bostic, 2015, p. 271). Hence, transfer share reflects the level of welfare provisions. Whereas transfer share is highly correlated with the budgetary size of social spending, such as public social expenditures as a percentage of GDP, transfer share has been regarded as a well-constructed proxy of welfare effort derived from benefit reciprocity data, and it is a better proxy than public social expenditures (Brady and Bostic, 2015; Korpi and Palme, 1998). Earlier publications have suggested that public transfers provide resources and time for

improving people's capability to help each other and to cope with stressful events (Dahl and van der Wel, 2013; Rostila, 2013). On the basis of these assumptions, it is reasonable that a higher transfer share may facilitate the role of social trust in improving health because welfare transfers may enhance the reliability of the expectation that others will provide a helping hand when needed. Moreover, welfare transfers may reinforce the role of civic participation, such as Olson-type and Putnam-type associations, in improving health conditions because a higher transfer share provides material resources and time to help and support among members of civic organizations. Given these reasons, it is feasible to formulate the following hypothesis:

H1. Transfer share enhances the role of social trust in promoting self-rated health.

H2. Transfer share enhances the role of Olson-type associations in promoting self-rated health.

H3. Transfer share enhances the role of Putnam-type associations in promoting self-rated health.

According to prior publications, low-income targeting is “the disproportionate concentration of welfare transfers in low-income households” (Brady and Bostic, 2015, pp. 272–273). Low-income targeting has been treated as one of two pillars of the distributional aspect of welfare provisions (Brady and Bostic, 2015; Korpi and Palme, 1998). Because low-income targeting concentrates resources on the needy, it seems to be efficient at addressing poverty and inequality (Gugushvili and van Oorschot, 2020). However, previous studies have noted the side effects of low-income targeting policies with means testing. On this issue, earlier publications have suggested that although rich citizens bear the burden of taxation, low-income targeting policies focus resources on disadvantaged citizens (Brady and Bostic, 2015; Jacques and Noël, 2018, 2021; Korpi and Palme, 1998). Hence, low-income targeting may divide citizens into

givers and receivers (Gugushvili and van Oorschot, 2020; Laenen and Gugushvili, 2021). Under such conditions, selective social policies may stigmatize needy individuals. For these reasons, low-income targeting may cause discontent among the rich, spread mistrust among citizens, and diminish solidarity and social connectedness (Brady and Bostic, 2015; Korpi and Palme, 1998). Given these discussions, it is not surprising that low-income targeting mitigates the reliability of social trust with the expectation that others will provide a helping hand when needed and therefore attenuates the role of social trust in fostering health. Furthermore, it is also possible that low-income targeting policies may damage the role of civic participation, such as Olson-type and Putnam-type associations, in enhancing health because selective policies may divide citizens and inhibit help and support through civic participation. On the basis of these discussions, we can formulate the following hypotheses:

H4. Low-income targeting erodes the role of social trust in promoting self-rated health.

H5. Low-income targeting erodes the role of Olson-type associations in promoting self-rated health.

H6. Low-income targeting erodes the role of Putnam-type associations in promoting self-rated health.

In addition to low-income targeting, universalism has been treated as another crucial aspect of the distribution of welfare provisions. According to Brady and Bostic, universalism is “homogeneity across the population in benefits, coverage, and eligibility” (Brady and Bostic, 2015, p. 274). Because universal policies do not contain means testing and provide equivalent benefits for all citizens, universalism does not stigmatize disadvantaged citizens and does not divide citizens into givers and receivers (Gugushvili and van Oorschot, 2020; Rothstein, 1998, 2008). Given these discussions, it is natural that universalism may enhance the role of social trust

in promoting health because universal and impartial social policy may widen the radius of trust among citizens (Delhey and Newton, 2005). Moreover, it is also feasible that universalism may facilitate the roles of civic participation, such as Olson-type and Putnam-type associations, in health because universal policies lack the elements that may erode solidarity and connectedness and therefore may foster mutual support among members of civic associations. Building on these discussions, we can formulate the following hypotheses:

H7. Universalism enhances the role of social trust in promoting self-rated health.

H8. Universalism enhances the role of Olson-type associations in promoting self-rated health.

H9. Universalism enhances the role of Putnam-type associations in promoting self-rated health.

DATA AND METHODS

Data

This analysis adopts pooled data from the WVS and EVS from 1981 to 2022, which covers a wide range of countries on various continents and includes the key variables in this study, such as self-rated health and social capital (EVS, 2022; Inglehart et al., 2022). We combine individual-level data from the WVS and the EVS with macrolevel data containing three dimensions of welfare transfers derived from the LIS database and other country characteristics to analyze worldwide trends among OECD countries. After listwise exclusion, the data in this analysis include 132,345 individuals, 107 country-years, 21 years, and 28 countries containing two or more rounds.

Measures

As the dependent variable, this study utilizes self-rated health. Self-rated health is measured by the following question and options: “All in all, how would you describe your state of health these days? Would you say it is... ‘1. Very good’ ‘2. Good’ ‘3. Fair’ ‘4. Poor’ ‘5. Very poor.’” In accordance with earlier publications, this analysis uses a dummy for poor health status (poor or very poor = 1).

In addition, the individual-level key independent variables are the dummy for social trust and the scores of the two types of civic participation. In the WVS and the EVS, social trust is measured by building on the following question and two options: “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?”: ‘1. Most people can be trusted,’ or ‘2. Need to be very careful.’ In accordance with the analysis of previous studies, this study employs a social trust dummy (1 = “Most people can be trusted”) (Kim et al., 2011; Story and Glanville, 2019). In terms of civic participation, this study focuses on two types of associations: Olson-type and Putnam-type associations, determined by scoring. First, following previous studies, the score for Olson-type groups is calculated as the number of memberships in “labor unions,” “political party,” and “professional organizations” (Knack and Keefer, 1997; Patulny, 2009; Sarracino, 2010, 2012). Hence, it ranges from 0 to 3. Second, the score for Putnam-type groups is computed as the number of memberships in “church or religious organization,” “art, music or educational organization,” and “sport or recreational organization” (Knack and Keefer, 1997; Sarracino, 2010, 2012). The scores of the Putnam-type groups ranged from 0 to 3.

As macrolevel key variables, building on Brady and Bostic (2015) and survey-based benefit reciprocity data from the Luxembourg Income Study (LIS) Database (LIS, 2023), this analysis computes the values of three dimensions of welfare transfers: transfer share, low-income targeting, and universalism, in each country per year. By using the LIS Database with nationally representative and cross-nationally harmonized individual-level datasets of disposable household income and welfare transfers, it is possible to compute macrolevel proxies for both the levels and the distributional aspect of welfare provisions. First, transfer share is calculated as the mean of the share of public transfers as a percentage of disposable household income. Transfer share ranges from 0 to 100 and reflects the level of welfare provisions (Brady and Bostic, 2015; Korpi and Palme, 1998). Second, this study employs the Kakwani concentration coefficient for the distribution of public transfers as a proxy for low-income targeting (Besley, 1990; Brady and Bostic, 2015; Korpi and Palme, 1998). The value of the Kakwani concentration coefficient is -1 when all public transfers are concentrated among citizens with the lowest household income. In contrast, when all public transfers are concentrated among citizens with the highest household income, the value of the Kakwani concentration coefficient is +1. Following Korpi and Palme (1998) and Brady and Bostic (2015), this analysis uses the reverse score of the Kakwani concentration coefficient to reflect the degree of low-income targeting. Third, in accordance with Brady and Bostic (2015), the score for universalism is computed as 1 over the coefficient of variation in terms of the absolute amount of transfers. Hence, this score mirrors the homogeneity in the levels of transfers provided among the population. A higher score indicates a higher degree of universalism. In accordance with previous research, the missing values of transfer share, low-income targeting, and universalism are linearly extrapolated by using values from other years for each country (Fernández and Jaime-Castillo, 2018). In the analysis of the country fixed-effects

regressions, the percentage of extrapolated values for the three dimensions of welfare transfers is 48.6 percent.

Following previous international comparative research on social policy, social capital, and health (Mewes, 2024; Rostila, 2013; van Oorschot and Arts, 2005), this study controls for individual-level variables as follows: gender (1=female, 0=male), age, age squared,⁴ education (primary or less, secondary, and tertiary), employment status (employed, unemployed, retired, and other status), household income (z scored), a dummy for marital status (married=1), a dummy for child (having child=1), and a dummy for church attendance (1=once a month or more).

In addition to the individual-level controls, this study contains macrolevel controls, such as economic development, inequality, unemployment rate, and economic growth rate, because previous studies have suggested that these variables are associated with social policy, social capital, and health, and therefore, these macrolevel variables are controlled for (Bergh and Bjørnskov, 2011; Mewes, 2024; Rodríguez-Pose and von Berlepsch, 2014; Rostila, 2013). First, this study includes the logarithm of GDP per capita adjusted for the purchasing power standard (PPS) in the analysis. The values for this variable in each country in each year were obtained from the OECD Stat (OECD, 2023). Moreover, as the measure of inequality, this study controls for the Gini coefficient. The values of the Gini coefficient for each country in each year were obtained from the Standardized World Income Inequality Database (Solt, 2020). Following prior studies, this analysis includes the unemployment rate and GDP growth rate (Bergh and Bjørnskov, 2011; Rodríguez-Pose and von Berlepsch, 2014). The unemployment rate and GDP

⁴ When we compute age squared, age is centered by the grand mean. Because 82 years old or older are recorded as 82 in official data from the EVS 2017-2020 (82 = 82 or older), the present study recorded 82 years old or older in the WVS and the other rounds in the EVS as 82.

growth rate for each country in each year were obtained from the World Bank (2023). Table 1 shows the descriptive statistics of the variables in the analysis.

--TABLE 1 ABOUT HERE--

Empirical strategy

Although previous international comparative studies of public health have made significant advances in this research field (Elgar et al., 2011; Rostila, 2013), recent studies have noted that the conventional approach utilizing international comparative survey data with one round and multilevel modeling has several limitations, such as omitted variable bias (Yu, 2015). For this reason, more recent studies have employed international comparative data with multiple rounds and a country fixed-effects model to estimate the within-country effects to reduce omitted variable bias (Kim et al., 2011; Yu, 2015).

Given these discussions, the present study employs a country fixed-effects regression model with dummies for countries and years to control for unobserved time-invariant country characteristics and common time trends that are constant across countries. Although the normality of dependent variables is the famous assumption of linear regression, simulation studies have reported that, owing to the central limit theorem, a linear regression model is valid for any distribution of the dependent variable, including binary or ordered categories, when the analysis incorporates more than 500 observations (Lumley et al., 2002). Hence, recent international comparative research has utilized country fixed-effects regression models to analyze a binary variable or a Likert scale variable as the dependent variable (Kim et al., 2011).

Moreover, following Giesselmann and Schmidt-Catran (2019), this study employs the country fixed-effects and slopes model (cFES) when this analysis explores cross-level interaction

effects. By including the interaction terms of the country dummies and the interacted individual-level variable to control for the effect heterogeneity in the interacted individual-level variable, this method enables us to estimate the within-country effects of cross-level interactions (Giesselmann and Schmidt-Catran, 2019). Additionally, in accordance with earlier publications, this analysis adopts cluster robust standard errors adjusted for clustering by country (Helliwell et al., 2020).

RESULTS

Table 2 depicts the results of the country fixed-effects regression model with dummies for countries and years and reports the main effects of key independent variables on self-rated health.⁵ Model 1 in Table 2 shows the results regarding the main effects of individual-level variables and reports that social trust and Putnam-type associations play positive roles in reducing the risk of poor health status ($-0.024, p < 0.001$; $-0.008, p < 0.001$; respectively), whereas Olson-type associations are not associated with self-rated health.

--TABLE 2 ABOUT HERE--

In addition to individual-level key variables, Models 2 to 4 in Table 2 assess the main effects of three dimensions of welfare transfers on self-rated health. Because transfer share, low-income targeting, and universalism are highly correlated, each model includes each of the three dimensions of welfare transfers. The Pearson correlation coefficients between the transfer share and low-income targeting, between low-income targeting and universalism, and between the transfer share and universalism are 0.641 ($p < 0.001$), 0.492 ($p < 0.001$), and 0.817 ($p < 0.001$),

⁵ The analyses in this study were estimated using Stata 17.0.

respectively. In Models 2 to 4, the coefficients of transfer share, low-income targeting, and universalism are not significant.

Furthermore, Table 3 provides the results of the country fixed-effects and slopes model with interaction terms of country dummies and individual-level key variables, such as social trust, Olson-type associations, and Putnam-type associations, to evaluate within-country effects regarding the cross-level interactions of three dimensions of welfare transfers and social capital on subjective health. In Model 5, the cross-level interaction of transfer share and social trust is significantly negative ($-0.001, p < 0.05$), indicating that transfer share facilitates the role of social trust in reducing the risk of poor health status. As shown in Fig. 1, the association between social trust and subjective health is not significant under the condition with the minimum value of transfer share (0.005 , n.s.), whereas the association between social trust and poor health status is significantly negative under the condition with the maximum value of transfer share ($-0.039, p < 0.001$). In contrast, the results of Models 6 and 7 reveal that the cross-level interactions of transfer share and Olson-type associations on health and those of transfer share and Putnam-type associations are not significant. Therefore, as Fig. 1 reports, Hypothesis 1 is supported, whereas Hypothesis 2 and Hypothesis 3 are not supported.

--TABLE 3 ABOUT HERE--

Additionally, Models 8 to 10 examine the moderation effects of low-income targeting on the association between several aspects of social capital and health. In Model 8, the cross-level interaction effect of low-income targeting and social trust on health is not significant. Hence, Hypothesis 4 is not supported. On the other hand, Models 9 and 10 show that the moderation effects of low-income targeting the relationships between two types of civic participation, such as Olson- and Putnam-type associations, and self-rated health are significantly positive ($0.067, p$

< 0.01 ; $0.050, p < 0.05$, respectively). Fig. 2 indicates that, under low levels of low-income targeting policies, Olson-type associations are likely to play a role in decreasing the risk of poor health status ($-0.029, p < 0.01$), while in the presence of high levels of low-income targeting policies, Olsonian groups play the opposite role and rather increase the risk of poor health status ($0.012, p < 0.05$). Moreover, Fig. 3 indicates that, in the presence of low levels of low-income targeting policies, Putnamian associations are supposed to play a role in decreasing the risk of poor health status ($-0.030, p < 0.01$), while under a high extent of low-income targeting policies, the role of Putnam-type associations in reducing the risk of poor health status disappears (0.001 , n.s.). The results of Models 9 and 10 show that low-income targeting policies may deteriorate the function of civic participation, including Olson- and Putnam-type associations, in preventing poor health; therefore, Hypotheses 5 and 6 are supported.

--FIG. 1 ABOUT HERE--

--FIG. 2 ABOUT HERE--

--FIG. 3 ABOUT HERE--

Moreover, Models 11 to 13 in Table 3 explore the moderation effects of universalism on the associations between several aspects of social capital and self-rated health. Models 11 to 13 report that the cross-level interactions of universalism and the three aspects of social capital on health are not significant. These results indicate that universalism does not vary the associations between social capital and health. Hence, Hypotheses 7, 8, and 9 are not supported.

DISCUSSION

By adopting data from the WVS and EVS, this study examined the moderation effects of three dimensions of welfare transfers on the association between several aspects of social capital and

subjective health. Through international comparative analyses, the current study obtained two major results. First, Hypothesis 1, indicating that transfer share increases the role of social trust in reducing the risk of poor health, was supported. One interpretation is that public transfers provide resources and time to improve people's capability to help each other, thereby facilitating the function of social trust with the expectation that other citizens will provide mutual assistance and reducing fear about the future and distress (Rodríguez-Pose and von Berlepsch, 2014; Rostila, 2013).

Second, Hypotheses 5 and 6, suggesting that low-income targeting diminishes the role of two types of civic participation, such as Olson- and Putnam-type associations, in reducing the risk of poor health, are supported. Low-income targeting may divide citizens into givers and receivers and therefore weaken the role of both Olson- and Putnam-type associations in providing opportunities for citizens to gain material resources and social support from organizations or other members (Fiorillo et al., 2017; Laenen and Gugushvili, 2021).

By revealing the above results, this analysis contributes to the identification of new consequences of social policy. First, the level of welfare provisions may have a synergistic effect on the role of social trust. These results have important implications for the influential question of whether state governments should adopt welfare retrenchment or welfare increase. Second, low-income targeting may have side effects on the functions of both Olson- and Putnam-type associations. These findings are also crucial for discussing important questions in social policy research concerning whether social policies should be based on targeting or universalism (Brady and Bostic, 2015; Korpi and Palme, 1998). In addition to the new consequences of social policy, this analysis also has new implications for discussions of social capital and self-rated health by bridging this research field and social policy research.

Despite these implications, this study has several limitations. First, this analysis does not cover all dimensions of social policy. Because of the accumulation of benefit reciprocity data, it is also possible to calculate other aspects of social policy more flexibly. Hence, it is preferable to examine the effects of other aspects of social policy on health. Second, the current study does not explore all aspects of social capital. Therefore, it may be interesting to examine the question of whether social policy varies the association between other aspects of social capital and health. Third, although this analysis adopted a country fixed-effects model to reduce omitted variable bias, it was difficult to address reverse causality. Hence, it is advisable to utilize causal inference methods, such as the instrumental variable approach, to address the problem of causality.

CONCLUSION

This study highlights that social policy differs the associations between social capital and health. In particular, transfer share facilitates the association between social trust and self-rated health, whereas low-income targeting diminishes the associations between civic participation, such as Olson- and Putnam-type associations, and subjective health. The moderation effects of transfer share may come from increasing people's capability to provide assistance, enhanced by public transfers, and the moderation effects of low-income targeting may be derived from the nature of targeting policies that divide citizens into givers and receivers. Given these suggestions, the current trends of social policy with welfare retrenchment and low-income targeting with means testing may have side effects on the function of social capital. Hence, it may be useful to consider other directions of social policy and how to minimize their side effects.

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TABLES

Table 1. Descriptive statistics of variables included in this analysis.

Variable	<i>N</i>	Mean	SD	Minimum	Maximum
Individual-level characteristics					
Self-rated health	132,345	0.065	0.247	0.000	1.000
Female	132,345	0.525	0.499	0.000	1.000
Age	132,345	47.390	17.199	18.000	82.000
Primary or less	132,345	0.205	0.404	0.000	1.000
Secondary education	132,345	0.460	0.498	0.000	1.000
Tertiary education	132,345	0.334	0.472	0.000	1.000
Employed	132,345	0.503	0.500	0.000	1.000
Unemployed	132,345	0.055	0.229	0.000	1.000
Retired	132,345	0.212	0.409	0.000	1.000
Other	132,345	0.230	0.421	0.000	1.000
Household income (z-score)	132,345	-0.000	1.000	-2.786	3.739
Married	132,345	0.603	0.489	0.000	1.000
Having child	132,345	0.722	0.448	0.000	1.000
Religious attendance	132,345	0.283	0.450	0.000	1.000
Social trust	132,345	0.390	0.488	0.000	1.000
Olson-type associations	132,345	0.418	0.732	0.000	3.000
Putnam-type associations	132,345	0.790	0.912	0.000	3.000
Country characteristics					
Transfer share	107	32.003	12.296	0.570	50.160
Low-income targeting	107	0.388	0.122	-0.020	0.590
Universalism	107	0.684	0.222	0.150	1.120
GDP per capita	107	37057.119	13222.842	9273.730	66169.300
Gini coefficient	107	31.417	7.060	22.800	51.200
Unemployment rate	107	7.172	4.036	2.050	22.670
Economic growth rate	107	2.300	2.980	-8.070	7.890

Table 2. Results of country fixed-effects regressions on self-rated health.

	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Intercept	0.020 (0.012)	-0.514 (0.258)	-0.085 (0.241)	-0.110 (0.247)
Individual-level variables				
Social trust	-0.024*** (0.002)	-0.024*** (0.002)	-0.024*** (0.002)	-0.024*** (0.002)
Olson-type associations	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Putnam-type associations	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)
Country characteristics				
Transfer share		-0.000 (0.001)		
Low-income targeting			0.015 (0.066)	
Universalism				0.048 (0.028)
Individual level controls	Yes	Yes	Yes	Yes
Macrolevel controls	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.079	0.080	0.080	0.080
N_{country}	28	28	28	28
N_{year}	21	21	21	21
$N_{\text{country-year}}$	107	107	107	107

$N_{\text{individual}}$	132,345	132,345	132,345	132,345
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NOTE: Cluster-robust standard errors in parentheses.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed test)

Table 3. Results of country fixed-effects regressions on self-rated health.

	MODEL 5	MODEL 6	MODEL 7	MODEL 8	MODEL 9	MODEL 10	MODEL 11	MODEL 12	MODEL 13
Intercept	-0.045 (0.255)	-0.031 (0.246)	-0.143 (0.226)	-0.053 (0.238)	-0.056 (0.229)	-0.114 (0.214)	-0.087 (0.243)	-0.073 (0.234)	-0.180 (0.208)
Individual-level variables									
Social trust (ST)	0.001 (0.011)	-0.024*** (0.002)	-0.024*** (0.002)	-0.050 (0.030)	-0.024*** (0.002)	-0.024*** (0.002)	-0.031 (0.015)	-0.024*** (0.002)	-0.024*** (0.002)
Olson-type associations (OA)	0.001 (0.001)	0.016 (0.009)	0.000 (0.001)	0.001 (0.001)	-0.029** (0.010)	-0.000 (0.001)	0.001 (0.001)	0.024 (0.013)	-0.000 (0.001)
Putnam-type associations (PA)	-0.008*** (0.002)	-0.008*** (0.002)	0.007 (0.009)	-0.008*** (0.002)	-0.008*** (0.002)	-0.030* (0.011)	-0.008*** (0.002)	-0.008*** (0.002)	0.004 (0.011)
Country characteristics									
Transfer share	0.000 (0.001)	-0.000 (0.001)	0.000 (0.001)						
Low-income targeting				0.005 (0.062)	-0.014 (0.063)	-0.007 (0.067)			
Universalism							0.042 (0.026)	0.060 (0.030)	0.056 (0.029)
Cross-level interactions									
Transfer share*ST	-0.001* (0.000)								
Transfer share*OA		-0.000 (0.000)							
Transfer share*PA			-0.000 (0.000)						
Low-income targeting*ST				0.052 (0.064)					
Low-income targeting*OA					0.067** (0.022)				
Low-income targeting*PA						0.050* (0.023)			
Universalism*ST							0.008 (0.022)		
Universalism*OA								-0.031	

Universalism*PA								(0.018)	-0.015 (0.015)
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macrolevel controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interactions of countries and ST	Yes	No	No	Yes	No	No	Yes	No	No
Interactions of countries and OA	No	Yes	No	No	Yes	No	No	Yes	No
Interactions of countries and PA	No	No	Yes	No	No	Yes	No	No	Yes
R-squared	.081	.080	.081	.081	.080	.081	.081	.080	.081
N_{country}	28	28	28	28	28	28	28	28	28
N_{year}	21	21	21	21	21	21	21	21	21
$N_{\text{country-year}}$	107	107	107	107	107	107	107	107	107
$N_{\text{individual}}$	132,345	132,345	132,345	132,345	132,345	132,345	132,345	132,345	132,345

NOTE: Cluster-robust standard errors in parentheses.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed test)

FIGURES

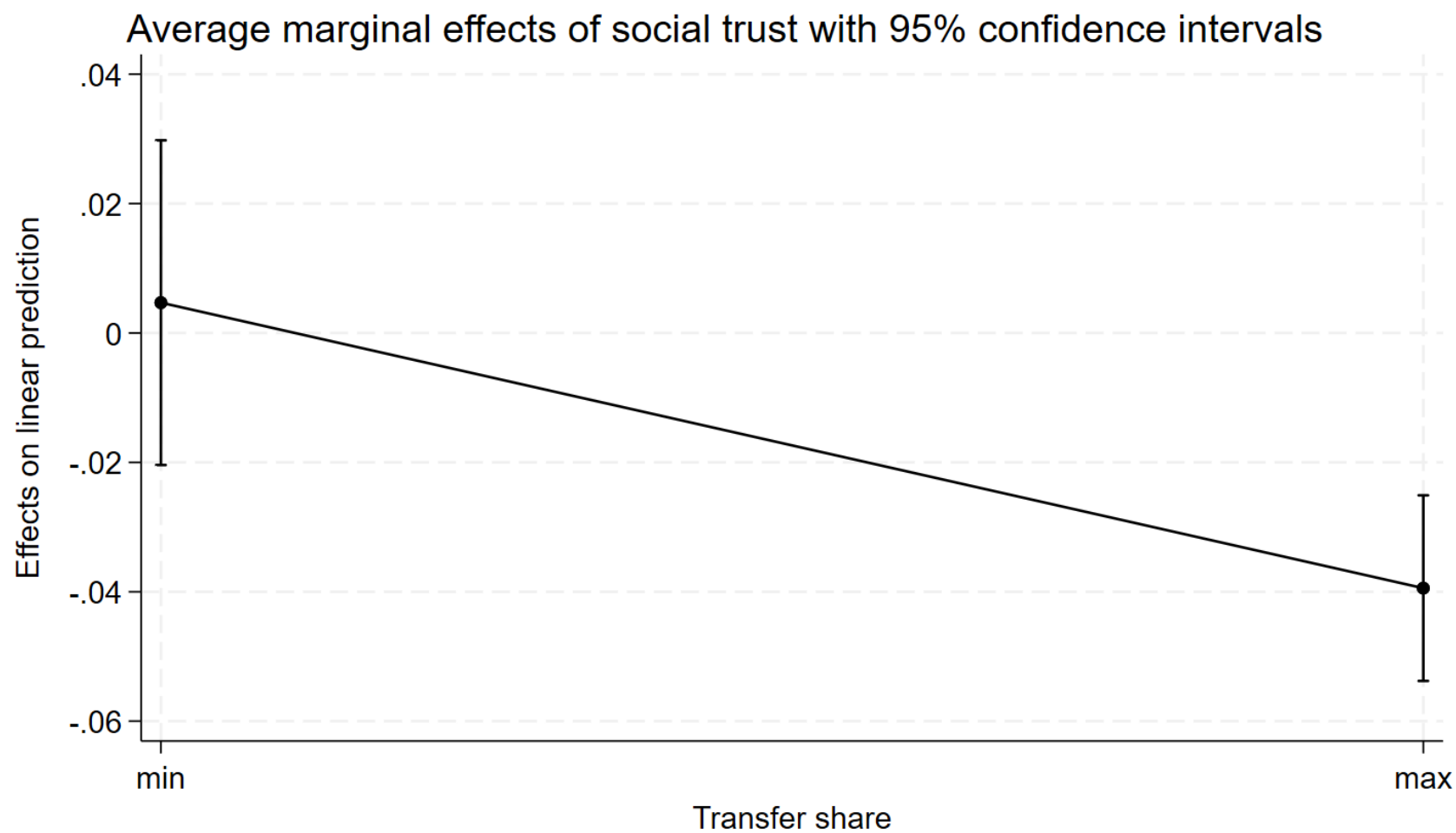


Fig. 1. Transfer share and average marginal effects of social trust on poor health.

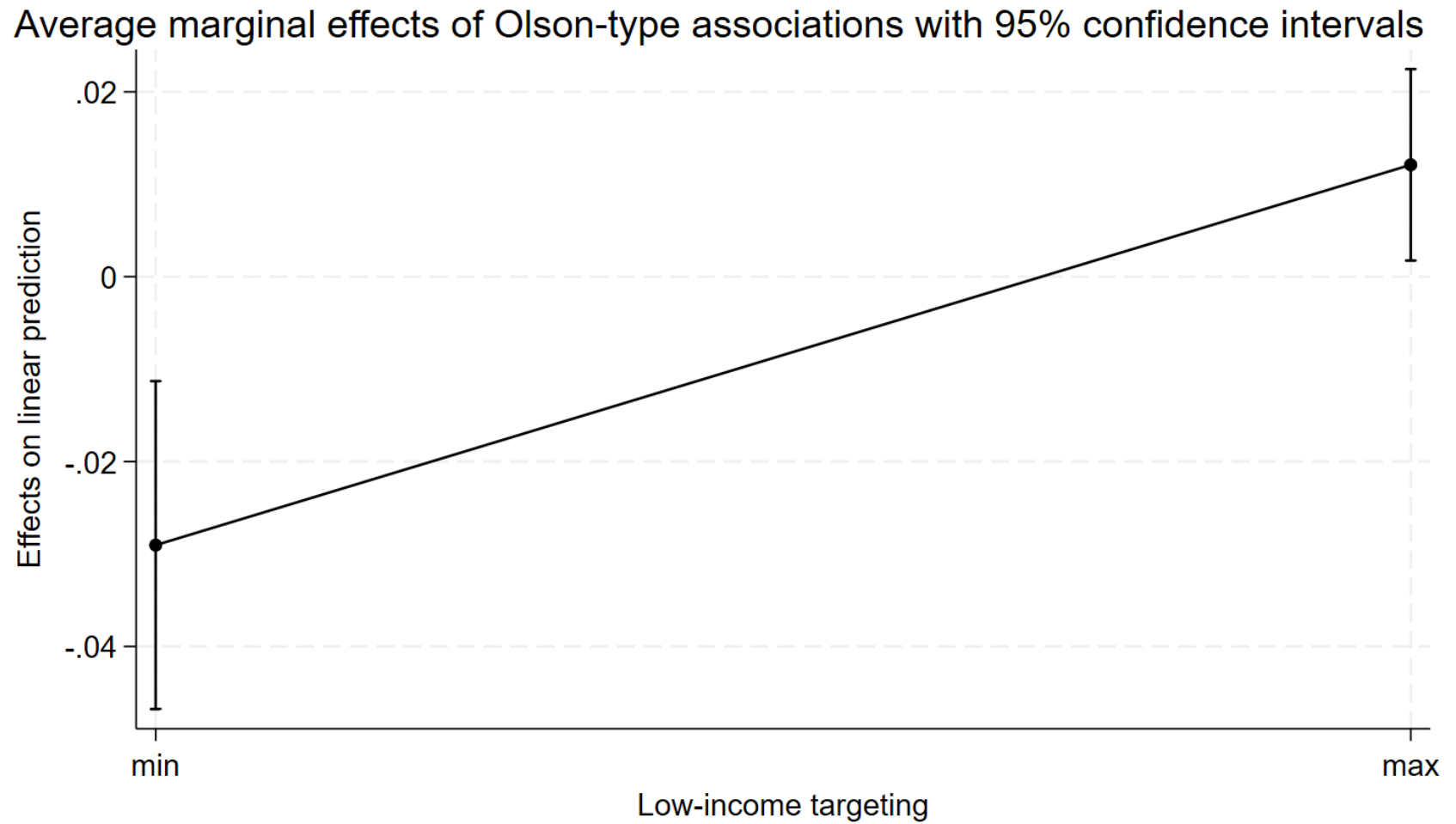


Fig. 2. Low-income targeting and average marginal effects of Olson-type associations on poor health.

Average marginal effects of Putnam-type associations with 95% confidence intervals

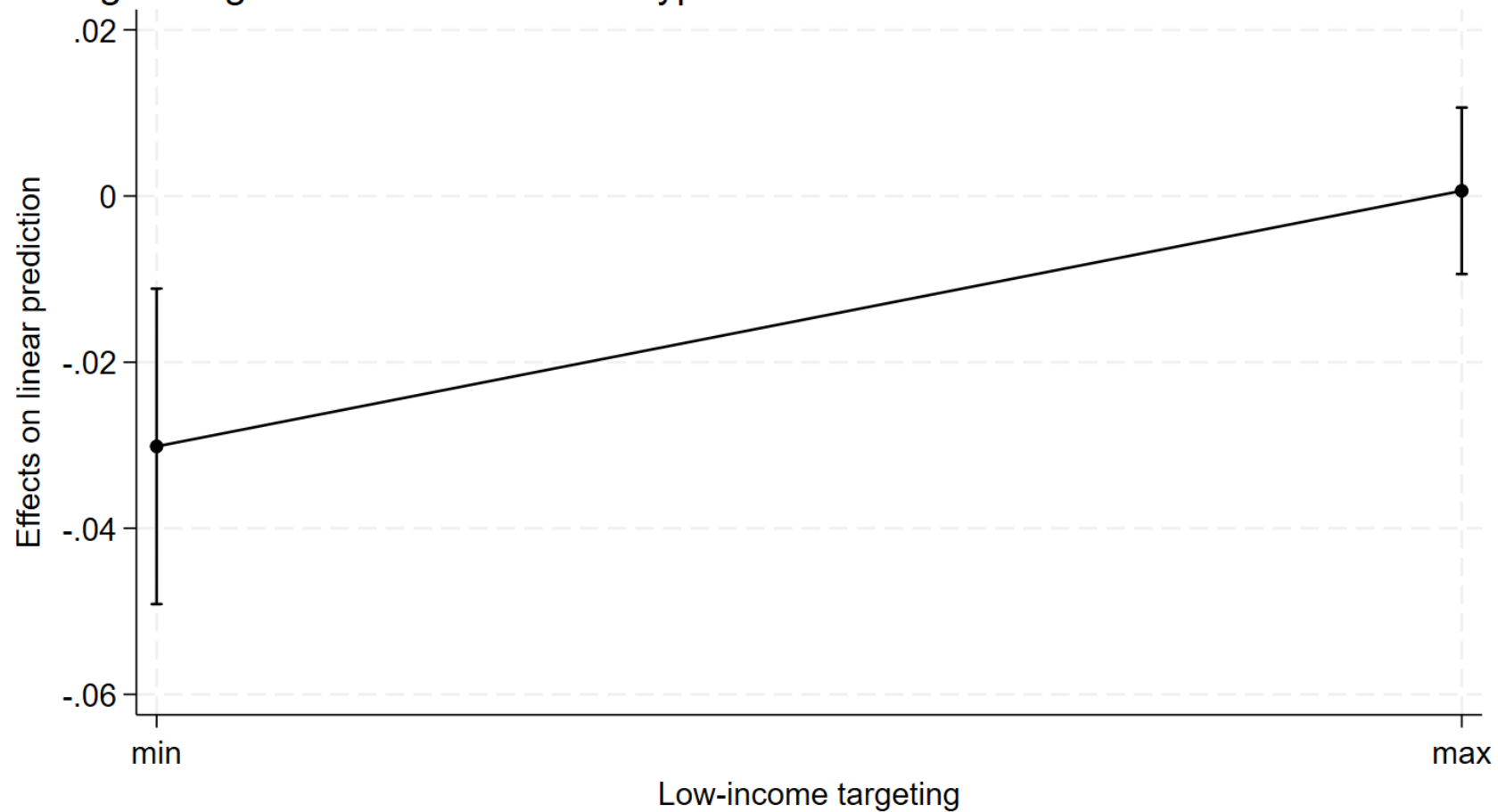


Fig. 3. Low-income targeting and average marginal effects of Putnam-type associations on poor health.