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Inequality and Charity

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Summary. — We study empirically the relationship between inequality and active charity participation. Increased inequality can trigger feelings of empathy and compassion, thereby increasing altruism, and it can enhance the worm-glow feeling associated with giving. However inequality can also increase social distance and, therefore, social segregation, decreasing the participation to charities because of a weaker identification with the needy. Our empirical analysis features individual data on charity participation from the World Values Survey, merged with country-level information on inequality from the World Bank Development Indicators. We find that income inequality is positively associated with the probability to actively participate in charitable organizations, even after controlling for economic, sociological, demographics, cultural, and religious factors. We also find that women, religious people, and more educated individuals have a higher probability to actively participate in charities. Since charitable organizations mostly perform redistributive tasks, we also checked whether the generosity of the welfare state crowds out the participation in them, but we found no evidence of this relationship.

Key words — social capital, solidarity, welfare

1. INTRODUCTION

Why do we help others? Perhaps the foremost motivation is that we are all moved by feelings of empathy, compassion, and reciprocity, albeit with different intensities, so that our individual utilities depend also on the well being of others. But pure altruism is not the end of the story. An additional motivation is the desire to be publicly praised and acclaimed, maybe to gain social status. Another possibility is that helping others provides, by itself, an utility to the helper, the so-called "Warm-glow" feeling. Helping others is also a moral and religious duty in many cultures, which means that many are compelled to help just to adhere to a social norm. All of these motivations, combined together, explain the existence of institutions that foster altruistic, pro-social, behavior, such as charity organizations and mutual aid groups. In this paper we try to understand whether economic fundamentals can also explain the existence of those institutions, over and above other determinants. More specifically, we study the relationship between income inequality and the active involvement in charitable organizations.

From a theoretical standpoint, the relationship between inequality and charity is ambiguous. On the one hand, the sociological literature highlights a negative relationship between inequality and solidarity. The reason is that inequality increases social distance, leading to social segregation. This lower frequency of interaction, in turn, reduces the willingness to help others because they are increasingly perceived as different (Durkheim, 1893; Wilkinson & Pickett, 2009; Paskov & Dewilde, 2012). Moreover, there is often a preference for income homophily in social interactions, so that increased inequality decreases the willingness to join social activities (Alesina & La Ferrara, 2000). On the other, pure altruism implies that inequality fosters solidarity (Bowles & Gintis, 2000; Fehr & Schmidt, 1999) and, therefore, charity participation, especially if inequality is the result of reduced incomes at the bottom of the distribution (Charness & Rabin, 2002). One example is an increased unemployment in recession (Galbraith, 1998), which heavily hits low-skilled, low-wage workers. Another example is a wage decline for unskilled workers due either to skill-biased technological change (Bound & Johnson, 1992) or to wage competition from abroad. Similarly, impure altruism also implies a positive relationship between inequality and charity participation, for instance as a consequence of the warm-glow theory of giving (Andreoni, 1990). More precisely, an increased inequality, determined by an increased number of people in need, enhances the utility of the giver because of the feeling of a higher social value of her actions. Lastly, increased inequality might simply mean that there is a bigger number of opportunities for charitable giving, or that there is a bigger number of relatively richer individuals with a smaller marginal utility of consumption, who find charitable giving more attractive.

The open question, then, is which of the two sets of contrasting effects is more important empirically. We tackle this issue looking at individual data from the World Values Survey (WVS henceforth), a very extensive study aimed at comparing cultures. In particular, we measure individual charity participation with the answers to the WVS question that asks about membership in charitable or humanitarian organizations, coding a dummy for "Active" participation. We focus on the last two waves of the survey, respectively 2005–09 (wave 5) and 2010–14 (wave 6), and we collect data for the biggest possible number of countries. We then run probit regressions of the individual active charity participation on a country-level measure of inequality, either the Gini coefficient or the income share of the highest 10%, controlling for several cultural, religious, sociological, demographic, and economic factors.

We find evidence of a positive relationship between inequality and charity participation: residents of more unequal countries are characterized by a higher probability to be actively involved in charities. We believe that our result is important because charity arguably improves the standard of living for many, which contributes to partially offset the negative social

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consequences of inequality. We also find that the commitment to religious values explains the probability to actively participate in charities, along with gender, education, age, and employment status. In particular, women, religious people, and more educated individuals are characterized by a higher probability of active charity participation. Since charitable organizations are often a substitute to public services, or perhaps a reaction to an insufficient level of them, we also regressed charity participation on the generosity of the welfare state. The idea is that public expenditures in areas such as health and education should crowd out the participation in charities that provide the same goods and services. We find no evidence of this relationship.

A potential problem of our empirical specification is the possible endogeneity of inequality, which could be determined by charity participation, making it difficult to interpret the regression coefficient. In greater detail, Putnam (1993) claims that associationism affects economic performance, because: "[...] Organizations instil in their members habits of cooperation, solidarity and public spiritedness" (Putnam, 1993), which can be beneficial to long-run growth. Since growth affects inequality, for instance if it is the result of skill-biased technological change, we could have an endogenous regressor. However Knack and Keefer (1997) show that there is no relationship between associationism and growth, which actually rules out this possibility. Furthermore, Olson (1982) provides some additional, theoretical, argument against Putnam's theory. [1] Specifically, since many organizations promote their special interests only, it is likely that they might lobby to secure them, often at the expenses of society as a whole. The pursue of special interests, in turn, hampers long-run economic performance.

The rest of the paper is organized as follows. Section 2 discusses the related economic and sociological literature. Section 3 describes the data set and the summary statistics. Section 4 summarizes the main results and their robustness. Section 5 discusses the relationship between inequality, charity participation, and the welfare state. Section 6 concludes.

2. RELATED LITERATURE

This paper is closely related to the literature on social capital (Putnam, 1993; Sobel, 2002), given that the participation in charitable organizations, being a social activity, is often used to measure it (the "Communitarian view" of social capital stressed by Woolcock & Narayan (2000)). In this sense our paper is close to Alesina and La Ferrara (2000) and Lancee and Van De Werfhorst (2012). The first finds, among other results, a negative relationship between income inequality and associational activities in a sample of US cities. The second a negative relationship between inequality and civic participation in a sample of European countries. Unlike these previous contributions, we focus on a different sample, that encompasses individuals in several countries, but we focus on a single social activity, charity participation, rather than civic participation in general. We finally come to the opposite conclusions, most likely because charity participation depends only marginally from the preference for homophily in social interaction, as in the Alesina and La Ferrara (2000) model. In a related contribution, Uslaner and Mitchell (2005) find, in a sample of US states, that inequality predicts lower trust, which in turn determines a lower volunteering rate. However they do not find the same relationship for charitable giving. Our result is also different from Paskov and Dewilde (2012), who find a negative relationship between inequality and solidarity ("The willingness to contribute to the welfare others") in a sample of European countries.

In a related contribution, Putnam (2000) highlights the possible causes of the declining social capital in the US, such as the privatization of leisure, determined by an increase in TV watching, and the increased female participation in the labor market. Following his work, we control, in our regression, both for the internet use, which is perhaps the modern form of leisure privatization, and for gender, since women are typically more socially minded than men (Andersen, Bulte, Gneezy, & List, 2008; Croson & Gneezy, 2009). Knack and Keefer (1997) study instead the relationship between associationism and economic performance, finding no empirical evidence. Their work is especially important for our empirical identification, because it excludes the possibility of endogeneity of inequality. Another related work is Glaeser, Laibson, and Sacerdote (2002), where the authors build a dynamic model of social capital accumulation and then test it empirically. They find, among other results, that social capital accumulation rises and then declines with age and that it is negatively associated with geographical mobility. Building on their work, we control for age in our regression and we study the effects of geographical mobility considering a dummy for first- or second-generation immigrants.

Many researchers are nevertheless skeptical about the social capital literature. Among others, Durlauf (2002), highlights, in general, the problems that many empirical studies of social capital share, that potentially invalid their conclusions. Bowles and Gintis (2002), more radically, object the very terminology "Social Capital". The reason is that the term capital typically refers to something that can be owned, like a machine or an education, while the notion of social capital refers to relationships among individuals. In other words, social capital is about "What people do rather than what people own". For this reason, they argue that it would be better to talk about "Community" instead of social capital. We believe that the participation in charitable organization is indeed a measure of community. In addition, Bowles and Gintis view the communities as a response to market and state failures, something that we test empirically.

There is also an economic literature on charity, but it mainly focuses on donations to charitable organizations, rather than on the active involvement in them. Among others, Warr (1982) analyzes the efficiency effects of redistribution in the presence of private charity. Andreoni (1988, 1990) shows that a simple economic model with purely altruistic preferences is unable to explain charitable contributions unless it is augmented with non altruistic motives, such as the desire for a warm-glow (Arrow, 1975; Sen, 1977), the desire to acquire respect, the possibility of making new friends or potential mates, or the wish to be publicly praised. Along the same lines, Glazer and Konrad (1996) explain charity as a way to signal personal wealth without relying to conspicuous consumption. In a different, experimental, contribution, Gneezy, Keenan, and Gneezy (2014) show that potential charity donors are willing to contribute less to charities with high administrative and fundraising costs, so that a plausible strategy to increase donations is to clearly state that the money will not be used to cover those.

3. DATA

The data on the participation in charitable organizations are from the WVS. This survey is part of an ongoing experiment to compare several aspects of culture around the world. More

specifically, we consider the individual responses to the question: "[...] Could you tell me if you are an active member, an inactive member or not a member of a charitable or humanitarian organization? ", coding a dummy that is equal to one if the respondent answered "Active member" and zero otherwise. The survey question does not specify the minimum amount of time that qualifies an active participation, nor does it specify how an active participation is different from an inactive, so we have to trust the respondents' judgment. Similarly, the survey question does not specify the exact activities

Table 1. *Country list*

	Year		Observations	
	wave 5	wave 6	wave 5	wave 6
Argentina	2,006	2,013	1,002	1,030
Armenia		2,011		1,100
Australia	2,005	2,012	1,421	1,477
Belarus		2,011		1,535
Brazil	2,006	2,014	1,500	1,486
Bulgaria	2,005		1,001	
Burkina Faso	2,007		1,534	
Canada	2,006		2,164	
Chile	2,006	2,011	1,000	1,000
China	2,007	2,012	1,991	2,300
Colombia	2,005	2,012	3,025	1,512
Cyprus	2,006	2,011	1,050	1,000
Ecuador		2,013		1,202
Estonia		2,011		1,533
Ethiopia	2,007		1,500	
Finland	2,005		1,014	
France	2,006		1,001	
Georgia	2,009	2,014	1,500	1,202
Germany	2,006	2,013	2,064	2,046
Ghana	2,007	2,012	1,534	1,552
Great Britain	2,005		1,041	
Hungary	2,009		1,007	
India	2,006	2,014	2,001	1,581
Iran	2,007		2,667	
Italy	2,005		1,012	
Japan	2,005	2,010	1,096	2,443
Kazakhstan		2,011		1,500
Kyrgyzstan		2,011		1,500
Malaysia	2,006	2,012	1,201	1,300
Mali	2,007		1,534	
Mexico	2,005	2,012	1,560	2,000
Moldova	2,006		1,046	
Morocco	2,007	2,011	1,200	1,200
Netherlands	2,006	2,012	1,050	1,902
Norway	2,007		1,025	
Pakistan	2,012		1,200	
Peru	2,006	2,012	1,500	1,210
Philippines	2,012		1,200	
Poland	2,005	2,012	1,000	966
Romania	2,005	2,012	1,776	1,503
Russia	2,006	2,011	2,033	2,500
Rwanda	2,007	2,012	1,507	1,527
Serbia and Montenegro	2,005		1,220	
Slovenia	2,005	2,011	1,037	1,069
South Africa	2,006	2,013	2,988	3,531
Spain	2,007	2,011	1,200	1,189
Sweden	2,006	2,011	1,003	1,206
Switzerland	2,007		1,241	
Thailand	2,007	2,013	1,534	1,200
Tunisia		2,013		1,205
Turkey	2,007	2,011	1,346	1,605
Ukraine	2,006	2,011	1,000	1,500
United States	2,006	2,011	1,249	2,232
Uruguay	2,006	2,011	1,000	1,000
Viet Nam	2,006		1,495	
Zambia	2,007		1,500	
Zimbabwe		2,012		1,500

that qualify as charitable and humanitarian. Importantly, the WVS does not ask about charitable donations but only about the participation in them. We consider the last two waves of the WVS, 2005–09 (wave 5) and 2010–14 (wave 6). The countries included in our sample are listed in Table 1, together with the year in which they were surveyed and with the total number of surveyed individuals per year (observations). The sample includes relatively rich and developed countries, such as the US and Australia, and relatively poor and developing countries, such as Perù and Rwanda. Furthermore, we have countries with a majority of muslim citizens, like Jordan and Egypt, countries with a majority of protestant citizens, like Sweden, and countries with a majority of catholics, like Poland and Mexico. One problem with our data is that we have relatively few observations for each country, further compounded by the absence of proportionality between population and number of surveyed individuals. Moreover, there is sometimes a significant difference in sample size between wave 5 and wave 6 for the same country. For instance, in the US the sample size grows from 1,249 to 2,232, in Japan from 1,096 to 2,443, and in Russia from 2,033 to 2,500, but in India it decreases from 2,001 to 1,581.

We consider two measures of inequality, the Gini coefficient of income inequality and the income share of the highest 10%, both from the World Bank Development Indicators (WBDI henceforth). For each country, we take the value of the inequality measure corresponding to the survey year. The problem with this strategy is that the inequality measures are not always available for the exact survey years, which forces us to significantly reduce our sample. However, since these same measures are often available for the years immediately before and after, and since there is not much time series volatility in inequality, we constructed an alternative sample using, for each wave of the survey (2005–09 and 2010–14), the median measures of inequality within each wave. We ended up with a correlation between the Gini coefficient in the exact year of the survey and the median Gini coefficient within each WVS wave of 99.6% and with a correlation of the income share of 98.9% (note: this correlation refers to the subset of countries with an available Gini for the exact year of the survey). We use this bigger sample to check the robustness of our result. As a further robustness check, we also use an alternative measure of inequality, namely the income share of the highest 20% from the WBDI.

The Gini coefficient in the sample ranges from a minimum of 0.246 in Slovenia in 2011 to a maximum of 0.648 in South Africa in 2006. If we collapse the time variability of the data, the overall average value of the Gini is 0.39. The median is 0.4, which means that the distribution is almost symmetric. The standard deviation is roughly 9.6%, with a coefficient of variation equal to 24%. The income share of the highest 10% ranges instead from the 0.206 of Slovenia in 2009 to the 0.542 of South Africa in 2006, with a mean of 0.304, a median equal to 0.282, and a 27% coefficient of variation. The average active participation in charitable organizations (average number of survey respondents that declared to be active participants in charitable organizations), conversely, is much more volatile. In particular, it varies from a minimum of 0.1% in Georgia in 2014 to a maximum of 28.5% in India in 2014. Collapsing the time variability, the average active participation in charitable organizations in the sample is 6.8%, the median 5.5%, and the coefficient of variation is 85%.

Figure 1 is a scatter plot of the relationship between the Gini coefficient and the average active charity participation in the two WVS waves. The important, evidence from the picture is that there is a positive relationship between inequality and charity. A simple panel regression of average charity participation on the GINI coefficient, controlling for real GDP per capita, for country fixed effects and for WVS waves dummies, reveals a coefficient on inequality approximately equal to 0.8, significant at the 5% level. This implies that a 1-point increase in the Gini coefficient (normalized at 100 instead of 1) is associated with a 0.8% bigger fraction of the population which actively participates in charities. This result is robust if we include controls for religiosity and for socio-demographics characteristics. In the next section, we investigate this relationship further, with a full-fledged regression analysis using individual, rather than country average, data on active charity participation.

4. EMPIRICAL STRATEGY AND RESULTS

In this section we discuss the empirical model (Section 4(a)), the main empirical results (Section 4(b)) and their robustness (Section 4(c)).

(a) *Empirical model*

The main goal of the analysis is to check whether there is a relationship between inequality and the active participation in charitable organizations. Therefore we run regressions of the following form:

$$Prob(C_{ijt} = 1/I_{jt}, X_{ijt}) = \Phi(\alpha + \beta I_{jt} + X'_{ijt}\gamma + \eta_j + \delta_t + \varepsilon_{ijt}) \quad (1)$$

where C_{ijt} is a dummy variable equal to one if the WVS taker i, in country j and year t answered to be an active participant in charitable or humanitarian organizations, I_{jt} is a country-level measure of inequality, either the Gini coefficient or the income share of the highest 10%, X_{ijt} is a vector of individual- and country-level control variables, η_j are country dummies, δ_t are time dummies, and ε_{ijt} is the error term. We consider a probit model for estimation and we cluster the standard errors at the country level.

As control variables we include: the GDP per capita at Purchasing Power Parity (WBDI); the self-assessed position of the individual survey respondent in the income distribution (WVS), a variable that ranges from 1 to 10 with 1 corresponding to the lowest income group and 10 corresponding to the highest income group; a dummy for women; two dummies for religiosity, the fist equal to one if the WVS respondent declared to be a religious person, the second equal to one if she declared to be an atheist (the excluded category is: not a religious person); a dummy in case of attendance of religious services once a week or more frequently and a dummy equal to one in case of attendance of religious services once a month or in a special occasions (the excluded category is: attendance less than once a year or practically never); a set of dummies for religious denomination (catholic, orthodox, armenian, protestant, muslim, hindu, buddhist, and jew; the excluded category is: other religions); a set of dummies for employment status (full time, part-time, self-employed, and student; the excluded category is: unemployed); a set of dummies for marital status (married or living together as married, divorced or separated, single; the excluded category is widowed); a dummy equal to one in case of children; the age in years; a set of dummies for education (primary, secondary, and university of higher; the excluded category: is no education); a dummy equal to one in case the survey respondent is an immigrant or a child of immigrants.

Figure 1. *Inequality and Charity. Notes: Charity is the fraction of the World Values Survey respondents who actively participates in charitable organizations. Gini is the Gini coefficient from the World Bank Development indicators. The fitted values are computed with an ols regression.*

(b) *Results*

Tables 2 summarizes the main result of the analysis: inequality is positively and significantly associated with the probability to actively participate in charitable organizations, even when controlling for sociological, demographic, cultural and religious aspects. In the baseline regression with the Gini coefficient for the exact year of the survey (column 1 of Table 2), the marginal effect [2] is 0.4 and significant at the 1% level. This implies that a 10-point increase in the Gini coefficient (normalized at 100 instead of 1) is associated with a 4% bigger probability of actively participating in charitable organizations. In the baseline regression with the income share of the highest 10% in the exact year of the survey (column 3 of Table 2), the coefficient is almost identical and significant at the 5% level. In the regression with the median Gini coefficient within each wave (column 2 of Table 2), the coefficient is smaller, 0.29 and significant at the 5% level. In the regression with the median income share within each wave (column 4 of Table 2), the coefficient is instead much bigger, 1.71 and significant at the 5% level.

Our main result is different from Alesina and La Ferrara (2000), who find a negative relationship between income inequality and social participation in a sample of US municipalities, and from Lancee and Van De Werfhorst (2012), who find a negative relationship between inequality and social participation in a sample of European countries. The main difference between our analysis and these previous contribution is that we focus on a different sample and that we analyze only one form of social participation, namely the involvement in charities, whose relationship with income inequality does not depend on the preference for income homophily in social interactions only.

The coefficient on the GDP per capita is not significant in all regression specifications. Conversely, the coefficient on the individual position in the income distribution is positive and significant everywhere, stressing that relatively richer individuals have a higher probability to actively participate in charitable organizations, in line with Uslaner and Mitchell (2005). The standard errors of this last coefficient are generally higher in the regression with the income share measure of inequality because of the higher correlation between this variable and the position in the income distribution.

We consider several controls for religiosity because charity is a duty in many, if not all, religions, so that many charitable organizations are indeed church related. We find robust evidence that religious persons do have a higher probability to participate in charitable organizations than non religious, with a coefficient that is significant at the 1% level in all regression specifications. However we also find that atheists have a higher probability to actively participate in charities than non religious individuals, although the evidence in favor of this last result is weaker. Perhaps we are isolating a difference between individuals with strong ideals, either religious or atheists, and individuals without strong ideals, with a result that suggests that individuals with strong ideals are also more prone to actively participate in charities. We also find that the individuals that regularly attend religious services participate in charities more than individuals that do not attend regularly. Moreover, the coefficient on the dummy for weekly attendance is 3 times as big as the coefficient on monthly attendance, stressing that a stronger commitment to religious values and norms predicts a higher probability to be involved in charities. We also included religious denomination dummies in each regression because different religions, although similar in the importance attached to charity, translate this general principle in different commitments, which might be more or less cogent. The results (not shown in the table but available upon request) are, in general, not robust across the different regression specifications and, in particular, between the small and the

Table 2. *Inequality and charity*

	(1)	(2)	(3)	(4)
gini	0.3994***	0.2876**		
	(0.1172)	(0.1412)		
incomeh10			0.4001**	1.7113**
			(0.2004)	(0.7788)
gdppc	−0.0003	0.0014	0.0013	0.0003
	(0.0019)	(0.0015)	(0.0019)	(0.0015)
Income distr	0.0019***	0.0019***	0.0013*	0.0017**
	(0.0007)	(0.0007)	(0.0007)	(0.0007)
Female	0.0083***	0.0078***	0.0073***	0.0047**
	(0.0021)	(0.0022)	(0.0022)	(0.0021)
Age	0.0005***	0.0005***	0.0004***	0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Migrant	−0.0221**	−0.0171*	−0.0309***	−0.0076
	(0.0127)	(0.0112)	(0.0107)	(0.0127)
Religious	0.0118***	0.0131***	0.0101***	0.013***
	(0.0021)	(0.0019)	(0.0017)	(0.0018)
Atheist	0.0094*	0.0111**	0.0094*	0.0161***
	(0.0059)	(0.0053)	(0.0059)	(0.0056)
Weekly religious practice	0.0352***	0.0366***	0.0371***	0.0331***
	(0.0048)	(0.0045)	(0.0042)	(0.0042)
Monthly religious practice	0.0123***	0.0121***	0.0117***	0.0133***
	(0.0032)	(0.0030)	(0.0029)	(0.0029)
Full-time job	0.0073***	0.0062***	0.0077***	0.0067***
	(0.0024)	(0.0026)	(0.0022)	(0.0024)
Part-time job	0.0157***	0.0126***	0.0153***	0.0142***
	(0.0032)	(0.0038)	(0.0033)	(0.0047)
Self employed	0.0108***	0.0106***	0.0101***	0.0091***
	(0.0036)	(0.0037)	(0.0032)	(0.0034)
Student	0.0086**	0.0097***	0.0119***	0.0043
	(0.0043)	(0.0034)	(0.0044)	(0.0038)
Married	0.0071***	0.0045	0.0066**	0.0027
	(0.0025)	(0.0029)	(0.0027)	(0.0032)
Divorced	0.0094***	0.0065*	0.0087***	0.0081**
	(0.0040)	(0.0041)	(0.0036)	(0.0045)
Single	0.0128***	0.0084**	0.0104***	0.0065
	(0.0042)	(0.0042)	(0.0037)	(0.0047)
Children	0.0023	0.0025	0.0011	0.0032
	(0.0024)	(0.0021)	(0.0025)	(0.0022)
Primary edu	0.0021	0.0014	0.0033	0.0058
	(0.0031)	(0.0033)	(0.0033)	(0.0041)
Secondary edu	0.0198***	0.0203***	0.0181***	0.0237***
	(0.0039)	(0.0039)	(0.0036)	(0.0041)
University edu	0.0484***	0.0473***	0.0386***	0.0529***
	(0.0073)	(0.0069)	(0.0065)	(0.0077)
R^2	0.133	0.129	0.126	0.128
Obs	79,652	97,347	64,970	97,689
Countries	47	56	38	57

Notes. Dependent variable is a dummy equal to 1 if the World Values Survey (WVS) respondent declared to actively participate in charitable or humanitarian organizations. gini is the Gini coefficient of income inequality from the World Bank Development Indicators (WBDI). incomeh10 is the income share of the top 10% from the WBDI. gdppc is the real gdp per capita at PPP from the WBDI. income distr is the individual self-assessed position in the income distribution. female is equal to 1 for female respondents. age is the age in years. migrant is equal to 1 for first or second generation immigrants. religious is equal to 1 if the survey respondent declared to be religious. Atheist is equal to 1 if the survey respondent declared to be an atheist. weekly religious practice is equal to 1 if the respondent attends religious services once a week or more. monthly religious practice is equal to 1 if the respondent attends religious services once a month and on special occasions. full time job is equal to 1 in case of full time job. Part-time job is equal to 1 in case of part-time job. self employed is equal to 1 for self-employed. student equal to 1 for students. married is a equal to 1 for married and living together as married. Divorce is equal to 1 for divorced and separated. Single is equal to 1 if singles. children is equal to 1 in case of children. primary edu is equal to 1 if primary education. secondary edu is equal to 1 if secondary education. university edu is equal to 1 if university-level education or higher. Regression is performed using a Probit estimator. The table reports the marginal effects. All regressions include dummies for religious denomination (catholic, othodox, protestant, armenian, muslim, jew, hindu, and buddhist), country dummies, and year dummies. Obs is the number of observations, countries the number of countries. Standard Errors clustered at the country level in brackets. ***significant at the 1% level. **significant at the 5% level. *significant at the 10% level.

big samples, mainly as an effect of the different overall number of individuals belonging to each religious denomination. The only robust result is that Hindus have an higher probability to actively participate in charities.

According to Putnam (1993, 2000), the declined associationism in the US is partly the result of the increased women's participation in the labor market. Furthermore, several experimental studies indicate that women are, in general, more

socially minded than men (Andersen *et al.*, 2008; Croson & Gneezy,2009). We find, consistently with these studies, a higher probability of participating in charities for women, robustly for all regression specifications.

Marital status does not predict robustly the participation in charities and there is no evidence that having children reduces charity participation. Conversely, the coefficient on age is positive and significant in all regression specification, stressing that relatively older individuals have a higher probability to actively participate in charities. We also find that education explains the participation to charity. In particular, in all regression specifications we find an insignificant coefficient on the dummy for primary education and positive and significant coefficients on the dummies for secondary and university education. Furthermore, the coefficient on university education is twice as big as the coefficient on secondary education. Overall, there is consistent evidence that highly educated individuals have a higher probability to actively participate in charities. Employment status also explains the active participation in charities, with working individuals characterized by a higher probability to participate than unemployed. The evidence for students is mixed.

The relationship between immigration and social participation is theoretically not clear. There are two contrasting effects at work. On the one hand, immigrants could find it difficult to join social activities for cultural or religious motivations, and this difficulty increases with cultural distance. On the other, they might be more prone to seek opportunities of social inclusion, to ease their integration, which could lead them to overcome the residual cultural barriers. Moreover, immigrants might be sympathetic toward those with similar ethnic or cultural backgrounds and they can join the organizations that mostly help them, perhaps through churches and cultural centers. The regression results are mixed. The coefficient is negative in all regression specifications, consistently with the first mechanism, but marginally or not significant in the big samples.

(c) *Robustness*

To check for robustness, we considered an alternative measure of inequality, the income share of the highest 20% from the WBDI, finding similar results. Furthermore, if we consider the income share of the lowest 10% as dependent variable, we have a negative and strongly significant coefficient: the higher the income share of the poor, the lower the income inequality and, in line with the main result of the paper, the lower the probability to actively participate in charities. We also included a dummy equal to one for OECD countries and we tried a logit regression instead of the probit, without any significant change in the results. We also considered, as control variable, the percentage of rural population, which was not significant in all regressions.

We also controlled for the fraction of Internet users from the WBDI. Putnam (1993, 2000) claimed that the increasing diffusion of TV sets in the US, with the resulting "Privatization of leisure", was among the main culprits for the declined social participation. Stretching his argument a little, we conjecture that the diffusion of the internet should have very similar consequences, at least as far as the traditional social activities that require a physical participation, like charities, are concerned. We did find a negative coefficient on the fraction of internet users, consistently with this theory, but the coefficient was not statistically significant in all regression specifications. The results are therefore inconclusive. In all cases, the coefficient on inequality remained strongly statistical significant after the inclusion of the percentage of internet users and did not change much in magnitude.

Following Lancee and Van De Werfhorst (2012), we tried interacting the measures of inequality with the GDP per capita and with the individual position in the income distribution, to check whether wealthy individuals or wealthy countries respond differently to different inequality levels. In both cases the coefficients on the interaction term was not significant and the coefficient on inequality remained strongly significant and similar in magnitude to the benchmark.

Alesina and La Ferrara (2000) find a negative relationship between ethnic diversity and social participation in a sample of US cities. The most likely explanation for this result is a preference for homophily in social interactions. Building on their methodology, we construct an index of ethnic diversity within our sample, using information on the ethnic background of the WVS respondents (thus we assume that the WVS sample is representative of the ethnic composition of the country). When we include this index in the regression, we find a negative and strongly significant coefficient, consistent with their empirical result, and still a positive and significant coefficient on inequality. The problem with this regression is the smaller number of observations with respect to the benchmark, since the question on the ethnic background is not asked in all countries.

Uslaner and Mitchell (2005) find, in a sample of US states, that inequality lowers social trust, which in turn leads to lower social participation. Therefore we tried controlling for trust in our main regressions. Instead of using a measure of generalized trust, we took advantage of the specific WVS question that asks about trust in charities. We found that trust in charities is positively and significantly associated with active charity participation but that inequality is still positive and strongly significant in all regressions when including trust in charities.

5. CHARITY AND THE WELFARE STATE

Charitable organizations often substitute for the state as providers of good and services. In fact they can be also viewed as a response to an insufficient welfare state, which is unable to meet the needs of some citizens. Meltzer and Richard (1981), in a classical contribution, stress that the demand for redistribution increases with inequality because the median voter becomes poorer than the average voter. This relationship implies that, as an outcome of the voting process, more inequality should lead to more redistribution. More redistribution, in turn, should predict a lower participation in charities, which are crowed out. Therefore inequality and charity should be negatively correlated. However Paul *et al.* (1996), Bourguignon and Verdier (2000) and Docquier and Tarbalout (2001) challenge the theoretical arguments behind Meltzer and Richard's result and show evidence that goes in the opposite direction. Furthermore, according to the warm-glow theory of charitable giving (Andreoni, 1990), there should be no crowding out of charity due to state intervention, at least not as long as there are needy individuals. The reason is simply that charity depends on the feelings that it induces in the giver, which are orthogonal to public spending.

In this section we try to shed further light on this issue, investigating the relationship between inequality, associationism, and the welfare state with our data. More specifically, we try to asses whether the welfare state crowds out charity. To this end, we include in the baseline regression several measures of the generosity of the welfare state: the total and public sector health expenditures over GDP (World Health

Organization), the total education expenditure over GDP (WBDI), the total social expenditure over GDP (International Labor Organization), and the percentage of unemployed individuals that receive income assistance (International Labor Organization). Unfortunately we have data only on expenditures and not on output, which would be more relevant for our task, so we consider the following analysis only suggestive. The results are reported in Table 3.

Overall, we do not find any evidence that the welfare state crowds out the active participation in charity, consistently, among others, with a warm-glow theory of giving (Andreoni, 1990). In greater detail, the coefficient on almost all measures of public expenditure are negative (with the only exception of the coefficient on education expenditures in the regression with the income share measure of inequality) and not statistically significant in all specifications. The coefficient on the inequality measure, in turn, is always strongly statistically significant and, in magnitude, slightly bigger than the benchmark when we include health expenditures (especially when we include public health expenditures).

6. CONCLUSIONS

We find that the individuals living in more unequal countries are also characterized by a higher probability to be actively involved in charitable organizations, even when we account for religiosity, for demographics, for sociological factors, and for the generosity of the welfare state. There are several possible explanations for this result. First, inequality increases the feelings of altruism, solidarity, and compassion, compelling more individuals to actually do something for the less fortunate. This mechanism can be the result of pure altruism, or the result of impure altruism, for instance because of the warm-glow feeling associated with giving or because of the prestige, respect, and public acclaim that charity participation often entails. Paskov and Dewilde, 2012 classify these motivations in two distinct categories, "Affective" and "Calculating" solidarity. In this work we do not attempt to distinguish between these two, we just highlight that they are both potentially important empirically. Furthermore, increased inequality might simply mean that there is a bigger number of individuals in need and, therefore, more opportunities for charitable giving, or that there is a bigger number of relatively richer individuals, with a smaller marginal utility of consumption. These two channels are also consistent with our empirical results. As stressed in the sociological literature, inequality can also increase social distance, which reduces the willingness to help others. Since charity is a social activity and since there is a preference for income homophily in social interactions, there is also the possibility that increased inequality decreases social interactions (Alesina & La Ferrara, 2000). Our results suggest either that there is no empirical evidence in favor of these relationships or, alternatively, that the affective and calculating motive for solidarity overcomes these effects.

Charities by and large substitute for the government in many sectors. In fact they might be also thought of as a reaction to an insufficient welfare state. Therefore it is possible that, where the welfare actually works, there is no need to substitute for it, which means that there is no incentive to actually join charities. In other words, welfare should crowd out charity. In our sample we do not find any evidence supporting this claim, consistently with a warm-glow theory of charitable giving (Andreoni, 1990). Perhaps the amount of public expenditure in welfare is not a good indicator of the amount of good and services that the State is able to provide, nor of

Table 3. *Inequality, charity, and the welfare state*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
gini	0.4064 ***	0.4737***	0.4933***	0.4088***	0.3423***					
	(0.0996)	(0.1226)	(0.1246)	(0.1104)	(0.1054)					
incomeh10						0.4213*	0.5537***	0.4918**	0.4906**	0.4653**
						(0.2557)	(0.1961)	(0.2212)	(0.2260)	(0.2056)
eduexp	0.0006					−0.0035				
	(0.0054)					(0.0138)				
tothealth		−0.0049					−0.0035			
		(0.0044)					(0.0051)			
pubhealth			−0.0064					−0.0017		
			(0.0061)				(0.0062)			
socexp				−0.0034					−0.0029	
				(0.0026)					(0.0031)	
unempben					−0.0001					−0.0001
					(0.0001)					(0.0001)
R^2	0.127	0.133	0.133	0.129	0.133	0.117	0.126	0.126	0.121	0.123
obs	74,262	79,652	79,652	70,117	66,043	59,977	64,970	64,970	56,246	52,476
countries	45	47	47	43	40	36	38	38	34	31

Notes. Dependent variable is a dummy equal to 1 if the World Values Survey (WVS) respondent declared to actively participate in charitable or humanitarian organizations. gini is the Gini coefficient of income inequality from the World Bank Development Indicators (WBDI). incomeh10 is the income share of the top 10% from the WBDI. eduexp is the total education expenditure over gdp from the World Bank development indicators tothealth is the total (public + private) health expenditure over gdp from the World Health Organization. pubhealth is the total public health expenditure over gdp from the World Health Organization. socexp is the total public social expenditure from the International Labor Organization. unempben is the share of unemployed who receive some form of income assistance from the International Labor Organization. Regression is performed using a Probit estimator. The table reports the marginal effects. All regressions include: real gdp per capita at PPP from the WBDI, the individual self-assessed position in the income scale, a dummy for females, age, a dummy for first or second generation immigrants, a dummy for religious, a dummy for atheists, a dummy for weekly attendance of religious services, a dummy for monthly attendance of religious services, a dummy for full time job, a dummy for part-time job, a dummy for self-employed, a dummy for students, a dummy for married, a dummy for divorced or separated, a dummy for singles, a dummy in case of one or more children, a dummy for primary education, a dummy for secondary education, a dummy for university-level education, a set of dummies for religious denomination (catholic, othodox, protestant, armenian, muslim, jew, hindu, and buddhist), country dummies, and year dummies. Obs is the number of observations, countries the number of countries. Standard Errors clustered at the country level in brackets. ***significant at the 1% level. **significant at the 5% level. *significant at the 10% level.

the coverage of the system. For instance, a very corrupt and inefficient Government can spend a lot, nominally, to finance schools and universities without improving the quality of education, for instance if the funds are mostly used for maintenance works, perhaps assigned at inflated prices to companies that grant political and electoral support. A further important issue is that the private provision of public goods through charities might be inefficient with respect to a public provision. This is the case if there are economies of scale, since charities are typically not big enough to take full advantage of them. Unfortunately, since we do not have detailed data on the output of the charities and of the welfare state, we cannot say much more on this point. Future research efforts should try to better qualify and quantify these outputs to shed more light on the relationships among them.

Inequality increased substantially in recent years, and the consequences of this trend are still not easy to quantify, let alone to foresee. Our paper suggests that charities and, more broadly, solidarity mechanisms, should be more and more widespread. Moreover, our results highlight that redistribution reacts to inequality almost independently from the government expenditure choices.

NOTES

1. See also Dijkstra (2013) for a discussion of the difference between Putnam and Olson theories in an experimental context.

2. All marginal effects are at the mean.

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