Income inequality and participation: A comparison of 24 European countries ☆

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ABSTRACT

Previous research suggests that when there is a high level of inequality, there is a low rate of participation. Two arguments are generally offered: First, inequality depresses participation because people from different status groups have fewer opportunities to share common goals. Second, people may participate more in civic and social life when they have more resources. However, until now, these explanations have not been separated empirically. Using EU-SILC data for 24 European countries, we analyze how income inequality is related to civic and social participation. Our results indicate that the main effects of inequality manifest via resources at the individual and societal level. However, independent of these resources, higher inequality is associated with lower civic participation. Furthermore, inequality magnifies the relationship between income and participation. This finding is in line with the view that inter-individual processes explain why inequality diminishes participation.

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1. Introduction

Studies on the impact of inequality on a wide range of outcomes are increasingly of a multilevel nature. Undesirable outcomes, such as crime, poor health, low social trust, and low levels of civic participation are assumed to be dependent on individual (or household) income and on the overall societal level of income inequality (Andersen and Fetner, 2008; Daly et al., 2001; Huisman and Oldehinkel, 2009; Kawachi et al., 1997; Neckerman and Torche, 2007; Rothstein and Uslaner, 2005; Solt, 2008; Uslaner and Brown, 2005; Wilkinson and Pickett, 2009). Inequality also affects participation in various civic and social activities. Previous research suggests that in countries, states or neighborhoods where inequality is high, trust and civic participation are low (Alesina and La Ferrara, 2000; Oliver, 1999; Uslaner and Brown, 2005).

One explanation for how inequality depresses participation claims that certain conditions for social interaction are not met: people belong to different status groups and, therefore, have fewer opportunities to share common goals. Moreover, higher levels of inequality result in growing social distances between people. Consequently, people may feel powerless and opt out of civic and social engagement (Uslaner and Brown, 2005). This explanation has been described as the psychosocial hypothesis in the inequality effects literature (e.g., Elgar and Aitken, 2011; Wilkinson and Pickett, 2009).

However, no previous study on civic and social participation allows for the possibility of income and inequality to interact. It is, however, likely that the effect of income on participation varies according to societies' level of inequality. If

inequality is a determining factor in participation, it can be expected that an individual's position in the income distribution has different implications for civic and social engagement under different regimes of inequality. Indeed, studies on health inequality have recently observed the differential effect income has in different inequality contexts when comparing US states (see Wilkinson and Pickett, 2008 for an overview). These studies found steeper income slopes in more unequal states.

There is, however, another argument why participation differs across countries that is not accounted for in previous research on the participatory consequences of inequality. Apart from the psychosocial consequences of diverging statuses, those with more resources may participate more in social and civic life. Essential in the resource (or 'neo-material', Lynch et al., 2000) explanation of inequality effects is that equal societies not only have a more equal income distribution, but also provide collective goods more equally to members of society.

Like Elgar and Aitken (2011) who examined inequality effects on crime, we stress that the two explanations above concerning available resources and psychosocial comparisons are not mutually exclusive. Rather, we aim to test the tenability of both perspectives within one research design. To determine whether inequality affects outcomes through psychosocial processes or through the (individual or collective) resources that are available to individuals, we account for individual and societal-level resources more fully and explicitly than we have observed in the literature to date.

The contribution of this paper is threefold. First, we study the impact of inequality on participation. Second, we study whether the impact of household income on participation changes with different levels of inequality. Such a design allows us to disentangle cross-national variances in income distributions from the varying effects of income under different conditions of inequality. Third, we control for the availability of resources by including, not only individual resources but also welfare state expenditures and the Gross Domestic Product per capita (GDP). The GDP is recognized as an important control variable, because inequality effects are substantially reduced when taking account of the resources available in society (Lynch et al., 2000). However, welfare state expenditure is also an important control variable to assess the resource explanation because such expenditures will plausibly equalize many different forms of participation among the population. We argue that once resources at the individual and country level are properly controlled for, the remaining effects of macro-level inequality may then be interpreted as being caused by alternative explanations relating to psychosocial processes. Our empirical analyses are based on cross-national data from 24 member states of the European Union (EU-SILC), which contains reliable income data and important indicators of different forms of participation. We apply a multilevel framework to account for the clustering of people within countries.

2. Forms of participation

We identify two forms of participation: civic and social. These forms of participation are prominently featured in discussions of the decline of social capital and social cohesion in modern societies.

Civic participation usually refers to membership and involvement in organizations and activities that constitute 'civil society'. Because civic participation involves ties that are embedded in formally constituted organizations or activities, it is also labeled formal social capital (Pichler and Wallace, 2007). Often, civic participation is referred to as involvement in voluntary associations (Andersen et al., 2006; Curtis et al., 2001; Hooghe and Stolle, 2003; Musick et al., 2000; Putnam, 2000; Ruiter and De Graaf, 2006; Schofer and Fourcade-Gourinchas, 2001; Wilson, 2000), including neighborhood associations, charitable organizations, political parties or groups, professional associations, environmental or peace groups.

Social participation can be described as the informal bonds between people, or as the extent to which people interact with their friends and family members (Spencer and Pahl, 2006; Van der Meer et al., 2009). Often, social participation is also classified as informal social capital because it refers to the resources that can be accessed through these relations (Lin, 2001; Pichler and Wallace, 2007). The main distinction from civic participation is that social participation is based on informal but not formal or institutionalized ties. In the section on measurement, we operationalize social participation as the frequency of interaction with friends and family.

3. The relation between income inequality and participation

According to Uslaner and Brown (2005), "[t]here are strong reasons to believe that high levels of inequality depress civic participation." Although not separated in their empirical analyses, they provide two arguments why inequality depresses participation: "The direct effect of inequality on participation arises when inequality of resources leads people in lower economic brackets to refrain from participating, either because they have fewer resources or because they believe that getting involved will be fruitless because the system is stacked against them." This section discusses those two arguments. First, we discuss what we label the 'psychosocial' argument; second, we discuss the 'resource' argument.

Scholars who study the 'contact hypothesis' (Allport, 1979) contend that certain conditions help social interaction to instill attitudes such as cooperation; these conditions include the following: equal status between citizens, opportunities for personal acquaintance, and opportunities for people to share common goals. The psychosocial argument stipulates that income inequality interferes with these conditions, resulting in less social contact and less participation in civic life.

Neckerman and Torche (2007) refer to an 'externality' effect where "living in a context of high inequality might intensify feelings of relative deprivation among low-income individuals." Wilkinson and Pickett (2009) argue that "the scale of income differences has a powerful effect on how we relate to each other." According to Wilkinson and Pickett, greater differences

between status group members exist with higher levels of inequality, resulting in status gaps. These gaps trigger status competition to the detriment of a range of desirable outcomes, including participation.

However, it is not only status competition that triggers low trust and participation. The concept of social homophily is well documented in the literature: people prefer to associate with others like them (McPherson et al., 2001). Societies with high levels of inequality are more stratified, resulting in larger differences between people. Gaps in the social structure cause feelings of threat, anxiety and stress. Inequality promotes an air of bitterness and resentment, which manifests itself as less societal interaction. According to Uslaner and Brown (2005; Rothstein and Uslaner, 2005), people will perceive that their views are not represented by the political system. As a consequence, these people may feel powerless and they will opt out of civic engagement. Oxendine (2009) states that "[i]n an atmosphere of economic stratification, the poor will feel degraded, will be envious and will continually covet the riches they lack". Thus, the central point in the psychosocial argument is that inequality depresses participation because certain conditions for social interaction are not met because people have divergent economic positions, which promotes status competition and feelings of anxiety. As a result, people have fewer opportunities to share common goals and to acquaint themselves with people in other groups.

However, aside from the psychosocial consequences of income differences, resource theory argues that it is the availability of resources that determines participation. According to this argument (also known as the 'neo-material' theory, Lynch et al., 2000), resources are needed to achieve desirable outcomes. Lynch et al. (2000) claim that "Under a neo-material interpretation, the effect of income inequality [...] reflects a combination of negative exposures and lack of resources held by individuals, along with systematic underinvestment across a wide range of human, physical, health, and social infrastructure." In this view, the effect of inequality is not the psychosocial consequence of interpersonal processes; but rather, it is caused by conditions where resources are unobtainable.

Essential to the resource explanation of inequality effects is the idea that equal societies not only have a more equal income distribution but also have a more equal system to provide a wide range of services to members of society. Facilitated by higher tax revenues, governments in more egalitarian societies make it easier for the poor to participate in various domains of life. For example, in more generous welfare states there may be more opportunities to receive a subsidy to set up associations, on subscriptions, tickets or entrance fees. Moreover, welfare states provide an opportunity structure that facilitates the development of civic engagement. However, evidence showing that rates of civic participation are higher in more extensive welfare states is mixed. There are indications that there is some variation in participation according to the degree of social expenditure or according to welfare state regimes (Kääriäinen and Lehtonen, 2006; Pichler and Wallace, 2007; Van Oorschot and Arts, 2005). Other studies do not find any effect, and some report effects in the opposite direction (Van der Meer et al., 2009; Van Oorschot and Finsveen, 2009).

Based on these two arguments, one would expect that higher inequality results in lower levels of participation. Uslaner and Brown (2005), although only including country-level variables, state that "We know that the poor participate less, but a large gap between the rich and the poor may be just as important a depressor of participation as income levels." Alesina and La Ferrara (2000) apply multilevel analyses and analyze the relation between inequality in US states and forms of participation, while taking into account individual income. Solt (2008, 2010) finds in a cross-national study that higher levels of inequality are indeed associated with lower political engagement (political interest, political discussion, and electoral participation), even when taking into account household income. Both studies find that more inequality (measured with the Gini-coefficient) results in less participation and political engagement. Therefore, we formulate our first hypothesis as follows:

H1. Income inequality is negatively associated with participation, even when controlling for individual income.

If inequality matters for participation, it can be expected that an individual's position in the income distribution matters as well. That is, to be poor in an unequal country is different from being poor in a country with a more equal distribution of income. As Neckerman and Torche (2007) put it, "[...] inequality will reinforce privilege among the affluent and disadvantage among the poor."

Solt (2008) examines the relationship between income, income inequality and political engagement. He argues that "According to the resource theory, then, inequality should affect political engagement because for any given average income, higher levels of inequality mean fewer resources with which to pay the costs of engagement for a country's poorer citizens and more such resources for its richer citizens. Greater inequality should therefore be expected to result in less political engagement among the relatively poor, but more political engagement among the better off." Indeed, Solt finds a positive interaction between inequality and income.

From the psychosocial perspective one would expect income to matter differently under conditions of high and low inequality. According to Major (2004), one of the consequences of inequality is that it alters what people feel that they deserve or that they are entitled to receive from social relationships. Therefore, she argues, under high inequality, the disadvantaged believe that they deserve fewer positive outcomes and, more importantly, behave accordingly.

Pichler and Wallace (2009) analyze the relation between class, inequality and formal and informal social capital in European countries; they assume that "...where stratification is strongest, there will be less extensive networks, because these are likely to be limited to particular classes. Otherwise, the distance between classes is larger in more unequal countries." As expected, Pichler and Wallace find that with higher levels of inequality, class differences regarding social capital are larger.

Oxendine (2009) focuses on affluent citizens in the US. She argues: "living among inequality should also fuel feelings of hostility by dampening opportunities for meaningful cross-class interaction." Oxendine finds that wealthy citizens who live in contexts of higher economic equality exhibit higher levels of cross-cutting group involvement, more diverse personal friendships, and a stronger support for helping the poor. Yet, concerning the other side of the income distribution, Uslaner and Brown (2005) state that "Where inequality is high, those people with fewer resources may feel powerless." Similarly, Pickett et al. (2005) refer to "the psychological stress of life near the bottom of a steeply hierarchical society."

As a result, we expect that the impact of household income is different in societies with different levels of economic inequality. We argue that in countries where inequality is higher, participation is more likely to be determined by income. Conversely, in societies where income is distributed in a more equal manner, income is less important. This expectation is formulated in hypothesis two.

H2. In countries where income inequality is larger, the association between income and participation is stronger.

However, because most studies have thus far used aggregate data (Kawachi et al., 1997; Uslaner and Brown, 2005; Wilkinson, 2005; Wilkinson and Pickett, 2009), it has been difficult to disentangle the explanations referring to resources or to psychosocial processes. It is necessary to cancel out resource explanations relating to both the available individual and collective resources to determine whether the psychosocial factors related to inequality matter for participation. Researchers in the health inequality literature have been compelled by the resource explanation to include Gross Domestic Product per capita as an indicator of national wealth (Lynch et al., 2000). Given that countries with high levels of wealth may have high levels of participation due to the availability of resources, we need to cancel out these effects to judge whether inequality is really associated with participation. Welfare state expenditure should also be controlled for in the assessment of inequality effects because strong welfare states may induce and equalize many forms of participation of citizens. Welfare state expenditure has, however, rarely been included in studies on inequality effects.

To the extent that (individual and collective) resources explain inequality effects, there should be no remaining inequality effects on participation once we control for household income, education, national income and welfare state expenditure. Thus, the effects as hypothesized in hypothesis 1 and 2 should disappear. If, on the other hand, there *is* a psychosocial component in the processes influencing participation based on income differences between people, hypotheses 1 and 2 should hold, even when controlling for the availability of individual and collective resources, and for their interaction effect.[1] Hence, the 'psychosocial theory' of inequality effects leads to the following hypothesis:

H3. The effect of inequality, and the interaction effect of income and inequality on participation persist even when controlling for the availability of resources on the macro- and micro-level.

4. Data and measurement

Our empirical analyses are conducted with data from the 2006 wave of the European Union Study on Income and Living Conditions (EU-SILC). The EU-SILC is the official EU source for the measurement of income and was introduced after the Framework Regulation was adopted by the European Parliament in 2003. It is aimed at collecting comparable data on income, poverty and social exclusion. The EU-SILC is provided by Eurostat and contains the member states of the European Union, plus Switzerland, Iceland, Norway and Turkey. The sample is a nationally representative probability sample of the population residing in private households within the country. For more information on the EU-SILC data, see Eurostat (2008).

In 2006, a module was included on social networks and participation, which made it possible to measure social participation. The sample consists of all people between the ages of 25–65 years who were included in the module 'social participation'. Not all social participation indicators were measured in all countries, therefore, the sample consists of 140,540 individuals in 24 countries.[2] Because the individuals are nested in countries and because we want to explain cross-country variation, we estimate random intercept models[3] (Snijders and Bosker, 1999). The EU-SILC is a household sample, and there are people in the sample that belong to the same household, (mostly partners, with children that live at home). This type of sam-

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[1] It should be stressed that individual-level resources such as income and education may in fact also have effects for non-material reasons including status (see e.g. Kawachi et al., 2010). Therefore, our test of the existence of psychosocial effects can be seen as a conservative one, as it is only tested on the statistical association between contextual inequality and participation.

[2] The data on social participation is also available for Belgium. We also estimated a model including Belgium, but results did not differ substantially.

[3] As a first step, an empty model is estimated to check whether there is significant variation at the country level, which is indeed the case ($p < .001$). Furthermore, the intra-class correlation $\left(\text{ICC, defined as } \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2}\right)$ is .11 for social participation and .16 for civic participation. To calculate the ICC of the logistic model, we use the latent variable approximation, as suggested by Snijders and Bosker (1999) $\left(\text{ICC} = \frac{\sigma_u^2}{\sigma_u^2 + \pi^2/3}\right)$. To ensure that the contextual variation is not due to individual characteristics, we estimated a composition model including individual characteristics. The ICCs are .17 and .22, which indicate that there is sufficient variation to be explained by country level characteristics. Last, we tested whether the slope of individual income significantly varies across countries. This was the case for both forms of participation ($p < .001$). Unfortunately, a random slope model for civic participation does not converge, perhaps because random slope models use more degrees of freedom (given that our level 2N is rather small). We therefore estimated random intercept models. To ensure the robustness of our findings, we also estimated regular least squares and logit models with heteroskedasticity consistent robust standard errors clustered on the country level (see Angrist and Pischke, 2009 who prefer this approach to random effects models). The results did not differ from the presented findings.

pling design violates the assumption of independence of errors and can therefore bias our estimates. To account for this bias, we randomly drew one member from each household. We also estimated all models containing the complete sample and our results did not substantially differ from each other.[4] We checked for influential country cases by estimating models 1 and 3 while leaving out one country at a time. The results did not substantially differ from each other. Subsequently, we calculated the DFBETAS following the procedure suggested by Van der Meer et al. (2010). All DFBETAS were below the threshold value of $2/\sqrt{n_x}$ (.41), indicating that there are no influential outliers. Last, we estimated all models including a dummy variable for the Central and Eastern European countries in our sample, but the results were not affected.

Our aim is to empirically test the hypotheses derived from psychosocial and resource explanations of inequality effects. Although our approach allows for a more detailed investigation of these explanations than previous research, the cross-sectional nature of the data does prohibit us from making strict causal arguments regarding inequality effects.

4.1. Independent variables

As a measure of income inequality we include the Gini-coefficient based on equivalized disposable household incomes (obtained from Eurostat). The Gini-coefficient has a theoretical range from zero (indicating that all households have an equal share of income) to hundred (indicating that one household receives all income). The Gini-coefficient is an attractive measure of income inequality for our purposes because it calculates the overall inequality in society. It captures the income distances of 'everybody to everyone', which is in line with general arguments for why inequality matters.

Most existing studies have examined a society's level of inequality using a single measure: the Gini-coefficient. Previous studies on inequality, however, note that both trends in inequality and variations between countries' levels of inequality are different for the bottom and the top of the income distribution (OECD, 2008; Salverda et al., 2009). It could be that the relationship between inequality and participation is different for inequality above and below the median household income. As a robustness check, we therefore estimated all our models including percentile ratios.[5] The results are similar to those presented below. This finding implies that, there are no different effects when analyzing inequality in different parts of the distribution. We, therefore, proceed with estimating models by including the Gini-coefficient.

Our measure of income is the equivalized disposable household income, standardized by the median income of each respective country in a range from zero to one.[6] By standardizing income to the country median, it is more comparable across countries.

4.2. Dependent variables

Social participation is measured by the frequency of meeting and the frequency of having contact with relatives and friends. In Table 1, the exact survey items are presented. To measure civic participation, five items are included that ask for people's participation in certain activities and/or institutions during the last 12 months (see Table 1 for the wording of the survey items). For civic participation, these items are combined in a dichotomous variable, assigning a value of one to respondents who participated in the last 12 months in one or more of the activities mentioned (36% of the respondents), and zero to respondents who did not participate in any of the activities (64%). The main reason for this dichotomization is that if one would construct a count variable, a respondent who participates in three organizations in different domains (i.e., political, voluntary and neighborhood) would have received a score of 3, but a respondent who participates in three organizations in one domain (i.e., political parties, political associations and trade unions), would receive a score of 1. A more substantial argument is, however, that our hypotheses simply refer to participation, not to participation in different domains. Moreover, participating in more than one organization does not necessarily imply more involvement than someone who participates in only one organization (see also Ruiter and De Graaf, 2006; Curtis et al., 1992, 2001). The country means for participation are presented in Table 2.

4.3. Control variables

We control for the following individual socio-demographics: gender, age (and age squared), marital status, educational attainment (with a slightly collapsed version of the ISCED scale), and labor market status (full-time, part-time, unemployed, or not on the labor market[7]). Because differences in participation can be expected between rural and urban settings (Ziersch

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[4] Moreover, in the case of social participation, we also estimated three-level models with individuals nested in households and households nested in countries. The results did not differ substantially. In the case of civic participation, the three-level model did not converge, which is most likely due to the logit model. Given that none of the model specifications yielded different results, we are confident that the clustering does not affect our findings.

[5] The ratio of incomes between the 90th percentile and the median income is called P9050, the ratio of incomes between the median income and the tenth percentile P5010. When taking the separate *p*-ratios as measures of inequality, results are substantially the same as when taking the Gini-coefficient. Due to high collinearity of both inequality measures, the results could not be included in one model (countries that score high on above-median inequality tend to score high on below-median inequality as well; *r* = .83 on the country level).

[6] Equivalized disposable household income = $(\frac{H - medH}{medH})$, where H = equivalized disposable household income (for each individual, and corrected for household non-response), $medH$ = the median of a country's H.

[7] The labour market status captures the person's own current perception of their main activity. The self-declared main activity status is determined based on the most time spent.

Table 1
Survey items civic and social participation. *Source*: EU-SILC 2006.

Variable construction	Survey items
Civic participation	
Variable consists of participating in one or more of the mentioned activities (1), or not participating in any of the listed activities (0)	The next question is about involvement in groups, clubs and organizations. These could be formally organized groups or just groups of people who get together to do an activity or talk about things. Please exclude just paying a subscription; giving money, and anything that was a requirement of your job. In the last 12 months, have you been involved with any groups?
Yes/no	Participation in activities of neighborhood associations, environmental organizations, civil right groups, peace groups and alike
Yes/no	Participation in activities of political parties, political associations or trade unions (participating in formal strikes/demonstrations is not included)
Yes/no	Participation in the unpaid work of charitable organizations groups or clubs. It includes unpaid charitable work for churches, religious groups and humanitarian organizations (attending holy masses or similar religious acts is not included)
Yes/no	Participation in activities of recreational groups or organizations. It includes participation in recreational/leisure activities arranged by a club, association or similar. It can be sport groups, hobby associations, or leisure clubs
Yes/no	Participation in activities of professional associations (receiving training organized by such associations is excluded)
Social participation	
Variable consists of the sum of the items (Cronbach's alpha = .72)	The next few questions are about how often you personally contact your relatives and friends in your spare time. Not counting the people you live with, how often do you do any of the following?
Six point scale, ranging from 'Never/does not have' friends/family to 'daily' (1)	How often do you meet up with relatives? How often do you meet up with friends? How often do you contact relatives on the phone, by letter, fax, email or text or use chatrooms or the internet to talk to relatives? How often do you contact friends on the phone, by letter, fax, email or text or use chatrooms or the internet to talk to friends?

Note: (1) Although the items refer to meeting frequency, it could be that somebody does not have family and for that reason is not able to meet up, hence scoring unnecessary low on social participation. We therefore estimated all models including only friends and the results did not differ.

Table 2
Gini-coefficient and means civic and social participation per country. *Source*: EU-SILC 2006, Eurostat.

		Gini-coefficient	Civic participation	Social participation
Austria	AT	25.3	0.35	1.44
Cyprus	CY	28.8	0.44	1.71
Czech Republic	CZ	25.3	0.29	1.48
Germany	DE	26.8	0.39	1.46
Denmark	DK	23.7	0.53	1.50
Estonia	EE	33.1	0.22	1.32
Spain	ES	31.2	0.34	1.49
Finland	FI	25.9	0.60	1.59
France	FR	27.3	0.36	1.38
Greece	GR	34.3	0.23	1.71
Hungary	HU	33.3	0.15	1.42
Ireland	IE	31.9	0.53	1.46
Iceland	IS	26.3	0.64	1.59
Italy	IT	32.1	0.25	1.51
Lithuania	LT	35	0.12	1.36
Luxembourg	LU	27.8	0.48	1.45
Latvia	LV	39.2	0.16	1.23
Netherlands	NL	26.4	0.73	1.47
Norway	NO	30.1	0.59	1.57
Poland	PL	33.3	0.13	1.28
Portugal	PT	37.7	0.20	1.56
Sweden	SE	24	0.60	1.50
Slovakia	SK	28.1	0.37	1.45
United Kingdom	UK	32.5	0.46	1.51

Table 3
Descriptive statistics independent variables. *Source*: EU-SILC 2006, Eurostat.

	Mean	Range		SD
		Min	Max	
Equivalized disposable household Income	.16	0	1	.11
Gini-coefficient (mean-centered)	4.80	−6.29	9.21	3.77
GDP per capita (mean-centered)	0	−51.99	168.0	38.68
Social expenditure (mean-centered)	1.01	−10.98	7.62	5.18
Age	45.53	25	65	11.25
	Percentage			
Female	54	0	1	
Working fulltime	58	0	1	
Working part-time	11	0	1	
Unemployed	6	0	1	
Not on the labor market	25	0	1	
Lower secondary education and below	27	0	1	
Upper secondary education	43	0	1	
Post-secondary and tertiary education	30	0	1	
Never married	24	0	1	
Married	59	0	1	
Separated/divorced	12	0	1	
Widowed	5	0	1	
Densely populated	43	0	1	
Moderately populated	23	0	1	
Thinly populated	34	0	1	

et al., 2009), we include the degree of urbanization for the respondent's domicile in three categories: densely (>500 inhabitants per square kilometer), moderately (>100 and ⩽500 inhabitants per square kilometer) or thinly populated area (⩽100 inhabitants per square kilometer).

On the country level, we include GDP per capita in purchasing power standards (derived from Eurostat). For the measurement of social expenditure, we include the total amount of social expenditure as a percentage of the GDP (averaged for each country over the years 2002–2005), provided by Eurostat. Expenditure on social protection consists of transfers to households and individuals to relieve them of the burden of a defined set of risks or needs. The following risks or needs that may give rise to social protection, by convention, include: sickness/health care, disability, old age, survivors, family/children, unemployment, housing, and social exclusion not elsewhere classified. Table 3 presents the descriptive statistics.

5. Results

In Figs. 1 and 2, the two forms of participation are plotted against the Gini-coefficient. As we would expect from previous research, there is a negative association, although it is most pronounced for civic participation: higher levels of inequality
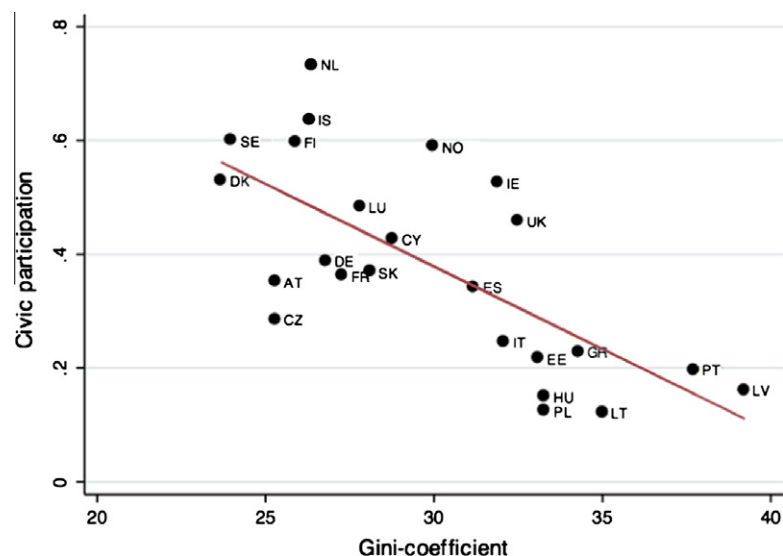

Fig. 1. Civic participation by level of household income inequality (measured by the Gini coefficient).
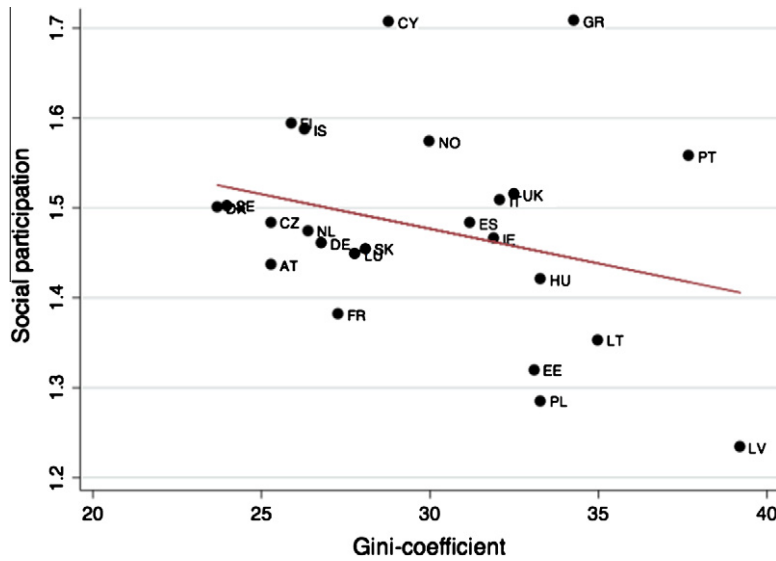
Fig. 2. Social participation by level of household income inequality (measured by the Gini coefficient).

Table 4
Multilevel logit regression predicting civic participation; $n2 = 24$, $n1 = 140,540$. *Source*: EU-SILC 2006, Eurostat.

	M1		M2		M3	
	b	SE	b	SE	b	SE
Equivalized disp. household income	4.149***	(.151)	4.001***	(.152)	3.994***	(.151)
Gini-coefficient	−.088*	(.040)	−.111**	(.040)	−.109**	(.041)
Gini * income			.181***	(.035)	.121**	(.042)
Social expenditure * income					−.085**	(.030)
Social expenditure	−.009	(.031)	.001	(.030)	.012	(.031)
GDP per capita	.010**	(.003)	.010**	(.003)	.010**	(.003)
Individual level control variables						
Female	−.224***	(.013)	−.224***	(.013)	−.224***	(.013)
Age	.017**	(.005)	.017***	(.005)	.017***	(.005)
Age squared	−.000	(.000)	−.000	(.000)	−.000	(.000)
Never married	−.071***	(.016)	−.071***	(.016)	−.071***	(.016)
Married	Ref.		Ref.		Ref.	
Divorced/separated	−.053*	(.021)	−.055**	(.021)	−.055**	(.021)
Widowed	.037	(.032)	.039	(.032)	.039	(.032)
Densely populated area	Ref.		Ref.		Ref.	
Moderately populated area	.092***	(.017)	.093***	(.017)	.094***	(.017)
Thinly populated area	.206***	(.016)	.207***	(.016)	.208***	(.016)
Not on the labor market	Ref.		Ref.		Ref.	
Working fulltime	.257***	(.018)	.260***	(.018)	.260***	(.018)
Working part-time	.280***	(.024)	.282***	(.024)	.281***	(.024)
Unemployed	−.221***	(.032)	−.219***	(.032)	−.218***	(.032)
Lower secondary education and below	Ref.		Ref.		Ref.	
Upper secondary education	.509***	(.017)	.508***	(.017)	.509***	(.017)
Post-secondary and tertiary	1.068***	(.018)	1.068***	(.018)	1.069***	(.018)
Constant	−.773**	(.291)	−.798**	(.291)	−.779**	(.291)
Log-likelihood	−79095.9		−79082.5		−79075.5	
$\sigma^2 u_{ij}$	.680		.671		.677	
Intra-class correlation	.123		.120		.122	

Note: To calculate the intra-class correlation we use the latent variable approximation, as suggested by Snijders and Bosker (1999). ICC $= \frac{\sigma_u^2}{\sigma_u^2 + \pi^2/3}$.
 * $p < 0.05$ (two-tailed tests).
 ** $p < 0.01$ (two-tailed tests).
 *** $p < 0.001$ (two-tailed tests).

correspond with lower levels of participation. However, these are just simple bivariate plots, which do not take into account the variation in individual income and other variables, such as the availability of resources on the country level.

In Tables 4 and 5, multilevel models are estimated for both forms of participation. Table 4 shows models for civic partic-ipation, a concept that has often been used in discussions on the 'decline of social capital' in modern western societies (e.g.,

Table 5
Multilevel regression predicting social participation; $n2 = 24$, $n1 = 140{,}540$. *Source*: EU-SILC 2006, Eurostat.

	M1		M2		M3	
	b	SE	b	SE	b	SE
Equivalized disp. household income	.574***	(.020)	.533***	(.020)	.522***	(.020)
Gini-coefficient	−.001	(.008)	−.006	(.008)	−.004	(.008)
Gini * income			.045***	(.004)	.013*	(.006)
Social expenditure * income					−.030***	(.004)
Social expenditure	.003	(.006)	.005	(.006)	.009	(.006)
GDP per capita	.001	(.001)	.001	(.001)	.001	(.001)
Individual level control variables						
Female	.055***	(.002)	.055***	(.002)	.055***	(.002)
Age	−.025***	(.001)	−.025***	(.001)	−.024***	(.001)
Age squared	.000***	(.000)	.000***	(.000)	.000***	(.000)
Never married	−.027***	(.002)	−.027***	(.002)	−.027***	(.002)
Married	Ref.		Ref.		Ref.	
Divorced/separated	−.001	(.003)	−.002	(.003)	−.001	(.003)
Widowed	.017***	(.004)	.017***	(.004)	.018***	(.004)
Densely populated area	Ref.		Ref.		Ref.	
Moderately populated area	.009***	(.002)	.009***	(.002)	.009***	(.002)
Thinly populated area	.010***	(.002)	.011***	(.002)	.011***	(.002)
Not on the labor market	Ref.		Ref.		Ref.	
Working fulltime	.039***	(.002)	.040***	(.002)	.039***	(.002)
Working part-time	.036***	(.003)	.036***	(.003)	.036***	(.003)
Unemployed	−.026***	(.004)	−.025***	(.004)	−.025***	(.004)
Lower secondary education and below	Ref.		Ref.		Ref.	
Upper secondary education	.044***	(.002)	.044***	(.002)	.044***	(.002)
Post-secondary and tertiary	.046***	(.002)	.046***	(.002)	.047***	(.002)
Constant	1.944***	(.032)	1.951***	(.031)	1.952***	(.031)
$\sigma^2 u_{ij}$	.133***	(.019)	.128***	(.019)	.130***	(.019)
$\sigma^2 e_{ij}$	.306***	(.001)	.306***	(.001)	.306***	(.001)
Log-likelihood	−33121.3		−33074.2		−33052.0	
Intra-class correlation	.159		.149		.153	

* $p < 0.05$ (two-tailed tests).
** $p < 0.01$ (two-tailed tests).
*** $p < 0.001$ (two-tailed tests).

Putnam, 2000; Curtis et al., 1992; Ruiter and De Graaf, 2006). The negative impact of macro-level inequality on participation is most visible here. In model 1 it is clear that, aside from individual resources (e.g., income and education), a higher level of inequality is associated with a lower likelihood of participation in a civic association. Model 2 shows that—in line with our second hypothesis—the depressing effect of inequality on participation varies across income groups. In other words, the association between income and civic participation is dependent on the level of income inequality. Model 3 controls for the varying impact of income across countries with different levels of social expenditure. Model 3 shows that the interaction effect of model 2 decreases in size but remains significant. Thus, taking into account the services provision in egalitarian welfare states, it is still the case that societies with higher levels of income inequality have larger variations in civic participation across income groups. Moreover, the results show that the rich participate more in more unequal societies than in more egalitarian societies. In terms of civic participation, our results show that the rich are relatively well integrated in those societies with greater levels of inequality. Earlier research found negative effects of inequality on *political* participation among all income groups (Solt, 2008).

Model 1 of Table 5 shows that inequality does not have a statistically significant effect on social participation (controlling for social expenditure and GDP). Thus, on the basis of aggregate statistics alone, as is a common basis in the field, inequality is not related to social participation once the resources are controlled for (see Lynch et al., 2000 for a similar finding with regard to health). However, with multi-level data at hand, we can be far more specific. Notably, income does have a strong effect. Model 2 shows that the effect of income is magnified in more unequal societies. Hence, in more unequal societies, the difference between low-income and high-income households is larger than in more equal societies. In other words, macro-level inequality does have negative repercussions on social participation, but it does so primarily by enlarging the differences in participation between income groups. Again, high-income households participate more in unequal societies than in societies with a more equal income distribution.

Model 3 adds the interaction term between income and social expenditure, thereby controlling for the resource explanations relating to egalitarian provision of services in equal societies. The interaction term has a significant effect on social participation. Social expenditure diminishes the influence of income on participation, which is in line with the neo-materialist theory of inequality effects. Compared to model 2 there is a substantial reduction of the interaction effect between income and inequality, but it remains significant. Hence, even though part of the inequality effect on social participation is based on the availability of resources, the income effect on social participation remains larger in more unequal societies. This supports

the view that resources only explain part of the impact of inequality on social participation, which leaves room for alternative, inter-individual, psychosocial explanations for why undesirable outcomes are commonly found in societies with more income inequality.

Importantly, this effect holds after controlling for varying income effects across countries with different levels of social expenditure, suggesting that psychosocial explanations for inequality effects have credence.

The results of model 3 are graphically displayed in Figs. 3 and 4. Income is displayed on the horizontal axis, whereas the predicted probabilities of civic participation are displayed on the vertical axis. The lines represent predicted probabilities for the lowest level of income inequality (Denmark), an average level of inequality (corresponding with Spain) and the highest level of inequality in our sample (Latvia). In Fig. 3, it is clear that at a low level of inequality, the expected probability for participation increases only moderately with higher levels in income. In contrast, at a high level of inequality, this line is much steeper, indicating that income is much more important for civic participation in those countries. Moreover, people with low incomes under conditions of high inequality are less likely to participate than people with low incomes in low inequality contexts; however, the opposite finding is observed for people with higher incomes: people with high incomes
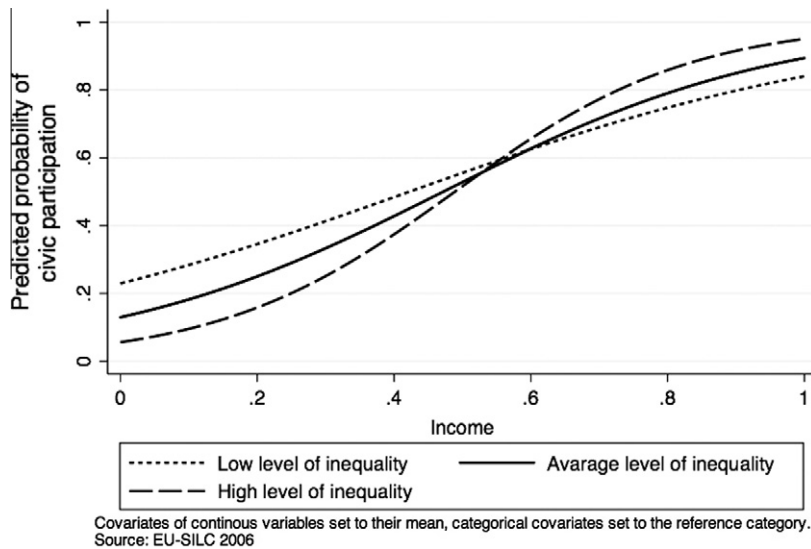

Covariates of continous variables set to their mean, categorical covariates set to the reference category.
Source: EU-SILC 2006

Fig. 3. The effect of income on civic participation for different levels of inequality.

Covariates of continous variables set to their mean, categorical covariates set to the reference category.
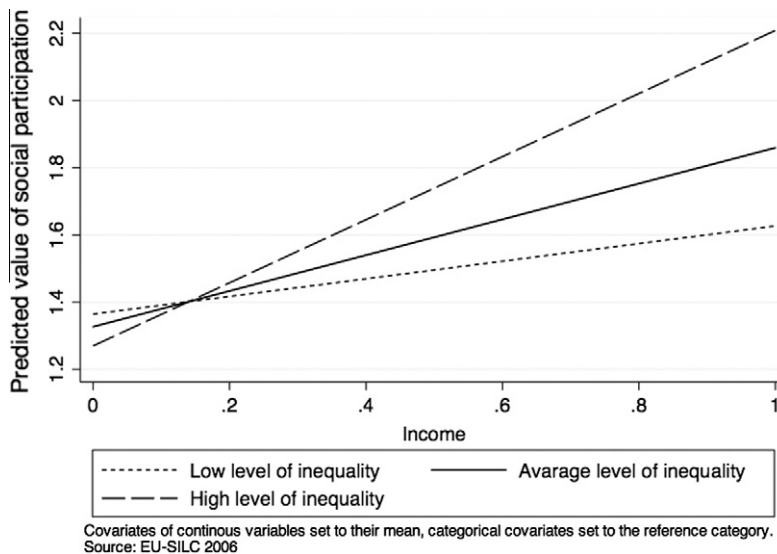Source: EU-SILC 2006

Fig. 4. The effect of income on social participation for different levels of inequality.

in high inequality contexts are *more* likely to participate than people with high incomes in low inequality contexts.

Fig. 4 depicts a similar picture for social participation and illustrates the predicted values of participation for the complete range of income using three lines that represent different levels of inequality. At a high level of inequality, the association between income and participation is clearly stronger than at a low level of inequality. In countries with low inequality, participation is least dependent on an individual's income, thereby supporting hypothesis three.

6. Conclusion

In this paper, we examined whether and why income inequality in a society is negatively related to various forms of participation. We were particularly interested in examining different theoretical explanations for a relationship between inequality and participation (or other undesirable outcomes, for that matter). Thus far, studies have primarily relied on aggregate data that showed that higher levels of inequality are related to lower levels of social trust, poor health, higher crime rates, and lower levels of participation.

However, this relationship can be explained by two different theories, which are impossible to disentangle with aggregate data. First, income inequality can affect these outcomes through psychosocial processes of status differences and related levels of stress (Wilkinson, 2005; Wilkinson and Pickett, 2009). In more unequal societies, the poor abstain from participation, show lower levels of generalized trust, develop bad health, and are more often involved in criminal activities because they are more distressed by their disadvantaged position than they would have been if their society had been more egalitarian. Second, inequality is related to bad outcomes such as low levels of participation because of the resources that people have available to them (Lynch et al., 2000). Such resources come in different forms, both at the individual and collective level. At the individual level, income and education provide relevant resources for a number of outcomes, including participation (Gesthuizen et al., 2008; Pichler and Wallace, 2009). In more unequal societies, the poor have fewer resources, so their participation is negatively affected in comparison with lower income groups in more equal societies. At the country level, resources include GDP and the extent to which the state provides welfare to its citizens (Van Oorschot and Arts, 2005). Both these aspects are related to the level of inequality in a country. The 'neo-material' theory of inequality effects argues that more equal societies provide many services to its citizens that eliminate obstacles to participation and good health (Lynch et al., 2000). Regarding participation, the resource theory predicts that inequality increases the participation of the rich, whereas it reduces participation of the poor (Solt, 2008).

None of the existing studies have seriously disentangled these different mechanisms for social and civic participation. We hypothesized that income inequality is negatively associated with participation, even when controlling for individual income (H1). The results indicate that civic participation is indeed negatively affected by inequality. However, inequality has no overall effect on social interactions with friends and family. The only effect of inequality on informal participation is in its interaction with household income. Larger inequality does not seem to prohibit social interactions with friends and families for the largest share of societies, but it does positively affect informal participation for more affluent households.

Our second hypothesis predicted that in countries with larger income inequality, the association between income and participation is stronger, while the third hypothesis stated that this effect persists even when controlling for the availability of resources on the macro- and micro-level. Our results showed that, in line with our third hypothesis, after extensively controlling for resources by including interaction terms between household income and social expenditure, income effects on both civic and social participation are magnified in more unequal societies. Low-income household members participate less in voluntary organizations and social life than high-income household members, and this difference is larger in more unequal societies. This finding is not because people in countries with a low level of inequality are better able to participate because of extensive welfare provisions, higher GDP, or a relatively higher individual income. Notably, persons living in more affluent households participated more in more unequal societies than in more egalitarian societies. This finding refutes earlier ones regarding *political* outcomes, which were negatively related to inequality among all income groups, although these findings were not always statistically significant (Solt, 2008).

At higher levels of inequality, *both* forms of participation that we identified are more strongly affected by individual income. It is therefore not the case that when inequality is higher, the poor shift to forms of participation that require fewer resources, such as contacts with friends. Thus, inequality seems to isolate low-income households from civic and social life and simultaneously promote the social integration of the rich.

Considering the two broad theories that explain why inequality is detrimental to participation (and other positive outcomes), we found partial support for both (not mutually exclusive) perspectives. In line with the psychosocial theory of inequality effects (Elgar and Aitken, 2011; Uslaner and Brown, 2005; Wilkinson and Pickett, 2009) we demonstrated that, even after controlling for resources relevant to participation at the individual and contextual level, higher levels of inequality depreciated participation levels and strengthened the association between household income and participation. In line with other studies that emphasized the role of psychosocial processes in the explanation of inequality correlations with a diverse set of outcomes including health, crime and school bullying (Elgar and Aitken, 2011; Elgar et al., 2009; Layte, 2011; Wilkinson and Pickett, 2008), and regarding social participation, we were not able to refute the psychosocial hypothesis. However, in agreement with the resource theory, it was evident that the impact of inequality (on the average level of participation or on the income slope) was reduced once resources were held constant (Lynch et al., 2000; Solt, 2008). Additionally, people from affluent households participated more in unequal societies than in more egalitarian societies, which according to Solt

(2008) is evidence in favor of the resource explanation. However, the psychosocial theory does not imply that resources are unimportant. Rather, it stresses that resources explanations do not suffice to explain inequality effects. Our findings are in agreement with that view.

Cross-sectional comparative data obviously limits the causal claims we can make about inequality effects on participation. The causal relationship could also work the other way around, where more dispersed levels of social contact lead to higher levels of income inequality. Additionally, the limited number of countries, although comprising nearly all of the European Union, prevents us from generalizing our findings to other countries or making other cross-sectional, regional comparisons, such as for different US states. Yet, this theory-driven deductive approach allowed us to disentangle the plausibility of different mechanisms on the effects of inequality on social participation that may lead to further tests in different contexts.

To further examine the underlying mechanism of inter-individual processes, it would be desirable to analyze in more detail how income inequality translates into status competition and higher levels of stress. Neckerman and Torche (2007) stress that we know very little about how people become aware of economic information, how they choose reference groups and how this affects perceptions of inequality. For example, it was not possible to include in our study a measure that captures the extent to which inequality is *perceived* as such (Osberg and Smeeding, 2006). In a similar vein, in a recent critique on Wilkinson and Pickett's work, Goldthorpe (2010) argues that focusing only on income inequality is a one-dimensional approach to social inequality. Goldthorpe argues that because class and status are qualitatively different, by including only income inequality, one does not appropriately analyze the mechanism that Wilkinson and Pickett propose. To the extent that status differences are not captured by measures of income inequality, future research should focus on separating income and status inequality, as well as perceived inequality.

In conclusion, although resources are important to explain participation, there seems to be support for the argument that resources are not able to fully explain inequality effects on participation. In addition to the material theory that explains inequality effects in terms of resources, we found support for the idea that inequality affects people of different income levels differently through non-material, inter-individual processes.

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