

## ORIGINAL ARTICLE

# The nonlinear relationship between political trust and nonelectoral political participation in democratic and nondemocratic regimes

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## Abstract

**Objective:** Citizens use nonelectoral means of political participation along with electoral ones. However, we expect that engaging in nonelectoral political participation (NEPP) is quite dependent on the legitimacy of the state and its institutions, as well as the regime type. This article explores the relationship between NEPP and political trust (PT), which can indicate the legitimacy of such institutions.

**Method:** We utilize the seventh wave of World Values Survey to test such relationships in countries classified as democratic and nondemocratic following the Freedom in the World Index. We hypothesize that in democratic countries there is an inverted U-shaped curvilinear relationship between PT and NEPP. We also hypothesize that there would be a negative relationship between PT and NEPP in nondemocratic countries.

**Result:** The analysis of the data confirms the first hypothesis, which is our main contribution. We also found that the negative relationship in the second hypothesis exists and is linear.

**Conclusions:** The findings indicate that respondents in each set of countries interpret trust and participation differently. In democracies, citizens engage in NEPP when they have a medium level of trust in political institutions, and in other regimes, citizens take that risk only when their mistrust of the institutions of the regime falls below a certain level.

## KEY WORDS

logistic regression, nonelectoral political participation, nonlinearity, Poisson regression, political trust

Methods of political participation are not limited to merely voting in elections. In fact, nonelectoral methods of political participation can often become the preferred method for citizens to make their voices heard. The decision to participate in such methods can be determined by several factors, and trust in political institutions could play a significant role in this decision. Moreover, citizens of democratic and nondemocratic countries go through this decision-making process very differently from each other.

Political participation is an essential feature of democracy, yet in nondemocratic countries some citizens also decide to participate in certain conditions.

The aims of this article are to compare the relationship between political trust (PT) and nonelectoral political participation (NEPP) in democratic as opposed to nondemocratic countries and examine the nature of each set of relationships. Based on the data from the seventh wave of World Values Survey (WVS), we define PT as a value that combines the confidence of respondents in the parliament, the national government, political parties, the legal system, the military, and the police. NEPP is measured based on whether the respondents have taken part or are likely to take part in forms of political participation such as writing a petition, boycotting, or peaceful demonstrations. Besides measuring the overall relationship between these two variables, we categorize the subject countries as democratic and nondemocratic based on the Freedom in the World Index. The countries that have been categorized as “free” by the index in the year that the seventh wave of WVS was conducted in that country are categorized as “democratic” and those that have been categorized as “partly free” and “not free” are categorized as “nondemocratic.” Partly free and not free countries are evaluated together because it is assumed that the variables we examine work similarly in both categories as opposed to the democratic countries. Our assumption is that in nondemocratic countries, the questions regarding trust in institutions are interpreted as overall support for the regime. For instance, in some single-party regimes in which there are no legal political parties other than the ruling party, the question regarding ‘political parties’ might be interpreted as trust in the ruling party (Chen 2017).

Our hypothesis for the first question regarding the relationship between PT and NEPP in democratic countries is that there is an inverted U-shaped curvilinear relationship between these two variables. It is likely that in cases of very low PT, there would be reluctance toward participation in nonelectoral political activities due to apathy. Also, very high PT might suggest that there is little incentive to participate in political change or to protest due to the belief that the political institutions are already working as they should. Therefore, we expect to find that there is a healthy amount of PT that is high enough to accept political institutions as legitimate, but not too high that it would lead to complete submission of civic duties. In authoritarian or semiauthoritarian countries, on the other hand, we expect to see a different mechanism in place.

In authoritarian or semiauthoritarian countries, some elements of NEPP may be illegal, or even if they are officially legal, they may be widely discouraged. It follows from this that absolute values for NEPP in authoritarian or semiauthoritarian countries would be dramatically lower than democratic ones.<sup>1</sup> Those who engage in one or more forms of NEPP in such countries would do so only when their trust in political institutions is so low that they take the risks involved in order to have their voices heard (Loveman 1998; Schock 1999). The relationship between PT and NEPP in authoritarian or semiauthoritarian countries, therefore, is expected to be a negative one.

Our study thus contributes to the existing literature by introducing two different perspectives. First, we provide additional evidence for the argument that political concepts such as PT and political participation have different meanings and interpretations in democratic and nondemocratic contexts. Therefore, it is imperative to treat democratic and nondemocratic regimes as separate categories in the analysis. Second, we use a methodology that shows the existence (or the lack of) a curvilinear relationship between the relevant variables, as opposed to a linear one. This is a contribution that is often overlooked in the existing literature that deals with PT and political participation and provides nuance to the understanding of the relevant concepts.

## POLITICAL TRUST

PT has been accepted as a significant variable since Gamson (1968), who uses the Eastonian framework (Easton 1965), defined PT as diffuse support in the sense that it is a long-term resource that is mobilized

<sup>1</sup> Although there may be pro-government rallies in some nondemocratic regimes, such events are more likely to occur in exceptional occasions and are unlikely to affect our hypothesis (Hellmeier and Weidmann 2020).

for legitimacy, but also a dependent variable of activity or inactivity. (Gamson 1968, 46). Similarly, Gamson notes that low PT can also translate into political participation and does not necessarily result in apathy. When it comes to NEPP, more specifically protest, Gamson argues that such political behavior is expected from citizens with low PT.

While in the older literature (Almond and Verba 1963; Easton 1965; Habermas 1975), it is usually accepted that PT is a source of legitimacy and a contributor to traditional forms of political participation, a negative relationship between PT and nonelectoral (nontraditional, unorthodox, etc.) political participation was generally accepted in the discipline until recently. More recent literature (Marien and Hooghe 2011) indicates that lower PT indicates that there are more citizens who are critical of their government, and thus it can be beneficial for democratic governance. Similarly, Dalton (2004, 172), who provides a comprehensive study on PT within the Eastonian framework, assumes that more political support yields more political participation. However, he (Dalton 2004, 172–73) wisely distinguishes between different types of political actions and draws attention to the nuance that unconventional forms of political participation may result from dissatisfaction from the government rather than support for it (Dalton 2004, 173–77).

Most of the difficulty in studying trust lies in the difficulty of defining and measuring it (Bauer and Freitag 2017). Although the word trust is used to describe both interpersonal and social trust as well as PT, the latter simply represents a measure of legitimacy of political institutions rather than a set of complex feelings that individuals might have toward each other. Therefore, for our purposes it is found to be sufficient to rely on the PT questions formulated by the WVS. As explained further below, we base our PT variable on the responses of the survey participants to the questions regarding their confidence in institutions such as the parliament, government, political parties, justice system, armed forces, and police.

## POLITICAL PARTICIPATION: ELECTORAL AND NONELECTORAL

According to the simplest and most widely accepted definition by Verba and Nie, “political participation refers to those activities by private citizens that are more or less directly aimed at influencing the selection of governmental personnel and/or the actions they take” (1972, 2). Although this is a very broad definition, Verba and Nie (1972, 10) state that they distinguish political participation from support for the government and further, they limit the modes of participation with only those activities that are accepted as conventional, such as voting and campaign participation (1972, 58). While activities such as peaceful demonstrations and boycotts are left out of the scope of political participation by Verba and Nie, only relatively nonelectoral modes of participation they investigate are cooperative activities and contacting local or national officials.

In later literature, what once was termed as either nonconventional or unorthodox (Marsh 1974) forms of political participation have become a regular part of democratic politics (Barnes and Kaase 1979). According to Inglehart (1977, 299–307), this move is accompanied by the emergence of a new mode of political participation that is conducted through ad hoc organizations with relatively nonhierarchical structures, as opposed to older organizations of political participation such as political parties and labor unions and this emergence and acceptance of new forms of political participation is the main reason why a decline in PT does not translate into a decline in political participation, at least in Western societies. Norris (1999, 76) also emphasizes the increasing role of NEPP in both fostering direct democracy and constituting alternatives to voting, especially in recent decades. As also emphasized by Dalton (2022) with reference to the term “contentious politics,” which he borrows from Tilly and Tarrow (2015), the distinction between electoral and nonelectoral forms of participation is now more widely accepted and that they represent different forms of relationship between citizens and their governments.

We have decided to focus specifically on NEPP and leave electoral participation out to demonstrate the contrast between democratic and nondemocratic countries more clearly. In most nondemocracies, elections either do not exist, or they are neither free nor fair. Therefore, it is not a useful variable for our purposes. NEPP, on the other hand, can be perceived by the citizens as meaningful in certain contexts

even under nondemocratic governments. The NEPP variable that we use in this article represents the likelihood of respondents to participate in one or more of the nonelectoral methods of political action as indicated by the WVS data. These methods are signing petitions, joining boycotts, taking part in peaceful demonstrations, and taking part in strikes. As it can be seen from the abovementioned literature, these actions are regarded as belonging to a group of political participation methods that are distinct from electoral participation and that need to be assessed on their own. Operationalization of the NEPP variable is detailed further below.

## RELATIONSHIP BETWEEN POLITICAL TRUST AND NONELECTORAL POLITICAL PARTICIPATION

In more recent studies, both PT and NEPP have been used as variables, although not necessarily in relation to one another, and usually on regionally or nationally limited samples (Benson and Rochon 2004; Braun and Hutter 2016; Kaase 1999; Marien 2011; Marien and Hooghe 2011). Among such studies, those that investigate the exact pair of variables as this study are limited to Kaase (1999) who finds that as PT decreases it is more likely for citizens to engage in noninstitutionalized participation, and Braun and Hutter (2016) who also analyze the relationship between PT and extra-representational participation in a study that is limited to European democracies. Yet, they bring the concept of “openness” of political systems into the picture and test whether the said relationship changes as the openness varies between various European democracies. The empirical findings by Braun and Hutter (2016, 8–10) agree with that of Kaase: Distrust in political institutions increases the likelihood of taking part in nonelectoral forms of participation.

A recent study that investigates the relationship between PT and political participation using WVS data also compares this relationship in democratic and nondemocratic countries (Cichocka et al. 2018). Cichocka et al., unlike the studies mentioned above, investigate and find that there is a curvilinear relationship between system confidence and collective action, yet this relationship is similar in both democratic and nondemocratic countries, the only difference being that it is more obvious in democracies. Here, we challenge this outcome by arguing that the relationship between PT and NEPP works in dramatically different ways in democratic and nondemocratic countries, which would lead to qualitatively different outcomes for each category. We argue that citizens in democratic and nondemocratic countries interpret key political concepts and attitudes related to democracy in general very differently from each other. This qualitative difference of interpretation occurs due to the differences in the level exposure to democratic procedures, institutions, and experiences (Shin 2017; Zagrebina 2020). This work aims to demonstrate this difference specifically in the selected variables.

## DATA AND VARIABLES

We collected the main data using the WVS data for the seventh wave.<sup>2</sup> Then, the cross-sectional data are restricted according to Freedom House’s Freedom in the World Report<sup>3</sup> (FitW), which is the second data source that we used in order to classify the countries as democratic (free) and nondemocratic (partly free and not free).<sup>4</sup> The countries that are not included in both FitW and WVS are dropped. Although in

<sup>2</sup> See <http://www.worldvaluessurvey.org> (accessed on June 7, 2021).

<sup>3</sup> See <https://freedomhouse.org>.

<sup>4</sup> Since the WVS seventh wave has been conducted between 2017 and 2020, the countries that were included in both seventh wave and the FitW report were selected for the study, and the FitW category was checked for each country for the year in which the WVS was conducted in that country. Two groups of countries were obtained by separating between the “free” countries and the others. The countries that were counted as “Not Free” in FitW consisted of 13 percent of all observations, which was another reason leading to an unbalanced distribution to include them into the “Nondemocratic” group.

**TABLE 1** Selected countries and survey year in WVS seventh wave

Democratic		Nondemocratic			
Free		Partly free		Not free	
Country	Year	Country	Year	Country	Year
Andorra	2018	Armenia	2021	China	2018
Argentina	2017	Bangladesh	2019	Egypt	2018
Australia	2018	Bolivia	2017	Ethiopia	2020
Brazil	2018	Colombia	2018	Iran	2020
Canada	2020	Ecuador	2018	Iraq	2018
Cyprus	2019	Guatemala	2019	Kazakhstan	2018
Chile	2018	Hong Kong SAR	2018	Myanmar	2020
Germany	2017	Indonesia	2018	Nicaragua	2020
Greece	2017	Jordan	2018	Russia	2017
Japan	2019	Kenya	2021	Tajikistan	2020
Mongolia	2020	Kyrgyzstan	2019	Thailand	2018
New Zealand	2019	Lebanon	2018	Turkey	2018
Peru	2018	Malaysia	2018	Vietnam	2020
Romania	2017	Mexico	2018	Zimbabwe	2020
Serbia	2017	Nigeria	2018		
South Korea	2018	Pakistan	2018		
Taiwan ROC	2019	Philippines	2019		
Tunisia	2019	Singapore	2020		
USA	2017	Ukraine	2020		

some countries there are missing variables that we are interested in, the total number of countries is 47. The list of countries broken down into democratic and nondemocratic categories can be seen in Table 1. Additionally, the total number of surveys included in this study is given in Table A1, which indicates that the proportion of surveys collected from democratic countries is 23.92 percent while the remaining 76.08 percent comes from nondemocratic countries. In total, we processed 28,461 surveys throughout this study (see Table A1).

NEPP covers four variables: signing a petition,<sup>5</sup> joining in boycotts,<sup>6</sup> attending a peaceful demonstration,<sup>7</sup> and joining strikes<sup>8</sup> according to the WVS's codebook,<sup>9</sup> which we regard as actions. As it can be seen in the tabulations, actions are rated as 3 (have done), 2 (might do), and 1 (would never do), respectively, in the original data. However, we treat these options as actions that need to be encoded as dichotomous, therefore, the first option, "have done," is taken into account only and recoded as 1 while others are revalued with 0.

Independent variables indicating PT are mined from six questions from WVS for the seventh wave. These are the questions asking about individual perception in terms of trust in institutions such as

<sup>5</sup> E025 Political action: signing a petition.

<sup>6</sup> E026 Political action: joining in boycotts.

<sup>7</sup> E027 Political action: attending lawful/peaceful demonstrations.

<sup>8</sup> E028 Political action: joining unofficial strikes.

<sup>9</sup> WVS EVS Integrated Dictionary Codebook v 2014 09 22 (Excel), downloaded from <http://www.worldvaluessurvey.org/WVSDocumentationWVL.jsp>.

parliament,<sup>10</sup> government,<sup>11</sup> political parties,<sup>12</sup> justice system,<sup>13</sup> armed forces,<sup>14</sup> and police.<sup>15</sup> Although the choices<sup>16</sup> are given as a scale of 4 in WVS, these are reordered again in accordance with Likert's 4-point scale, which are between "4: A great deal" and "1: None at all." Since this study also looks at the relationship between PT and NEPP in general, we first calculate each normalized trust variable within a country between (0,1), then we get the sum of normalized trust variables to calculate total trust for each country.

## METHODOLOGY

First, we utilize the Poisson regression to estimate the number of actions that respondent declared as "have done" for the statement of NEPP. The actions regarded as NEPP of individuals in this study are "signing a petition," "joining in boycotts," "attending lawful/peaceful demonstrations," and "Joining strikes," which account four in total as a maximum for an individual. If the respondent declared as "might do" or "would never do," it accounted for zero participation. Since the number of actions that are observed count of respondent follows the Poisson distribution, which also assumes large counts are relatively less than low counts (Greene 2000), our dependent variable can be estimated with Poisson regression (see Appendix B for detailed methodology). So, we can explicitly construct two equations estimating the nonlinear effect of both trust overall (Equation B3) and trust by regime type (Equation B4).

Second, we do not consider the dependent variable as observed counts. Instead, it is also possible to catch political activity from these four types of NEPP by putting the "OR" statement in between them. That is, if an individual attended at least one NEPP, it is encoded as 1, otherwise 0. Here, the probability of being politically active can be directly estimated with logistic regression (Gujarati 2004), which is explained in Appendix B. Then, we also estimate the probabilities of being politically active to see the effect of both the trust in overall (Equation B6) and trust by regime types (Equation B7).

Later, we also had the opportunity to test the curvilinear relationship econometrically for both U shaped and an inverted U shaped (hump shaped). We follow Sasabuchi (1980) providing a test for curvilinear relationship using joint significance of both variable in original and its squared form. In practice, we applied Lind and Mehlum (2010) approach to test whether the curvilinear relationship exists in between PT and NEPP (see Appendix B).

## RESULTS AND DISCUSSIONS

We present descriptive statistics of all variables used in this study in Table A2 for the whole sample in accordance with regime classification.<sup>17</sup> Normalized trust in nondemocratic regimes seems higher than democratic countries. When the components of PT are examined, it is observed that the mean of all components is higher in nondemocratic countries than in democratic countries. However, when we look at the number of actions on average, democratic countries outweigh nondemocratic countries (see Figure A5).

We also examined the relationship between the number of actions and trust components in cross-tabulations, which are presented in Tables A3–A8 for the whole sample. These cross-tabulations were drawn not only to see the clusters that are the intersection of intensified frequencies of trust and action

<sup>10</sup> E069 07 Confidence: parliament.

<sup>11</sup> E069 11 Confidence: the government.

<sup>12</sup> E069 12 Confidence: the political parties.

<sup>13</sup> E069 17 Confidence: justice system/courts.

<sup>14</sup> E069 06 Confidence: the police.

<sup>15</sup> E069 02 Confidence: armed forces.

<sup>16</sup> 1: A great deal; 2: quite a lot; 3: not very much; 4: none at all.

<sup>17</sup> Figure A3 for normalized trust in sum and Figure A4 for country averages were also drawn to see the linear relationship between PT and NEPP in general.

but also to question whether there is an association between the categories. These associations were tested with Pearson's chi-square analyses and we found that all of them were statistically significant at 1 percent level.

We also wanted to look at the relationship between the variables using correlation analysis. However, since our dependent variable is a count variable, we chose Spearman's correlation coefficient. In Table A9, we got a positive relationship between the number of actions and trust/components of trust except trust in armed forces for democratic countries. All positive correlation coefficients were statistically significant at 1 percent level in Table A9. Trust in armed forces that have negative correlation with the number of actions were found to be significant at 5 percent level. However, the relationships between trust/components of trust with the number of actions for nondemocratic countries were found negative, which were statistically significant at 1 percent level according to Table A10. From these results, we got a small clue about the relationship between PT and NEPP for both categories.

We estimate the equations enumerated as Equations (B3) and (B6) first to see the relationship between PT/its components and NEPP for the whole sample. These results are always given in column (1), which is Poisson regression results and column (2), which is logistic regression results. In addition to these, we mainly tested Equations (B4) and (B7) in parallel with our main hypotheses for the curvilinear relationship between trust/its components and the number of actions to see the difference between categories.

We found that normalized trust increased the number of political actions in column (1) while its squared decreased in Table 2, which were statistically significant. The inverted U-shaped relationship was also proved by Sasabuchi's nonlinearity test. However, when we split countries according to their regimes in column (3), the inverted U relation was valid for democratic countries only, besides, the presence of U-shaped relation where normalized trust decreased the number of political actions and its squared increased the number of political actions was observed for nondemocratic countries. However, Sasabuchi's nonlinearity test did not confirm this U-shaped relation. These results were also confirmed in the probability of being politically active for both overall in column (2) and regime types in column (4). However, the significance of the U-shaped relationship between normalized trust with its square and the probability of being politically active was achieved in column (4) with failure of rejection of what Sasabuchi's nonlinearity test offered in the null hypothesis for nondemocratic countries (see Figure A1). Besides, Sasabuchi's nonlinearity test also confirmed the presence of inverted U shape for democratic regimes in column (4). In addition, pseudo-*R*-squared increased significantly when we split the sample to regime types, which was observed throughout all results.

The findings shown in Table 2 indicate that the overall relationship between PT and NEPP manifests itself very differently in democratic and nondemocratic countries. The inverted U-shaped relationship in democratic countries seems to confirm the hypothesis that NEPP peaks when PT is neither too high nor too low. Since the significance of the nonlinear relationship is lower than the linear one for nondemocratic countries, it is more likely that there is a negative relationship between the variables for this group, which is also in line with our second hypothesis.

We need to see these inverted U-shaped and U-shaped relationships in trust components to check whether the results change from institution to institution. So, we first examined the effect of trust in parliament and its square to the number of political actions in column (1) and the probability of being politically active in column (2) for the whole sample in Table 3. The results were controversial. In column (1) in Table 3, although a positive sign in trust in parliament and negative sign its squared indicated an inverted U shape for the number of political actions, Sasabuchi's nonlinearity tests showed the presence of a U-shaped relation (Figure A2). However, in the estimation of probability of being politically active in column (2) in Table 3, Sasabuchi's nonlinearity tests confirmed the inverted U relationship for the whole sample. Due to insignificant coefficients in both columns (3) and (4) at 5 percent significance level, Sasabuchi's nonlinearity tests were not concluded statistically. However, trust in parliament affected positively and linearly for both the number of political actions and the probability of being politically active in democratic regimes, while the opposite effect was observed in nondemocratic regimes. Although trust in parliament does not seem to contribute to the nonlinearity of the relationships, this finding contributes to the overall argument that trust affects oppositely in both regimes.

**TABLE 2** Regression results of NEPP and PT

	(1) Political actions (PRME)	(2) Prob.[action] (LRME)	(3) Political actions (PRME)	(4) Prob.[action] (LRME)
Expected	0.44224159	0.04567292	0.36562622	0.0303720'
Sasabuchi's <i>t</i> -value	3.68***	2.63***		
Dem.			3.54***	2.37***
NonD.			Undetermined	0.12
Nl. Trust (Sum)	0.051*** (3.69)	0.008** (2.65)		
Nl. Trust Sq. (Sum)	-0.021*** (-8.74)	-0.003*** (-5.58)		
Nl. Trust (Sum) Dem.			0.132*** (10.87)	0.015*** (7.16)
Nl. Trust Sq. (Sum) Dem.			-0.016*** (-6.74)	-0.002*** (-4.49)
Nl. Trust (Sum) NonD.			-0.115*** (-9.24)	-0.018*** (-7.41)
Nl. Trust (Sum) Sq. NonD.			0.007** (2.89)	0.002** (3.22)
Obs.	28,461	28,461	28,461	28,461
$\chi^2$	313.6	105.9	3040	1182
Prob. $\chi^2$	0.0000	0.0000	0.0000	0.0000
Psuedo- $R^2$	0.0143	0.0121	0.1044	0.1248

Note: PRME stands for Poisson regression marginal effects while LRME is logit regression marginal effects.  $\chi^2$  statistics are in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Standard errors are Eicker–Huber–White's heteroskedasticity-robust standard errors.

Abbreviations: Dem., democratic countries; Nl. Trust Sq., normalized trust sum squared; Nl. Trust (Sum), normalized trust sum; NonD., nondemocratic.

When we tested trust in government, the results in Table 4 did not confirm what was proved by Table 2. Although the requirements for U-shaped relationship between trust in government and its square were achieved in column (3) for the number of political actions and in column (4) for the probability of being politically active in nondemocratic regimes, Sasabuchi's nonlinearity tests did not prove whether this kind of U shape is statistically significant due to undetermined results in Table 4 (Figure A2). The effect of trust in government on the likelihood of participating in nonelectoral forms of action in democratic countries is close to 0. This can be interpreted as a possible indication of the fact that the negative and positive effects of trust in government offset each other and a meaningful relationship either way cannot be found. However, this is not a completely unexpected result considering our hypothesis, because the inverted U-shaped relationship would mean that at some level the positive and negative effects of the independent variable would be close to equal. The reason for this is, as the data show, that the marginal effect of trust on participation would be positive for some respondents and negative for others, and at a certain level the effects of these opposite forces would converge.

The number of political actions was found to be driven by trust in political parties in column (1), and this result was also achieved for the probability of being politically active in the whole sample. Trust in political parties was positive and statistically significant at 5 percent while its square was negative and statistically significant at 5 percent. These results maintained inverted U-shaped relationship between trust in political parties and NEPP in Table 5. Sasabuchi's nonlinearity tests also endorsed the presence of

**TABLE 3** Regression results of NEPP and trust in parliament

	(1) Political actions (PRME)	(2) Prob.[action] (LRME)	(3) Political actions (PRME)	(4) Prob.[action] (LRME)
Expected	0.44782816	0.04691767	0.36578879	0.0302839'
Sasabuchi's <i>t</i> -value	0.43	1.99**		
Dem.			Undet.	Undet.
NonD.			Undet.	Undet.
Trust in Par.	0.084** (2.66)	0.021** (3.07)		
Trust in Par. Sq.	-0.038*** (-5.53)	-0.006*** (-4.39)		
Trust in Par. Dem.			0.113*** (4.46)	0.015*** (3.31)
Trust in Par. Sq. Dem.			-0.008 (-1.33)	-0.001 (-0.88)
Trust in Par. NonD.			-0.183*** (-6.99)	-0.022*** (-4.32)
Trust in Par. Sq. NonD.			0.019** (3.14)	0.003* (2.07)
Obs.	28,461	28,461	28,461	28,461
$\chi^2$	217.9	55.3	3191	1309
Prob. $\chi^2$	0.0000	0.0000	0.0000	0.0000
Psuedo- $R^2$	0.0098	0.0061	0.1069	0.1326

Note: PRME stands for Poisson regression marginal effects while LRME is logit regression marginal effects.  $\chi^2$  statistics are in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Standard errors are Eicker–Huber–White's heteroskedasticity-robust standard errors.

Abbreviations: Dem., democratic countries; NonD, nondemocratic; Trust in Par., trust in parliament; Trust in Par. Sq., trust in parliament and its square.

inverted U shape (Figure A2). In accordance with Table 2, the relationship between PT and NEPP was first found to be driven by trust in political parties in Table 5, in which this result supported our decision to examine the components of PT separately. In addition to this, we also showed that inverted U-shaped relationship for trust in political parties were valid for democratic regimes since squared trust in political parties was missing in nondemocratic regimes. Therefore, this result also indicated that trust in political parties in nondemocratic regimes led to linear decrease in NEPP. So, as proved by the first two columns, the inverted U relationship between trust in political parties and NEPP was only due to democratic regimes. The negative linear relationship between trust in political parties and NEPP in nondemocratic regimes can be explained with the fact that in such regimes there is usually only one legitimate political party that is the ruling party, and in the cases where there are also opposition parties, they are either too weak or symbolic and in collusion with the ruling party. In such cases, trust in political parties would mean support for the regime in general.

We found only the inverted U relationship in column (2) indicating the probability of being politically active for the whole sample in Table 6, which was also confirmed by Sasabuchi's nonlinearity tests. In column (3), a U-shaped relationship between trust in justice system and the number of political actions was achieved for nondemocratic regimes, which was also confirmed by Sasabuchi's nonlinearity test (Figure A2). In Table 2, we provided such a U-shaped relationship between PT in sum and NEPP for nondemocratic regimes, however, Table 6 in column (3) showed that this U-shaped relationship was driven

**TABLE 4** Regression results of NEPP and trust in government

	(1)	(2)	(3)	(4)
	Political action (PRME)	Prob.[action] (LRME)	Political action (PRME)	Prob.[action] (LRME)
Expected	0.43945666	0.04450476	0.36469019	0.0292398'
Sasabuchi's <i>t</i> -value	Undet.	Undet.		
Dem.			Undet.	Undet.
NonD.			Undet.	Undet.
Trust in Govt.	0.010 (0.34)	0.007 (1.19)		
Trust in Govt. Sq.	-0.028*** (-4.46)	-0.005*** (-3.90)		
Trust in Govt. Dem.			0.064* (2.55)	0.007 (1.68)
Trust in Govt. Sq. Dem.			-0.007 (-1.26)	-0.001 (-0.88)
Trust in Govt. NonD.			-0.236*** (-9.50)	-0.029*** (-6.00)
Trust in Govt. Sq. NonD.			0.027*** (5.03)	0.003** (2.80)
Obs.	28,461	28,461	28,461	28,461
$\chi^2$	438.5	182.1	3035	1174
Prob. $\chi^2$	0.0000	0.0000	0.0000	0.0000
Psuedo- $R^2$	0.0179	0.0190	0.1054	0.1301

Note: PRME stands for Poisson regression marginal effects while LRME is logit regression marginal effects.  $\chi^2$  statistics are in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Standard errors are Eicker–Huber–White's heteroskedasticity-robust standard errors.

Abbreviations: Dem., democratic countries; NonD, nondemocratic; Trust in Govt., trust in government; Trust in Govt. Sq., trust in government and its square.

by trust in justice system in nondemocratic regimes. One of the big impacts came from trust in the justice system, which has a coefficient of -0.22 leading to a significant decrease in the number of political actions for individuals who live in nondemocratic regimes. Despite the presence of the coefficients showing an inverted U-shaped relationship was found in column (4) for democratic regimes, however, the presence of this inverted U-shaped relationship was not proved statistically by Sasabuchi's nonlinearity results, which yielded not to interpret this result for democratic regimes.

The regression results of the relationship between trust in justice system and NEPP are very similar to the ones regarding the trust in government. Therefore, we argue that similar relationships are at play regarding the justice system. In democratic regimes, the lack of a strong relationship either way can be interpreted as positive and negative effects offsetting each other, while in nondemocratic regimes the strong negative relationship is likely to confirm the overall relationship. One could assume that specifically trust in the justice system would increase the likelihood of participation in protests or other nonelectoral actions because individuals would not be afraid of being tried and convicted unfairly by the justice system due to their political actions. However, this reasoning might not apply to nondemocratic regimes in which trust in the justice system is an indicator of the support for the regime in general, and nonelectoral political actions are usually assumed to be illegitimate by the regime and its supporters.

**TABLE 5** Regression results of NEPP and trust in political parties

	(1)	(2)	(3)	(4)
	Political action (PRME)	Prob.[action] (LRME)	Political action (PRME)	Prob.[action] (LRME)
Expected	0.44371556	0.04633908	0.36857947	0.0314880'
Sasabuchi's <i>t</i> -value	2.57***	4.41***		
Dem.			3.31***	2.47***
NonD.			Undet.	Undet.
Trust in P.Par.	0.174*** (5.16)	0.040*** (5.57)		
Trust in P.Par. Sq.	-0.063*** (-8.15)	-0.011*** (-6.71)		
Trust in P.Par. Dem.			0.229*** (8.23)	0.035*** (6.74)
Trust in P.Par. Sq. Dem.			-0.041*** (-5.88)	-0.006*** (-4.77)
Trust in P.Par. NonD.			-0.140*** (-5.08)	-0.015** (-2.76)
Trust in P.Par. Sq. NonD.			0.011 (1.77)	0.002 (1.44)
Obs.	28,461	28,461	28,461	28,461
$\chi^2$	247.5	63.43	3004	1277
Prob. $\chi^2$	0.0000	0.0000	0.0000	0.0000
Pseudo- $R^2$	0.0125	0.0084	0.1035	0.1256

Note: PRME stands for Poisson regression marginal effects while LRME is logit regression marginal effects.  $\bar{x}$  statistics are in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Standard errors are Eicker–Huber–White's heteroskedasticity-robust standard errors.

Abbreviations: Dem., democratic countries; NonD., nondemocratic; Trust in Govt. Sq., trust in government and its square; Trust in P.Par., trust in political parties; Trust in PPar. Sq., trust in political parties and its square.

We examined trust in armed forces as a part of PT for the whole sample and regime types. We, then, found an inverted U-shaped relationship with the probability of being politically active and trust in armed forces in column (2) of Table 7. When we split the whole sample into regime types, we found interesting results in columns (3) and (4). First, we achieved that NEPP was affected positively by trust in armed forces in democratic regimes (Figure A2). Second, we observed that an inverted U-shaped relationship between NEPP and trust in armed forces was statistically significant according to Sasabuchi's nonlinearity test for democratic regimes. For nondemocratic regimes, when trust in armed forces increased, we found that the biggest negative impact on NEPP was observed for those regimes in terms of both the number of political actions and the probability of being politically active. Despite the presence of coefficients satisfying U-shaped relationship between NEPP and trust in armed forces for nondemocratic regimes, Sasabuchi's nonlinearity test indicated the presence of inverted U-shaped relationship statistically, which yielded a confliction in the results for nondemocratic regimes. So, we could support only the results in Table 2 for democratic countries in the presence of inverted U-shaped relationship between NEPP and PT with trust in armed forces in democratic countries. Therefore, we clarified that the second component in addition to trust in political parties was trust in armed forces for democratic regimes in Table 7.

We analyzed trust in police, the last component, in Table 8. Although we faced several contradictory results in columns (1) and (2), it was observed that in nondemocratic regimes trust in police decreased

**TABLE 6** Regression results of NEPP and trust in justice system

	(1) Political actions (PRME)	(2) Prob.[action] (LRME)	(3) Political actions (PRME)	(4) Prob.[action] (LRME)
Expected	0.45456665	0.04724828	0.36891618	0.0301878'
Sasabuchi's <i>t</i> -value	Undet.	2.04**		
Dem.			Undet.	0.80
NonD.			0.03	Undet.
Trust in Just.	0.022 (0.68)	0.020** (2.89)		
Trust in Just. Sq.	-0.017** (-2.65)	-0.006*** (-4.10)		
Trust in Just. Dem.			0.074** (2.95)	0.017*** (3.70)
Trust in Just. Sq. Dem.			-0.006 (-1.24)	-0.002** (-2.59)
Trust in Just. NonD.			-0.222*** (-8.33)	-0.019*** (-3.60)
Trust in Just. Sq. NonD.			0.028*** (4.92)	0.001 (1.25)
Obs.	28,461	28,461	28,461	28,461
$\chi^2$	105.5	48.93	3019	1209
Prob. $\chi^2$	0.0000	0.0000	0.0000	0.0000
Pseudo- $R^2$	0.0041	0.0047	0.1027	0.1277

Note: PRME stands for Poisson regression marginal effects while LRME is logit regression marginal effects.  $\chi^2$  statistics are in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Standard errors are Eicker–Huber–White's heteroskedasticity-robust standard errors.

Abbreviations: Dem., democratic countries; NonD, nondemocratic; Trust in Just., trust in justice; Trust in Just. Sq., Trust in Just., trust in justice and its square.

the number of political actions in column (3). Despite the existence of the coefficients with 5 percent significance levels, U-shaped relationship from these coefficients was not proven by Sasabuchi's nonlinearity test in column (3) in Table 8. When we looked at the last column, it maintained supportive arguments for us. While an inverted U-shaped relationship between NEPP and trust in police for democratic regimes was confirmed by Sasabuchi's nonlinearity test, a U-shaped relationship for the same variables was also supported by Sasabuchi's nonlinearity test for nondemocratic regimes (Figure A2). Therefore, the results of trust in police for both democratic and nondemocratic regimes support the arguments provided in Table 2.

## CONCLUSIONS

The findings confirm our first hypothesis that there is an inverted U-shaped curvilinear relationship between PT and NEPP in democratic countries. PT, taken either as a normalized sum of all responses regarding all six institutions or as the separate components of trust in these institutions, has a positive effect on NEPP up to a certain point at which it peaks, and after which the effect becomes increasingly negative. Based on these results, we claim that while a certain level of trust in political and governmental

**TABLE 7** Regression results of NEPP and trust in armed forces

	(1)	(2)	(3)	(4)
	Political actions (PRME)	Prob.[action] (LRME)	Political actions (PRME)	Prob.[action] (LRME)
Expected	0.45491105	0.04691884	0.37496342	0.0316808'
Sasabuchi's <i>t</i> -value	0.66	2.50***		
Dem.			4.78***	4.75***
NonD.			4.31***	2.90***
Trust in Arm.	0.058 (1.72)	0.024*** (3.38)		
Trust in Arm. squared	-0.022*** (-3.47)	-0.006*** (-4.77)		
Trust in Arm. Dem.			0.128*** (4.78)	0.024*** (4.67)
Trust in Arm. squared Dem.			-0.027*** (-5.11)	-0.005*** (-5.32)
Trust in Arm. NonD.			-0.273*** (-9.40)	-0.033*** (-5.82)
Trust in Arm. squared NonD.			0.044*** (7.66)	0.005*** (4.79)
Obs.	28,461	28,461	28,461	28,461
$\chi^2$	97.29	68.35	2843	1219
Prob. $\chi^2$	0.0000	0.0000	0.0000	0.0000
Pseudo- $R^2$	0.0038	0.0067	0.0972	0.1218

Note: PRME stands for Poisson regression marginal effects while LRME is logit regression marginal effects.  $\chi^2$  statistics are in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Standard errors are Eicker–Huber–White's heteroskedasticity-robust standard errors.

Abbreviations: Dem., democratic countries; NonD, nondemocratic; Trust in Arm., trust in armed forces; Trust in Just. Sq., Trust in Just., trust in justice and its square.

institutions is required for NEPP, very high support is likely to discourage citizens from this type of participation, who might be satisfied with merely electoral participation.

The findings also confirm our second hypothesis, which predicted a negative relationship between PT and NEPP in nondemocratic countries. We did not hypothesize on the linearity of this negative relationship, yet the findings indicate that the relationship is mostly confirmed in favor of linearity. The striking outcome of this relationship in nondemocratic regimes is that it is almost the opposite of the one in democratic ones.

We argue that this contrast between the democratic and nondemocratic regimes indicates that the meanings assigned to the concepts such as trust, peaceful protest, political action, and other nonelectoral means of participation by the citizens of the countries in each of these categories are dramatically different. In all democracies, nonelectoral means of political participation are by definition legitimate and expected. Citizens of democratic countries do not generally need to worry about facing political or legal repercussions when they are engaging in such acts of participation. In nondemocracies, which range from partly free or hybrid regimes to fully authoritarian ones, political participation in ways other than those sanctioned by the government bears great risks for the individuals.

For similar reasons, in democratic countries, the concept of PT is probably interpreted as the efficiency of the concerned institution, or how likely the individual expects the given institution to function the way

**TABLE 8** Regression results of NEPP and trust in police

	(1)	(2)	(3)	(4)
	Political action (PRME)	Prob.[action] (LRME)	Political action (PRME)	Prob.[action] (LRME)
Expected	0.45638268	0.04738743	0.36986302	0.0309407'
Sasabuchi's <i>t</i> -value	1.04	1.31*		
Dem.			0.17	3.71***
NonD.			1.31*	0.48
Trust in Pol.	-0.041 (-1.28)	0.012 (1.84)		
Trust in Pol. Sq.	-0.002 (-0.27)	-0.004** (-3.04)		
Trust in Pol. Dem.			0.057* (2.30)	0.018*** (3.78)
Trust in Pol. Sq. Dem.			-0.007 (-1.49)	-0.004*** (-3.90)
Trust in Pol. NonD.			-0.264*** (-9.65)	-0.029*** (-5.43)
Trust in Pol. Sq. NonD.			0.036*** (6.30)	0.004*** (3.33)
Obs.	28,461	28,461	28,461	28,461
$\chi^2$	65.44	42.35	2915	1182
Prob. $\chi^2$	0.0000	0.0000	0.0000	0.0000
Pseudo- $R^2$	0.0024	0.0041	0.1010	0.1232

Note: PRME stands for Poisson regression marginal effects while LRME is logit regression marginal effects.  $\beta$  statistics are in parentheses. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . Standard errors are Eicker–Huber–White's heteroskedasticity-robust standard errors.

Abbreviations: Dem., democratic countries; NonD, nondemocratic; Trust in Pol., trust in police; Trust in Pol. Sq., trust in police and its square.

it is supposed to. Therefore, citizens on either end of the trust spectrum, those who have complete lack of trust in the institutions and those who think that the system works perfectly are less likely to participate in order to encourage change. In nondemocratic countries, trust is less about the efficiency of the institutions but more about the loyalty of the citizens to the regime. In these countries, we observe that the citizens who tend to participate in the high-cost political actions are much more likely to be the ones who are also not afraid to say in a survey that they do not trust the institutions of the regimes at all.

## Limitations and further studies

At the time of writing this article, the seventh wave of WVS is still not complete. Therefore, some countries whose data we do not have access to had to be omitted from this study. We chose to restrict our study with the most recent data and the most recent regime categorization we could have. Yet, in further studies, the trends of both of our main variables and the relationship between them can be analyzed using multiple waves of WVS data. Moreover, since we focused only on the NEPP because we wanted to observe how different this concept is interpreted in different regimes, we excluded electoral or other traditional forms of political participation from this study. In a further study, a possible difference between electoral and nonelectoral forms of political participation can be examined. Finally, difficulties of conducting studies in nondemocratic regimes as well as limited literature on political participation in such regimes as opposed to

the vast literature which applies to democratic states restrict our understanding of the former. Therefore, we are looking forward to seeing an increase in data and the literature that would expand our understanding of PT and participation in nondemocracies.

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## APPENDIX A

**TABLE A1** Tabulations of respondents by regime type

Tabulation of regime categories			
Regime	Frequency	Percentage	Cumulative
Nondemocratic	21,652	76.08	76.08
Democratic	6809	23.92	100.00
Total	28,461	100.00	

**TABLE A2** Descriptive statistics by regime type

Nondemocratic						
	N	Min	Mean	Median	Max	SD
nl_trust	21,652	0	3.241	3.333	6	1.544
action	21,652	0	0.275	0	4	0.766
parliament	21,652	1	2.427	2	4	1.007
govt	21,652	1	2.663	3	4	1.027
polpart	21,652	1	2.258	2	4	0.982
justice	21,652	1	2.674	3	4	0.986
armed	21,652	1	2.998	3	4	0.963
police	21,652	1	2.701	3	4	0.98
Democratic						
nl_trust	6809	0	2.535	2.667	6	1.3
action	6809	0	1.045	0	4	1.45
parliament	6809	1	1.903	2	4	0.839
govt	6809	1	2.058	2	4	0.903
polpart	6809	1	1.776	2	4	0.762
justice	6809	1	2.428	2	4	0.915
armed	6809	1	2.809	3	4	0.907
police	6809	1	2.629	3	4	0.921

**TABLE A3** Tabulations of actions and trust to parliament

No. of actions	Trust to parliament				
	None at all	Not very much	Quite a lot	A great deal	Total
0	5513 24.98	6355 28.79	7126 32.28	3080 13.95	22,074 100.00
1	893 28.08	1159 36.45	800 25.16	328 10.31	3180 100.00
2	353 31.80	397 35.77	271 24.41	89 8.02	1110 100.00
3	271 37.28	245 33.70	160 22.01	51 7.02	727 100.00
4	396 28.91	513 37.45	357 26.06	104 7.59	1370 100.00
Total	7426 26.09	8669 30.46	8714 30.62	3652 12.83	28,461 100.00

Note: Pearson  $\chi^2 = 358.28$ ; Prob. = 0.0000. The first row has *frequencies* and the second row has *row percentages*.

**TABLE A4** Tabulations of actions and trust to government

No. of actions	Trust to government				
	None at all	Not very much	Quite a lot	A great deal	Total
0	4235 19.19	5511 24.97	7538 34.15	4790 21.70	22,074 100.00
1	735 23.11	1008 31.70	911 28.65	526 16.54	3180 100.00
2	294 26.49	343 30.90	329 29.64	144 12.97	1110 100.00
3	231 31.77	227 31.22	184 25.31	85 11.69	727 100.00
4	422 30.80	453 33.07	375 27.37	120 8.76	1370 100.00
Total	5917 20.79	7542 26.50	9337 32.81	5665 19.90	28,461 100.00

Note: Pearson  $\chi^2 = 497.54$ ; Prob. = 0.0000. The first row has *frequencies* and the second row has *row percentages*.

**TABLE A5** Tabulations of actions and trust to political parties

No. of actions	Trust to political parties				
	None at all	Not very much	Quite a lot	A great deal	Total
0	6386 28.93	7278 32.97	6102 27.64	2308 10.46	22,074 100.00
1	1065 33.49	1252 39.37	640 20.13	223 7.01	3180 100.00
2	430 38.74	440 39.64	187 16.85	53 4.77	1110 100.00
3	296 40.72	290 39.89	111 15.27	30 4.13	727 100.00
4	420 30.66	614 44.82	273 19.93	63 4.60	1370 100.00
Total	8597 30.21	9874 34.69	7313 25.69	2677 9.41	28,461 100.00

Note: Pearson  $\chi^2 = 448.64$ ; Prob. = 0.0000. The first row has *frequencies* and the second row has *row percentages*.

**TABLE A6** Tabulations of actions and trust to justice system

No. of actions	Trust to justice system				
	None at all	Not very much	Quite a lot	A great deal	Total
0	3308 14.99	5850 26.50	8313 37.66	4603 20.85	22,074 100.00
1	528 16.60	922 28.99	1109 34.87	621 19.53	3180 100.00
2	218 19.64	323 29.10	384 34.59	185 16.67	1110 100.00
3	162 22.28	205 28.20	250 34.39	110 15.13	727 100.00
4	245 17.88	421 30.73	528 38.54	176 12.85	1370 100.00
Total	4461 15.67	7721 27.13	10,584 37.19	5695 20.01	28,461 100.00

Note: Pearson  $\chi^2 = 128.10$ ; Prob. = 0.0000. The first row has *frequencies* and the second row has *row percentages*.

**TABLE A7** Tabulations of actions and trust to armed forces

No. of actions	Trust to armed forces					Total
	None at all	Not very much	Quite a lot	A great deal		
0	2043	4098	8329	7604	22,074	
	9.26	18.56	37.73	34.45	100.00	
1	317	639	1119	1105	3180	
	9.97	20.09	35.19	34.75	100.00	
2	104	250	395	361	1110	
	9.37	22.52	35.59	32.52	100.00	
3	96	185	252	194	727	
	13.20	25.45	34.66	26.69	100.00	
4	147	347	548	328	1370	
	10.73	25.33	40.00	23.94	100.00	
Total	2707	5519	10,643	9592	28,461	
	9.51	19.39	37.40	33.70	100.00	

Note: Pearson  $\chi^2 = 131.86$ ; Prob. = 0.0000. The first row has frequencies and the second row has row percentages.

**TABLE A8** Tabulations of actions and trust to police

No. of actions	Trust to police					Total
	None at all	Not very much	Quite a lot	A great deal		
0	2982	5510	8717	4865	22,074	
	13.51	24.96	39.49	22.04	100.00	
1	490	738	1180	772	3180	
	15.41	23.21	37.11	24.28	100.00	
2	201	280	423	206	1110	
	18.11	25.23	38.11	18.56	100.00	
3	134	203	253	137	727	
	18.43	27.92	34.80	18.84	100.00	
4	229	392	541	208	1370	
	16.72	28.61	39.49	15.18	100.00	
Total	4036	7123	11,114	6188	28,461	
	14.18	25.03	39.05	21.74	100.00	

Note: Pearson  $\chi^2 = 104.92$ ; Prob. = 0.0000. The first row has frequencies and the second row has row percentages.

**TABLE A9** Spearman correlation coefficients for democratic countries

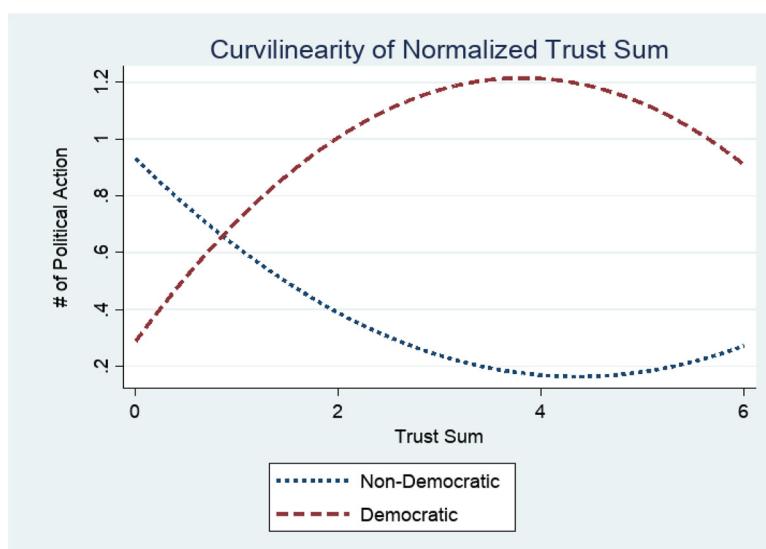
Variables	(action)	(nl_trust)	(parliament)	(govt)	(polpart)	(justice)	(armed)	(police)
action	1.000							
nl_trust	0.085***	1.000						
parliament	0.142***	0.793***	1.000					
govt	0.060***	0.789***	0.698***	1.000				
polpart	0.096***	0.751***	0.751***	0.643***	1.000			
justice	0.081***	0.780***	0.497***	0.495***	0.444***	1.000		
armed	-0.024**	0.593***	0.243***	0.270***	0.216***	0.388***	1.000	
police	0.034***	0.757***	0.407***	0.434***	0.384***	0.624***	0.476***	1.000

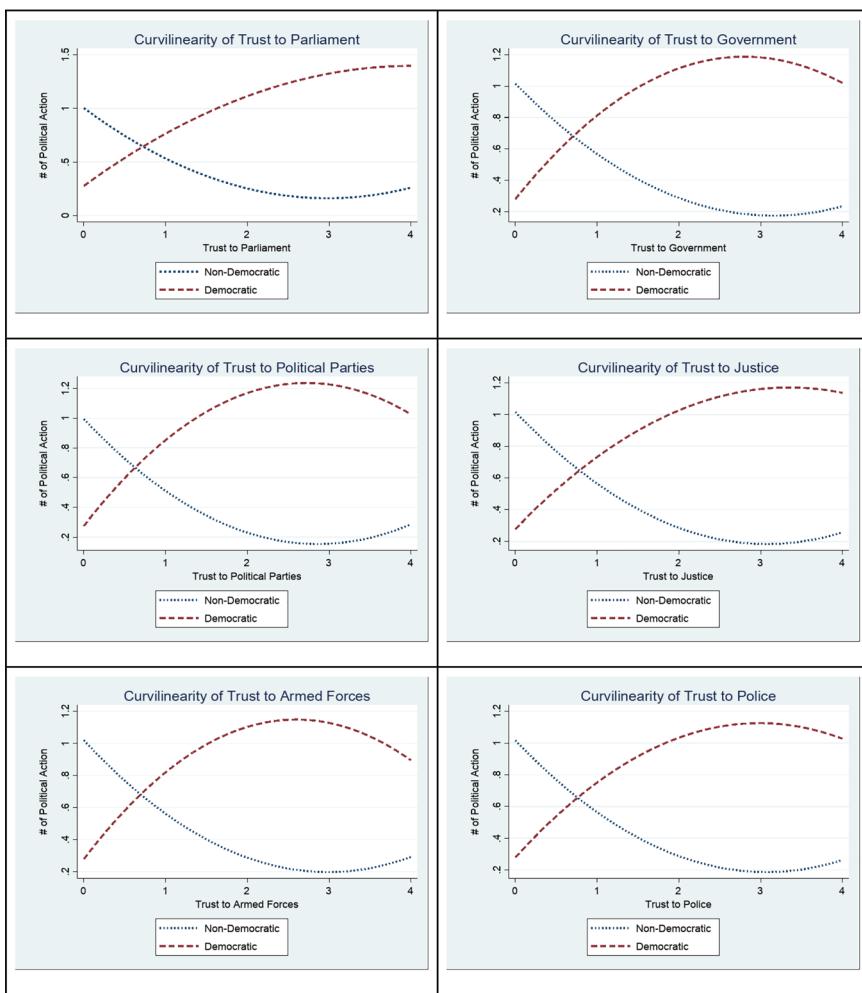
\*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ .

**TABLE A10** Spearman correlation coefficients for nondemocratic countries

Variables	(action)	(nl_trust)	(parliament)	(govt)	(polpart)	(justice)	(armed)	(police)
action	1.000							
nl_trust	-0.107***	1.000						
parliament	-0.097***	0.830***	1.000					
govt	-0.110***	0.842***	0.716***	1.000				
polpart	-0.085***	0.785***	0.745***	0.645***	1.000			
justice	-0.087***	0.819***	0.578***	0.635***	0.515***	1.000		
armed	-0.036***	0.612***	0.332***	0.368***	0.293***	0.420***	1.000	
police	-0.083***	0.779***	0.490***	0.551***	0.460***	0.680***	0.465***	1.000

\*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$ .

**FIGURE A1** Number of actions (NEPP) and normalized political trust.



**FIGURE A2** Number of actions (NEPP) and political trusts.

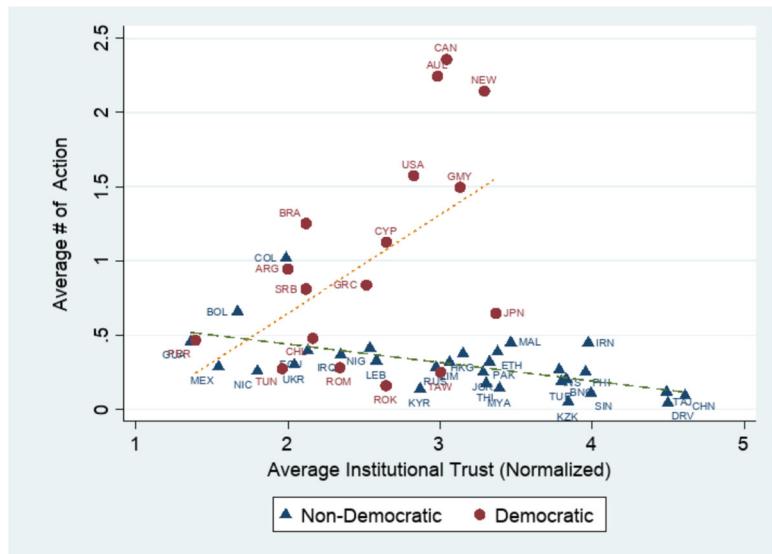
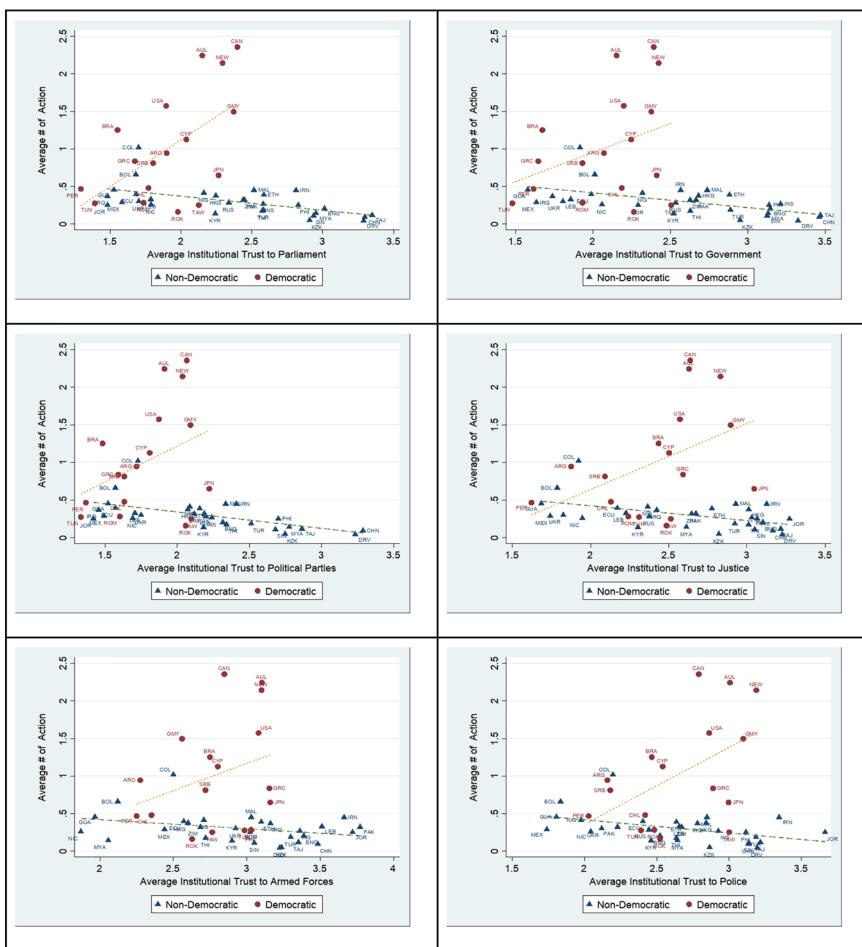
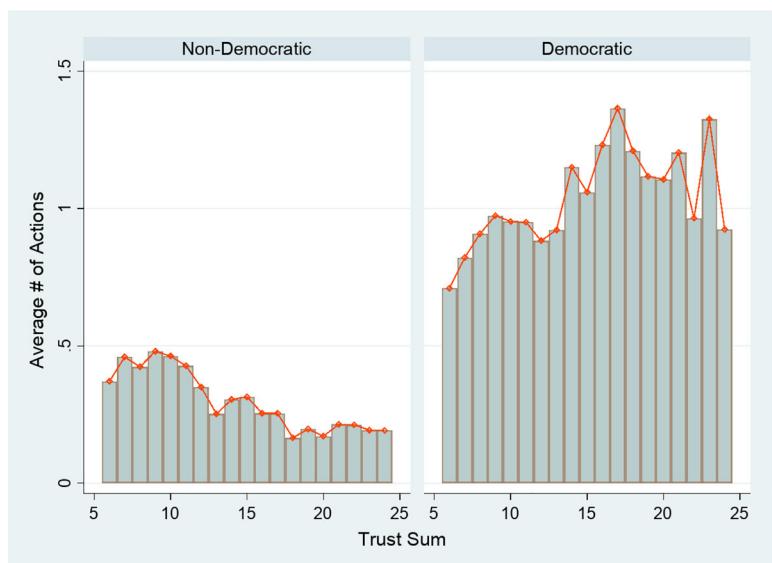


FIGURE A3 Average actions of NEPP and average normalized political trust for countries.



**FIGURE A4** Average actions of NEPP and average political trusts for countries.



**FIGURE A5** Average NEPP response to trust by regime types.

## APPENDIX B

### DETAILED METHODOLOGY

#### Poisson regression

Poisson regression is required to estimate the number of actions. Since the number of actions that are observed count of respondent follows the Poisson distribution, which also assumes large counts are relatively less than low counts (Greene 2000), our dependent variable can be estimated with Poisson regression as follows:

$$f(x_i) = \frac{\lambda_i^{y_i} e^{\lambda_i}}{y_i!}, y_i = \{0, 1, 2, 3, 4\}, \quad (\text{B1})$$

where  $y$  is the dependent variable constituted with observed counts,  $\lambda$  is the rate parameter,  $e$  is Euler's mathematical constant, and  $x$  is the set of independent variables gathered from each  $i$  individual in Equation (B1). The expected value of observed counts for the dependent variable of  $Y$  that is a conditional of independent variables  $X$  can be calculated with

$$E(Y_i | X_i) = \lambda_i = \exp(X_i' \beta) \dots i = \{1, 2, \dots, n\}. \quad (\text{B2})$$

Equation (B2) is known as exponential mean function, which includes  $X_i$  set of independent variables with  $(1 \times k)$  vector of nonstochastic covariates that get their own coefficients of  $\beta$  in Equation (B2). However, since these coefficients are not interpretable, this study attempts to calculate marginal effects of each variable, which can be calculated with the partial derivative,  $\delta\lambda/\delta X$ , of each variable at mean. Therefore, the marginal contribution of each variable to the number of observed counts may turn out to be interpretable if the coefficient is statistically significant.

To make above equations more concrete, we can explicitly construct our main equation that can be only estimated with the Poisson regression as follows:

$$Y_i \text{ (No. of actions)} = \lambda_i = \exp(\beta_0 + \beta_1 \text{Trust}_i + \beta_2 \text{Trust}_i^2), i = \{1, 2, \dots, n\}, \quad (\text{B3})$$

where  $\text{Trust}$  is a substitutable variable selected from the set of “normalized trust sum,” “trust in parliament/government/political parties/justice system/armed forces/police” for a generalization of the whole sample in Equation (B3). However, we also seek for the difference between democratic and nondemocratic countries<sup>18</sup>, so each of variable from the substitutable set are interacted with a dummy variable as below:

$$\begin{aligned} Y_i \text{ (No. of actions)} = \lambda_i = & \exp(\beta_0 + \beta_1 \text{Trust}_i \text{ Democratic} + \beta_2 \text{Trust}_i^2 \text{ Democratic} \\ & + \beta_3 \text{Trust}_i \text{ NonDemocratic} + \beta_4 \text{Trust}_i^2 \text{ NonDemocratic}), i = \{1, 2, \dots, n\}, \end{aligned} \quad (\text{B4})$$

where Democratic takes 1 if the regime of respective country is democratic, otherwise 0; NonDemocratic gets 1 if the regime of the respective country is nondemocratic, otherwise 0. In Equation (B4),  $\beta_1$  and  $\beta_3$  will show the main difference of regime effect. The joint effect of  $\beta_1$  and  $\beta_2$  provides the curvilinear effect of trust in democratic countries while the joint effect of  $\beta_3$  and  $\beta_4$  maintains the curvilinear effect of trust in nondemocratic countries at mean.

#### Logistic regression

We do not consider the dependent variable as observed counts. Instead, it is also possible to catch political activity from these four types of NEPP by putting the “OR” statement in between them. That is, if an

<sup>18</sup> Since we aimed to see the distinct behaviors of curvilinearity between PT and NEPP in democratic and nondemocratic regimes, we did not put a single dummy variable into the equation.

individual attended at least one NEPP, it is encoded as 1, otherwise 0. Here, the probability of being politically active can be directly estimated from this dichotomous variable, which requires logistic regression (Gujarati 2004).

A sigmoid function to estimate the probability of being politically active is as follows:

$$f(x_i) = \frac{1}{1 + e^{-X'_i\beta}}, y_i = \{0, 1\}, \quad (B5)$$

where  $y$  is the dependent variable taking values of {0,1},  $e$  is again Euler's mathematical constant, and  $X$  is the set of independent variables with the coefficients vector of  $\beta$  in Equation (B5).

To estimate the probability of being politically active, Equation (B5) can be restated explicitly as follows:

$$P(Y_i = 1) = \pi_i = \frac{\exp(\beta_0 + \beta_1 \text{Trust} + \beta_2 \text{Trust}^2 + \dots)}{1 + \exp(\beta_0 + \beta_1 \text{Trust} + \beta_2 \text{Trust}^2)}, i = \{1, 2, \dots, n\}. \quad (B6)$$

Trust in Equation (B6) is again one of the variables measuring political trust such as "normalized trust sum," "trust in parliament/government/political parties/justice system/armed forces/police." Again, to look at the difference between democratic and nondemocratic countries, Equation (B6) is expanded into the following equation:

$$P(Y_i = 1) = \pi_i = \frac{\exp(\beta_0 + \beta_1 \text{Trust Dem.} + \beta_2 \text{Trust}^2 \text{ Dem.} + \beta_3 \text{Trust}_i \text{ NonD.} + \beta_4 \text{Trust}_i^2 \text{ NonD.})}{1 + \exp(\beta_0 + \beta_1 \text{Trust Dem.} + \beta_2 \text{Trust}^2 \text{ Dem.} + \beta_3 \text{Trust}_i \text{ NonD.} + \beta_4 \text{Trust}_i^2 \text{ NonD.})}, i = \{1, 2, \dots, n\}, \quad (B7)$$

where Democratic (Dem.) will be 1 if the regime of respective country is democratic, otherwise 0; Non-Democratic (NonD.) will be 1 if the regime of the respective country is nondemocratic, otherwise 0 in Equation (B7). However, Equation (B7) does not provide marginal effects, therefore,  $\delta P(Y_i)/\delta X$ , the partial derivatives will be calculated to see them.

### Nonlinearity tests

In this study, we also had the opportunity to test the curvilinear relationship econometrically for both U shaped and an inverted U shaped (hump shaped). In econometrics literature, Sasabuchi (1980) provides a test for curvilinear relationship using joint significance of both variable in original and its squared forms.

Lind and Mehlum (2010) tested the presence of U-shaped relationship of the explanatory variable of main interest and its squared using the following equations:

$$y = \beta_0 + \beta_1 x + \beta_2 x^2 + \varepsilon. \quad (B8)$$

In Equation (B8), the presence of a U-shaped relationship could be tested with the first derivative of this equation with respect to the explanatory variable of main interest. This operation yields both  $\beta_1 + 2\beta_2 x^2 < 0$  and  $\beta_1 + 2\beta_2 x^2 > 0$  (Lind and Mehlum 2010). Practical implementation of this test utilized by Lind and Mehlum (2010) in accordance with (Sasabuchi 1980) is done by testing the following hypotheses:

$H_0$  : The presence of U shape.

$H_1$  : Monotonic relationship or the presence of inverted U shape (hump shaped).

Overall test of the presence of U shape is checked with a  $t$ -test, which can be done by comparing the upper or the lower bound of curvilinearity. If not, the test will be undetermined. A failure of rejection of the null hypothesis provides a strong clue about the presence of U shape, however, this does not guarantee

the presence of inverted U-shaped or hump-shaped relationship. Therefore, there is little evidence for a monotonic relationship.

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