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Liu, Yongbo; Lihe, Shen

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## MATERIALISM VERSUS POST-MATERIALISM, POLITICAL PARTICIPATION AND ATTITUDES TOWARDS DEMOCRACY: AN EMPIRICAL EXAMINATION OF TOCQUEVILLE'S IDEA

Liu Yongbo<sup>1</sup>, Shen Lihe<sup>2</sup>

<sup>1</sup>Institute for Social Science Research & Life Course Centre the University of Queensland

<sup>2</sup>School of Sociology, China University of Political Science and Law

[yongbo.liu@uq.net.au](mailto:yongbo.liu@uq.net.au)\* [lihe.shen@cupl.edu.cn](mailto:lihe.shen@cupl.edu.cn)

\* Corresponding author

**Abstract :** Tocqueville suggested that materialism may result in a lower level of political participation and lower support for democracy. In this study, using the joint dataset of the World Values Survey (WVS) and the European Values Study (EVS) 2017-2020, we examine the influence of materialism/post-materialism on people's support for democracy. From a hierarchical linear model, our results indicate that materialism against post-materialism is associated with a lower level of support for democracy, which supports Tocqueville's thought. Furthermore, using causal mediation analysis, we find that political participation mediates 9.92% of the effect of materialism/post-materialism on support for democracy. Our results show that materialism/post-materialism is an important determinant to people's support for democracy. Political participation is an important value in supporting democracy.

**Keywords:** Democracy, materialism, post-materialism, political participation

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### INTRODUCTION

Many studies have found that people's support for democracy is influenced by multiple social factors, such as political trust (Chang, 2021; Marien & Hooghe, 2011), social capital (Dowley & Silver, 2002), modernization (Ciftci, 2010), government effectiveness (Magalhães, 2014), economic crisis (Cordero & Simón, 2016) and public safety (Fernandez & Kuenzi, 2010). However, there is an insufficient discussion about the impact of people's values, such as materialism and post-materialism, on people's support for democracy. It should be pointed that support for democracy is defined as support for democratic political institutions in this study. Except for social determinants for the support for democracy, people's values may also import factors. Materialism and post-

materialism are two popular values in contemporary societies (Salonen & Åhlberg, 2013), which may influence people's support for democracy.

Materialism may have a negative impact to democracy. Tocqueville indicates that the pursuit of happiness in modern society caused less political participation, and the inclination of political system.(De Tocqueville, 2015). Some empirical studies agree with the idea of Tocqueville. Some researches found that materialism leads to lower public participation (Watson, 2015) and negative attitudes towards environmental protection (Hurst et al., 2013). Conversely that the insufficient empirical researches on whether materialism leads to low support for democracy needs more thoughts.

Comparing materialism with the post-materialism may have positively associate people's support to democracy. Post-materialism made the greater importance of non-material goals such as self-expression, autonomy, freedom of speech, gender equality and environmentalism (Inglehart, 2015; Salonen & Åhlberg, 2013). The post-materialism value paid more attentions to public affairs, which leads to more political participation (Cantijoch & San Martin, 2009; Copeland, 2014). Post-materialism leads to more attentions to participate in the public affairs. Conversely, the opposite people which againts materialism, may have more possibility supporting democracy.

To summarize that the post-materialism created the differences to strengthen democracy. Political participations creates a mechanical association in order to support democracy. The insufficient empirical exploration resulted the impact of materialism that support democracy and the mechanism of it. This study using the sample from many countries to proof that influence of materialism/post-materialism on people's attitudes to democracy and explore the mediation role of political participation by mediation analysis. In order to expand the understanding of determinants of the attitudes to democracy by estimating the impact of people's values. Furthermore, to show profound explanation of the relationships between people's values, political participation, and political attitudes.

## LITERATURE REVIEW

### *Influence of Materialism on Political Participation and Political Attitudes*

Tocqueville argues that people's social status is indicated primarily by their wealth rather than by their lineage or birthright in modern society (De Tocqueville, 2015). There is a greater desire to achieve social status through the pursuit of wealth. Pursuing wealth may cause people to become indifferent to public affairs and look for a more authoritarian government to manage public affairs on their behalf. Mazower shares a similar view. He criticizes that after World War II, Europeans did not really believe in democracy but capitalism, so indifference to public affairs can often be seen in the functioning of contemporary European democracy (Mazower, 2009). The low turnout of European voters bears this out (Van der Eijk & Van Egmond, 2007).

Many empirical studies have examined the effects of materialism on political participation and political attitudes. Some of these studies have found that materialism reduces people's participation in public affairs (Kilbourne & Pickett, 2008; McLeod, 2001;

Torlak & Koc, 2007). For example, based on data from a survey of 300 adults in the United States, McLeod finds that materialist values negatively affect participation through watching television entertainment (McLeod, 2001). Materialism leads people to devote more time to recreational activities and reduces their participation in public affairs.

Other studies have found an association between materialism and people's political attitudes. Materialists are more likely to be racist (Paxton, 2002; Roets et al., 2006) and have more negative attitudes towards environmental protection (Hultman et al., 2015; Hurst et al., 2013; Sreen et al., 2020).

Previous research has provided some analyses of the effects of materialism on political participation and political attitudes. As predicted by Tocqueville's idea, people's materialistic tendencies may make them more indifferent to public life and less politically engaged. These empirical studies partly provide evidence for Tocqueville's doctrine. Nevertheless, another part of Tocqueville's idea is that people may be more likely to support a political system with authoritarian overtones because they pursue material wealth and are indifferent to public affairs. People who are more inclined towards materialism are more likely to favour authoritarianism over democracy in their preferences for political systems. The current empirical research on this problem has not given an adequate answer. The current study explores this problem.

### ***Influence of Post-materialism on Political Participation and Political Attitudes***

Along with the economic boom after World War II, human society began to transfer from industrial to post-industrial society (Bell, 2019), with highly developed productivity, gradually improving social welfare systems, and more concerning environmental issues. Inglehart developed the concept of post-materialism to show the new value in post-industrial societies (Inglehart, 1981). Unlike materialists, who prioritize economic growth and wealth possession, post-materialists are more concerned with ecology, quality of life, and self-actualization.

Post-materialists may have more active political participation and more support for the democratic political system than materialists. First, post-materialists are more concerned about issues such as environmental protection than materialists. These issues are public affairs, which can only be pursued by political participation. This provides more possibilities for the post-materialists to participate in politics to achieve their goals. Second, under the influence of post-materialist values, people are increasingly pursuing the realization of self-worth and the meaning of life. The democratic environment is conducive to the operation of various subnational organizations and has better protection of free speech, which benefit post-materialists to achieve their goals.

Existing empirical research has also found that post-materialists, compared to materialists, are more likely to support political issues, such as environmental protection and gender equality and the empowerment of ethnic and sexual minorities (Wong & Wan, 2009), and more likely to engage in political activities both offline (Henn et al., 2021; Paloniemi & Vainio, 2011) and online (Theocharis, 2011). For example, using data collected using a survey of 512 young people (ages 15-30) living in Finland, Paloniemi

and Vainio suggest that post-materialist values and political competence increased interest in environmental and political action (Paloniemi & Vainio, 2011). However, there is limited research about the influence of post-materialism on people's attitudes to democracy.

An example is, using data from the European Values Survey, Pavlović and Mentalities show that post-materialists against materialists are more included to support for democracy in Eastern Europe Countries (Pavlović, 2016). However, there is limited exploration of countries in other areas. Furthermore, as Tocqueville's idea suggests, political participation may mediate the association of materialism/post-materialism and people's attitude to democracy. The mediation role of political participation needs more exploration.

## METHOD

### *Data and analytical sample*

The joint dataset of the World Values Survey (WVS) and the European Values Study (EVS) 2017-2020 is used.

In line with it, EVS has been responsible for planning and conducting surveys in European countries, using the EVS questionnaire and EVS methodological guidelines. WWSA has been responsible for planning and conducting surveys in countries outside Europe and several European countries (Andorra, Cyprus, Greece), using the WVS questionnaire and WVS methodological guidelines. Five countries (Germany, Romania, Russia, Serbia, and Ukraine) conducted surveys in both waves, EVS 2017 and WVS7. Data from 81 countries and territories are collected in the joint dataset. Every country or territory is surveyed once from 2017 to 2020 in this dataset. All countries employed random probability representative samples of the adult population, which gives the data good representativeness. This data includes the key variables about materialism/post-materialism and people's degree of support for democracy, so it is proper data to be used in this study. The used sample size is 135000 in this study, including cases from all surveyed countries. The summary information of the variables used in this study, including the information about the missing values, can be found in the supplementary materials.

### *Measurements*

#### *Outcome Variable*

A Likert Scale measures the attitude towards democracy with four questions:

The respondents are asked, "I am going to describe various political systems and ask what you think about each as a way of governing this country. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing this country?"

- 1) Having a strong leader who does not have to bother with parliament and elections

- 2) Having experts, not government, make decisions according to what they think is best for the country
- 3) Having the army rule the country.
- 4) Having a democratic political system.

For each question, there are four potential answers: [1] Very good, [2] Fairly good, [3] Fairly bad, [4] Very bad. Specifically, for the fourth question, "Very bad" is recoded to 1, "Fairly bad" is recoded to 2, "Fairly good" is recoded to 3, and "Very good" is recoded to 4. Then the scores of the answers to four questions are summed to generate the outcome variable "support for democracy".

### *Explanatory Variable*

Materialism/post-materialism is measured by two questions, 1) If you had to choose, which one of the things (on this card) would you say is most important? 2) And which would be the next most important?

For each question, there are four answers: [1] Maintaining order in the nation, [2] Giving people more say in important government decisions, [3] Fighting rising prices, [4] Protecting freedom of speech. It is constructed by coding as Materialists those who select aims 1 and 3, Post-materialists those who select aims 2 and 4 and Mixed those who select aims 1 or 3 and aims 2 or 4. We recoded "post-materialism" to 0, "mixed" to 1, and "materialism" to 2. This way generates the variable "materialism".

### *Mediator*

A Likert Scale measures political participation with three questions.

The respondents are asked that "I am going to read out some different forms of political action that people can take, and I would like you to tell me, for each one, whether you have actually done any of these things, whether you might do it or would never, under any circumstances, do it."

- 1) Signing a petition, 2) Joining in boycotts, 3) Attending lawful demonstrations

For each question, there are three potential answers: [1] Would never do, [2] Might do, [3] Have done. The variable political participation is generated by summing the scores of the answers to these questions.

### *Measurements of Confounders*

Several confounders are adjusted in this study, including people's occupation group, marital status, education attainment, religious denomination, health status, attitude towards income inequality, and countries and territories.

The occupation group is measured by asking, "To which of the following occupational groups do you belong?". The potential answers are [0] Never had a job, [1] Professional



and technical, [2] Higher administrative, [3] Clerical, [4] Sales, [5] Service, [6] Skilled worker, [7] Semi-skilled worker, [8] Unskilled worker, [9] Farm worker, [10] Farm owner, farm manager, [11] Other.

Marital status is measured by asking, "What is your current legal marital status?". The potential answers are [1] Married, [2] Living together as married, [3] Divorced, [4] Separated, [5] Widowed, [6] Single/Never married.

The level of education attainment is measured by asking the question, "Highest educational level attained". The potential answers are [0] Less than primary, [1] Primary, [2] Lower secondary, [3] Upper secondary, [4] Post-secondary non-tertiary, [5] Short-cycle tertiary, [6] Bachelor or equivalent, [7] Master or equivalent, [8] Doctoral or equivalent. 0-2 are recoded to "Lower", 3-4 are recoded to "Middle", and 5-8 are recoded to "Upper".

Religious denomination is measured by asking, "Do you belong to a religious denomination? (IF YES) Which one?". The potential answers are [0] Do not belong to a denomination, [1] Roman Catholic, [2] Protestant, [3] Orthodox (Russian/Greek/etc.), [4] Jew, [5] Muslim, [6] Hindu, [7] Buddhist, [8] Other Christian (Evangelical/Pentecostal/Free church/etc.), [9] Other.

Health status is measured by asking, "All in all, how would you describe your state of health these days? Would you say it is:". The potential answers are [1] Very poor, [2] Poor, [3] Fair, [4] Good, [5] Very good.

Attitude to income equality is measured by asking, "On this card, you see a number of opposite views on various issues. How would you place your views on this scale?". The potential answers are from 1 to 10. 1 means "Incomes should be made more equal", and 10 means "We need larger income differences as incentives". A more significant number shows higher support for higher income equality.

Countries or territories of respondents and the age and gender of respondents are also adjusted.

First, adjusting the confounders, we use a hierarchical linear model to explore the influence of materialism/post-materialism on the degree of support for democracy, which puts the variable "country or territory" in the second level, and the other variables in the first level. This approach solves the autocorrelations of features with the same country or territory (Schonfeld & Rindskopf, 2007). Following that, mediation analysis is made by the causal mediation analysis method (Imai, Keele, & Tingley, 2010; Pearl, 2014). It should be emphasized that the term "causal" is used because this method is based on the counterfactual framework, which has a clear definition of causal relationships between the explanatory variable, the mediator and the outcome variable. Compared to the traditional approach to mediation analysis, such as Baron-Kenny method (Baron & Kenny, 1986) and structural equation model (Woody, 2011), the causal mediation analysis can show the proportion of the total effect mediated by the mediator by percentage. In this study, it can show what proportion of the effect of the impact of materialism on the degree of support for democracy is mediated by political participation.

In the causal mediation analysis, four estimations are reported: natural indirect effect, natural direct effect, total effect, and proportion of mediated (Pearl, 2014).

The causal mediation analysis method has several estimations. In this study, the natural indirect effect (NIE) means the indirect effect of materialism on support for democracy through political participation. The natural direct effect (NDE) means the effect of materialism, not through political participation. It should be pointed out that technically the NDE is the direct effect. However, theoretically, it may include the effect of other potential mediators, which are not discussed in this study. The total effect is the sum of NIE and NDE. Furthermore, the “mediated proportion” is calculated by NIE/total effect, which means what proportion of the total effect is mediated by political participation. In the mediation analysis, all confounders are also adjusted. The R package “mediation” is used to make causal mediation analysis in this study (Tingley et al., 2014). Although we adjust several confounders, there may be other unobserved confounders. Therefore, we make a sensitivity analysis from Imai and his group’s approach (Imai, Keele, & Yamamoto, 2010) to test the robustness of the mediation effect of political participation. This approach uses a sensitivity parameter  $\rho$  to estimate the potential influence of unobserved confounders, the details of this method can be found from Imai and his team’s work (Imai, Keele, & Yamamoto, 2010).

## RESULTS

### *Descriptive Analysis*

Figure 1 shows respondents’ mean scores for materialism and support for democracy in the studied countries (Figure 1). Generally, this figure demonstrates that people of developed countries, for example, Germany and Sweden, have the lowest inclination to materialism (highest inclination to post-materialism) and a higher degree of support for democracy. Furthermore, a negative correlation between materialism and inclination to support democracy can be found. Generally, people of a country with a higher inclination to materialism against post-materialism also see a lower level of support for democracy. This preliminarily indicates that materialism is a determinant to support democracy at the country level.



**Figure 1: Mean Score of Materialism and Support for Democracy of Countries and Territories**

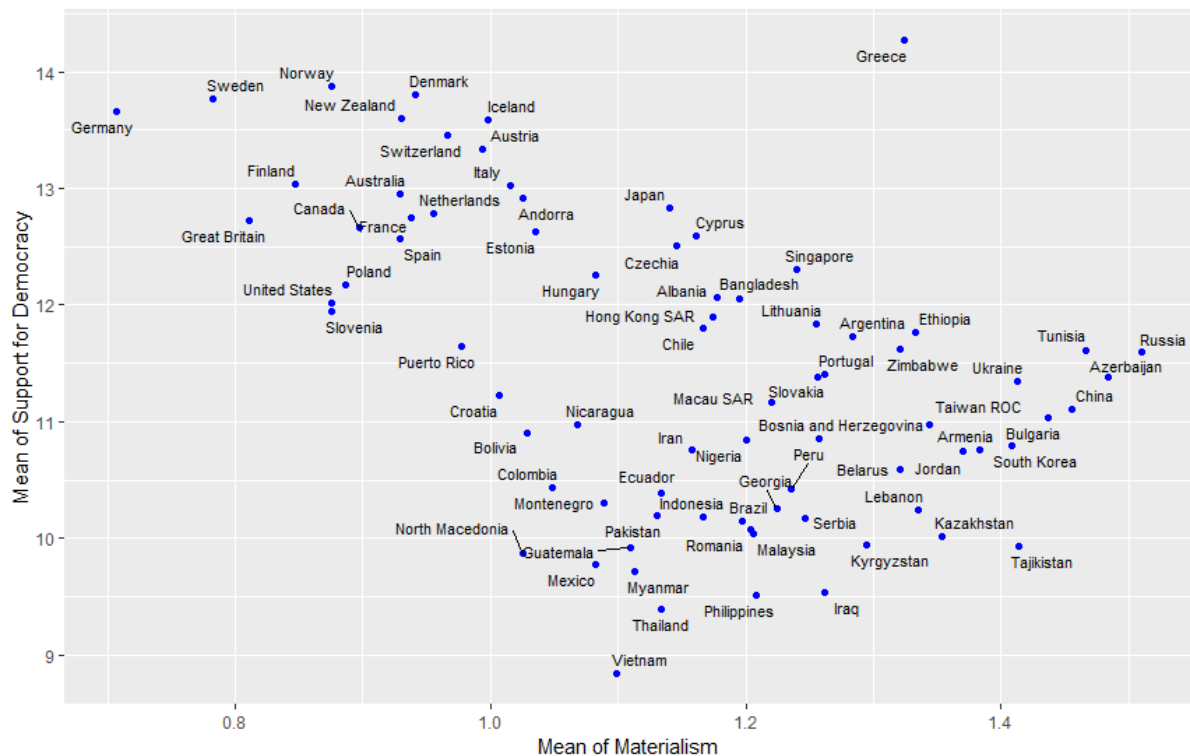


Figure 1 shows the mean score of materialism and support for democracy for different countries. The X-axis shows the mean score of materialism, and the Y-axis shows the mean score of support for democracy.

Because post-materialism is frequently seen in developed societies, we show the results separately for developing and developed countries. The developed countries are defined by the criterion by International Monetary Fund (Long & Ascent, 2020). Generally, Figure 2 demonstrates that in developed and developing countries, people, either young or old, with materialistic values against post-materialism values, have lower support for democracy (Figure 2). This preliminary finding supports the hypothesis that materialism negatively impacts support for democracy. A surprising result is that in both developed and developing countries, the support for democracy sees a decline for younger people. This confirms that the worry about the decline of support for democracy should not be ignored. Though developed countries have a higher level of support for democracy, regardless of their value, materialism or post-materialism, the decline of support for democracy among young people should be given enough attention.

**Figure 2 Support of Democracy for People with Materialism versus Post-materialism: Change over People's Birth Year**

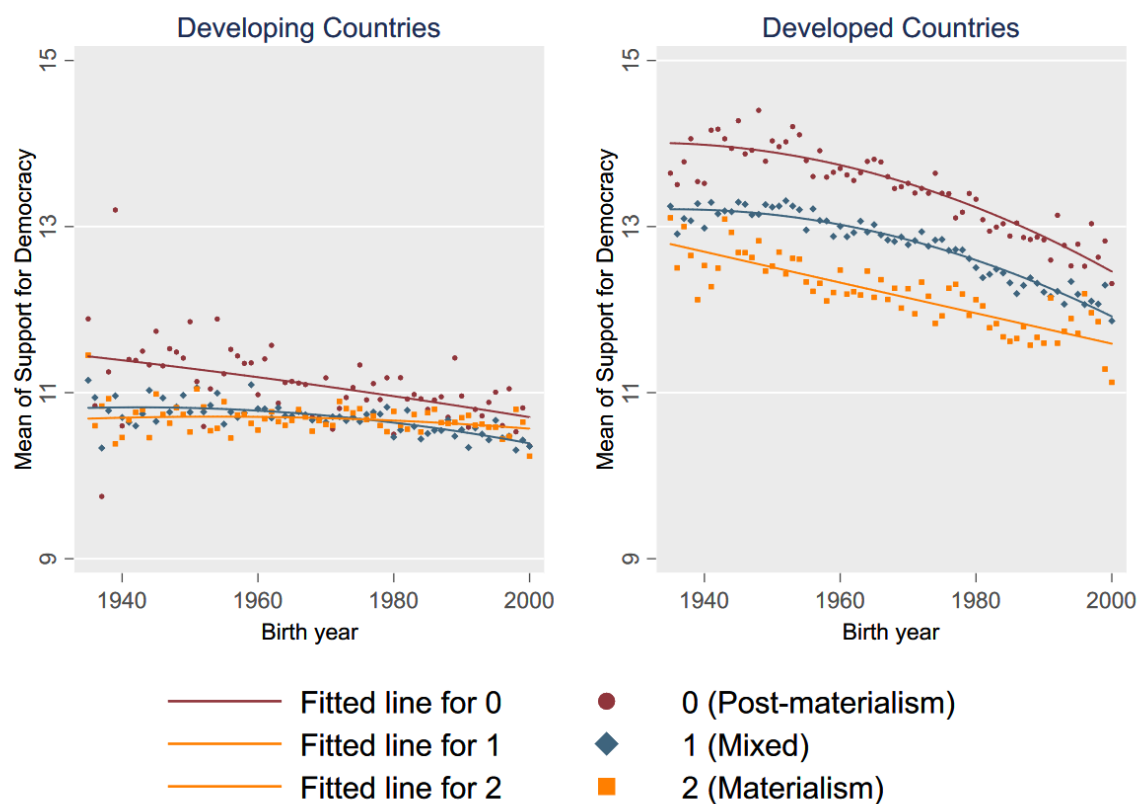


Figure 2 shows the degree of support for democracy for people with materialism versus post-materialism values, varying over people's age in developing and developed countries, respectively. Scatter plots with quadratic fit lines are shown in the figure.

The gap of support for democracy between different values are larger in developed countries, which indicates that materialism/post-materialism has higher impact on support for democracy in developed countries. In developing countries, the gap also exists, but is much smaller. This mainly because the general degree of support for democracy is relatively low in developing countries where democracy is not well developed. The potential development of democracy in developing countries may lead to larger gap of support for democracy for between materialists and post-materialists.

***The Influence of Materialism/post-materialism on Support for Democracy***

As stated in the section of methods, a hierarchical linear model is used to estimate the impact of materialism on the inclination of support for democracy. Table 1 shows the results of the regression analysis (Table 1). Model (1) only adjusts the confounders, and model (2) also adjusts the mediator (political participation). It can be seen that a higher level of materialism leads to lower support for democracy in both models (1) (Beta=-0.206,  $p<0.01$ ) and model (2) (Beta=-0.192,  $p<0.01$ ). This supports the hypothesis that materialism against post-materialism negatively impacts the possibility of supporting democracy.

**Table 1 The Impact of Materialism on Support for Democracy**

	(1) Support for democracy	(2) Support for democracy
Materialism	-.206*** (.015)	-.192*** (.015)
<b>Occupation Group</b>		
Never had a job		
Professional and technical	.227*** (.037)	.183*** (.038)
Higher administrative	.115** (.054)	.075 (.055)
Clerical	.084** (.038)	.047 (.039)
Sales	-.011 (.035)	-.039 (.035)
Service	-.053 (.039)	-.078** (.039)
Skilled worker	-.063 (.04)	-.083** (.041)
Semi-skilled worker	-.121*** (.042)	-.145*** (.043)
Unskilled worker	-.141*** (.041)	-.147*** (.042)
Farm worker	-.257*** (.048)	-.288*** (.049)
Farm owner, farm manager	-.178*** (.057)	-.201*** (.058)
Other	-.268** (.136)	-.292** (.137)
<b>Gender</b>		
Male		

Female	-.039** (.019)	-.022 (.019)
Age	.019*** (.001)	.02*** (.001)
<b>Marital Status</b>		
Married		
Living together as married	.073** (.036)	.066* (.037)
Divorced	-.016 (.046)	-.018 (.047)
Separated	.009 (.06)	.024 (.061)
Widowed	-.19*** (.044)	-.173*** (.045)
Single/Never married	.11*** (.025)	.106*** (.025)
<b>Education Attainment</b>		
Lower		
Middle	.341*** (.024)	.313*** (.025)
Upper	.51*** (.029)	.463*** (.03)
<b>Religious Denomination</b>		
Do not belong to a denomination		
Roman Catholic	-.107*** (.032)	-.113*** (.032)
Protestant	.118*** (.04)	.109*** (.04)
Orthodox	.133** (.061)	.123** (.062)
Jew	.027 (.157)	.035 (.159)
Muslim	-.152*** (.047)	-.12** (.047)
Hindu	-.349*** (.103)	-.322*** (.105)
Buddhist	-.063 (.05)	-.067 (.051)
Other Christian	.078 (.053)	.071 (.054)
Other	-.06 (.065)	-.051 (.066)
Health	.027**	.029***

	(.011)	(.011)
Attitude to income equality	.002	.003
	(.003)	(.003)
Political Participation		.061***
		(.005)
_Cons	10.184***	9.776***
	(.174)	(.173)
Observations	57316	55075

*Standard errors are in parentheses*

*\*\*\* p<.01, \*\* p<.05, \* p<.1*

*Note: the variable "country or territory" includes too many categories. The coefficients of the dummy variables for the variable "country or territory" are omitted in this table.*

### **Mediation Analysis**

Table 2 shows the mediation analysis results, using political participation as the mediator (Table 2). The mediated proportion of political participation is 9.92% ( $P < 0.01$ ). This shows that political participation mediates 9.92% of the association between materialism and inclination of supporting democracy. Political participation is a mechanism between materialism and inclination of supporting democracy, as supposed by the theory.

**Table 2 The Mediation Effect of Political Participation on The Association Between Materialism and Support for Democracy**

	Estimate	95% CI Lower	95% CI Upper	p-value	Significance
NIE	-0.0225	-0.0258	-0.02	<0.000	***
NDE	-0.2049	-0.2395	-0.18	<0.000	***
Total Effect	-0.2274	-0.2623	-0.20	<0.000	***
Proportion of Mediated	0.0992	0.0795	0.12	<0.000	***

*\*\*\* p<.01, \*\* p<.05, \* p<.1, Sample Size Used: 47248*

*Note: NIE is the indirect effect of materialism through political participation; NDE is the effect of materialism not through political participation; Total effect is the sum of NIE and NDE; Proportion of mediated shows what proportion of total effect is mediated by political participation, which is calculated by NIE/Total effect*

Figure 3 shows the sensitivity analysis to the potential influence of the unobserved cofounders to the mediation effect of political participation. The analysis indicates that the original conclusion about the direction of the NIE of political participation (represented by the dashed horizontal line) would be maintained unless  $\rho$  is higher than 0.06. This implies that the mediation effect of political participation is relatively robust.

**Figure 3 Sensitivity Analysis for the Mediation Effect of Political Participation**

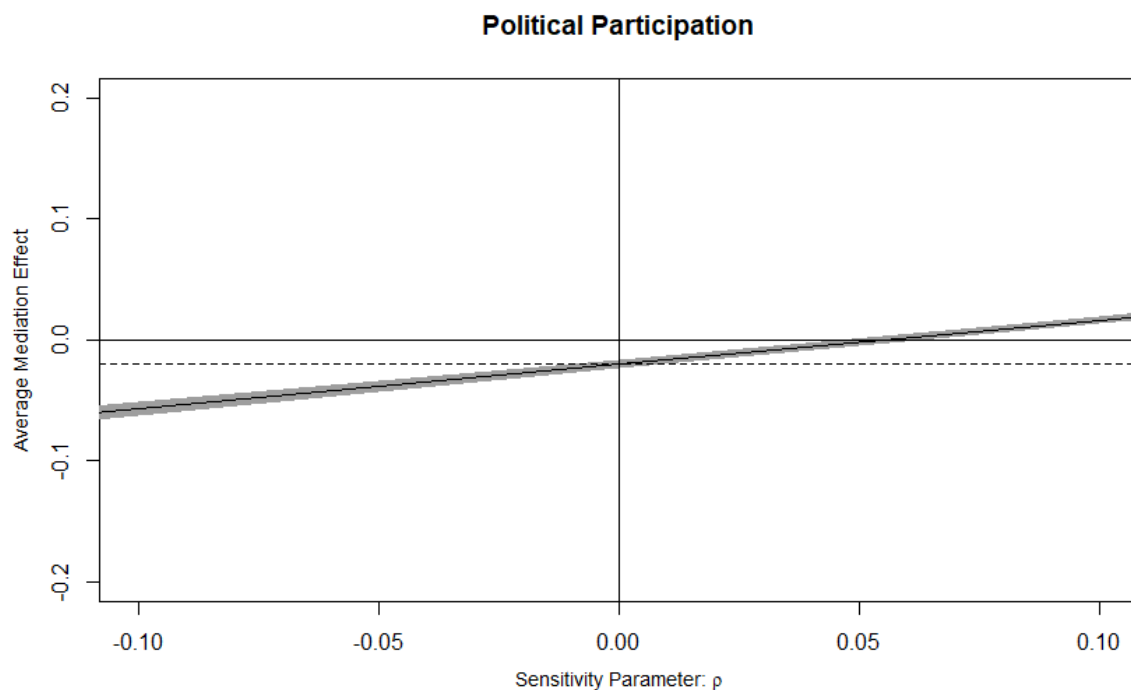


Figure 3 shows the results of the sensitivity analysis for the mediation effect of political participation. The solid line represents the estimated NIE for the mediator (political participation) for differing values of the sensitivity parameter  $\rho$ . The gray region represents the 95% confidence interval. The horizontal dashed line is drawn at the point estimate of the original estimated NIE.

## CONCLUSION

Tocqueville argues that democracy is crucial influenced by social structure and people's values. Our study examines the impact of materialism versus post-materialism on

people's support for democracy to make an empirical answer to Tocqueville's idea. Our findings suggest that compared to post-materialism, people with a higher inclination to materialism have a lower degree to support for democracy. The impact of materialism/post-materialism on support for democracy is partially mediated by political participation.

First, our study extends the research on the relationships between people's values and political attitudes. Previous studies have made contributions to the association between people's values and participation in public affairs. Our study finds that materialism/post-materialism also influences people's inclination to support democracy. Except for social-economic factors such as the growth of the economy (Hahn & Logvinenko, 2008), religion (Ben-Nun Bloom & Arikan, 2012; Cordero & Simón, 2016), level of socio-economic inequality (Kang, 2015; Muhtadi & Warburton, 2020; Schäfer, 2012), people's values are also essential to support for democracy. When discussing people's attitudes towards democracy, not only socio-economic factors but also people's values should be paid enough attention.

Second, there is a debate about whether democracy is declining in current times, and our study partially answers this question. Though optimistic scholars argue that democracy is increasing globally (Pinker, 2018), there has been a worry about the decline of democracy in recent years (Ágh, 2016; Diamond, 2016). The report from Freedom House shows that from 2005 to 2021, in most years, more countries see declines in the aggregate score of democracy than countries see improvements in the score (House, 2022). For example, in 2021, 60 countries saw declines in democracy, and only 25 countries saw improvements in democracy. This makes it essential to know the determinants of the trend of democracy to know the future of democracy. Our study shows that both in developed and developing countries (and territories), materialism is a negative factor in support for democracy. This supports the idea that materialism may lead to the decline of democracy. People's values should be paid enough attention to when discussing the future of democracy.

Additionally, a worrying result is that though the transformation from materialism to post-materialism may make people to supporting democracy more, it does not reverse the trend of the decline of degrees in supporting democracy of young people. The more crucial problem is for the developing countries. These countries have weaker systems of democracy in general, and the materialism of people in these countries makes people have relatively low support for democracy. On the one hand, post-materialism versus materialism is vital for people's support for democracy. On the other hand, the optimistic future of democracy should not be overly estimated by arguing that post-materialism is expanding in modern industrialized societies. Post-materialism is a positive determinant for support for democracy, but to estimate the future of democracy, its role should be considered with other factors such as inequality (Kang, 2015; Muhtadi & Warburton, 2020) and social capital (Nur-tegin, 2021; Woolcock, 2010).

Third, our results also evidence that political participation is a mediator of the association between materialism/post-materialism and support for democracy. Political participation partially explains why a high inclination towards materialism is associated with low support for democracy. As Tocqueville's idea suggests, the inclination of



materialism drives people to care about accumulating wealth and getting higher social status through it, which leads to lower interest in participating in public affairs. This makes it more likely that these people will be inclined to support an authoritarian political system to manage public affairs for themselves. Oppositely, People who hold post-materialist values are more active in political participation. Compared to materialists, post-materialists attach more importance to various public affairs, such as environmental protection and social justice, as meaningful to them. As Putnam points out, participation in public affairs is a form of social capital, making democracy work better. In political participation, people experience the advantages of democracy and recognize their contribution to public affairs, which makes them more likely to support it. Previous studies have shown the influence of materialism versus post-materialism on political participation. Our study shows that another part of the story is that low political participation of materialists will lead to low support for democracy. The impact of materialism versus post-materialism is not only on political participation but also on political attitude.

Our study has some limitations. First, we mainly focus on the impact of materialism/post-materialism on political attitudes, but further studies should make the determinants of why people have the materialism or post-materialism value more explored. Our study suggests that the country's economic status may be a determinant of people's values. Nevertheless, there may be other determinants, such as culture, historical traditions, and people's demographic characteristics (such as education attainment). To make a deeper understating of the role of materialism/post-materialism on politics, further studies may explore the determinants of these values. Second, based on Tocqueville's idea, we examine the mediation effect of political participation on the association between materialism/post-materialism and support for democracy. The result of mediation analysis shows that about 10% of the total effect is mediated by political participation. There may be other mediators. For example, in authoritarian political systems, people are more likely to gain material benefits through power rent-seeking (Aidt, 2016). Perceptions of power rent-seeking may also be a mediator. Further studies may make more explorations of these mediators to deeply explain the mechanisms between people's values and attitudes towards democracy.

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## DECLARATION OF INTEREST STATEMENT

All authors declare that they have no conflicts of interest.

## Data availability statement:

The data that support the findings of this study are openly available in World Values Survey at <https://www.worldvaluessurvey.org/wvs.jsp>

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## Appendices

### Appendix: Summary of Variables Used in This Study

	Overall (N=135000)
<b>Support for Democracy</b>	
Mean (SD)	11.6 (2.45)
Median [Min, Max]	12.0 [4.00, 16.0]
Missing	20290 (15.0%)
<b>Materialism</b>	
Mean (SD)	1.15 (0.625)
Median [Min, Max]	1.00 [0, 2.00]
Missing	5348 (4.0%)
<b>Occupation Group</b>	
Never had a job	11400 (8.4%)
Professional and technical	10684 (7.9%)
Higher administrative	2779 (2.1%)
Clerical	7672 (5.7%)
Sales	9116 (6.8%)
Service	6436 (4.8%)

	<b>Overall (N=135000)</b>
Skilled worker	6677 (4.9%)
Semi-skilled worker	5307 (3.9%)
Unskilled worker	5233 (3.9%)
Farm worker	3515 (2.6%)
Farm owner, farm manager	2110 (1.6%)
Other	339 (0.3%)
Missing	63732 (47.2%)
<b>Gender</b>	
Male	62383 (46.2%)
Female	72540 (53.7%)
Missing	77 (0.1%)
<b>Country and Territory</b>	
Albania	1435 (1.1%)
Andorra	1004 (0.7%)
Argentina	1003 (0.7%)
Armenia	1500 (1.1%)
Australia	1813 (1.3%)
Austria	1644 (1.2%)
Azerbaijan	1800 (1.3%)
Bangladesh	1200 (0.9%)
Belarus	1548 (1.1%)
Bolivia	2067 (1.5%)
Bosnia and Herzegovina	1724 (1.3%)
Brazil	1762 (1.3%)
Bulgaria	1558 (1.2%)
Canada	4018 (3.0%)
Chile	1000 (0.7%)
China	3036 (2.2%)
Colombia	1520 (1.1%)
Croatia	1487 (1.1%)

	<b>Overall (N=135000)</b>
Cyprus	1000 (0.7%)
Czechia	1811 (1.3%)
Denmark	3362 (2.5%)
Ecuador	1200 (0.9%)
Egypt	1200 (0.9%)
Estonia	1304 (1.0%)
Ethiopia	1230 (0.9%)
Finland	1199 (0.9%)
France	1870 (1.4%)
Georgia	2194 (1.6%)
Germany	3698 (2.7%)
Great Britain	1788 (1.3%)
Greece	1200 (0.9%)
Guatemala	1203 (0.9%)
Hong Kong SAR	2075 (1.5%)
Hungary	1514 (1.1%)
Iceland	1624 (1.2%)
Indonesia	3200 (2.4%)
Iran	1499 (1.1%)
Iraq	1200 (0.9%)
Italy	2277 (1.7%)
Japan	1353 (1.0%)
Jordan	1203 (0.9%)
Kazakhstan	1276 (0.9%)
Kyrgyzstan	1200 (0.9%)
Lebanon	1200 (0.9%)
Lithuania	1448 (1.1%)
Macau SAR	1023 (0.8%)
Malaysia	1313 (1.0%)
Mexico	1739 (1.3%)



	<b>Overall (N=135000)</b>
Montenegro	1003 (0.7%)
Myanmar	1200 (0.9%)
Netherlands	2404 (1.8%)
New Zealand	1057 (0.8%)
Nicaragua	1200 (0.9%)
Nigeria	1237 (0.9%)
North Macedonia	1117 (0.8%)
Norway	1122 (0.8%)
Pakistan	1995 (1.5%)
Peru	1400 (1.0%)
Philippines	1200 (0.9%)
Poland	1352 (1.0%)
Portugal	1215 (0.9%)
Puerto Rico	1127 (0.8%)
Romania	2870 (2.1%)
Russia	3635 (2.7%)
Serbia	2545 (1.9%)
Singapore	2012 (1.5%)
Slovakia	1432 (1.1%)
Slovenia	1075 (0.8%)
South Korea	1245 (0.9%)
Spain	1209 (0.9%)
Sweden	1194 (0.9%)
Switzerland	3174 (2.4%)
Taiwan ROC	1223 (0.9%)
Tajikistan	1200 (0.9%)
Thailand	1500 (1.1%)
Tunisia	1208 (0.9%)
Turkey	2415 (1.8%)
Ukraine	2901 (2.1%)

	<b>Overall (N=135000)</b>
United States	2596 (1.9%)
Vietnam	1200 (0.9%)
Zimbabwe	1215 (0.9%)
<b>Age</b>	
Mean (SD)	45.8 (17.2)
Median [Min, Max]	45.0 [16.0, 82.0]
Missing	643 (0.5%)
<b>Marital Status</b>	
Married	74189 (55.0%)
Living together as married	7066 (5.2%)
Divorced	8364 (6.2%)
Separated	2509 (1.9%)
Widowed	10034 (7.4%)
Single/Never married	32085 (23.8%)
Missing	753 (0.6%)
<b>Education Attainment</b>	
Lower	36623 (27.1%)
Middle	53115 (39.3%)
Upper	44181 (32.7%)
Missing	1081 (0.8%)
<b>Religious Denomination</b>	
Do not belong to a denomination	35072 (26.0%)
Roman Catholic	28289 (21.0%)
Protestant	14139 (10.5%)
Orthodox	17674 (13.1%)
Jew	244 (0.2%)
Muslim	26624 (19.7%)
Hindu	600 (0.4%)
Buddhist	4987 (3.7%)
Other Christian	3258 (2.4%)

	<b>Overall (N=135000)</b>
Other	2837 (2.1%)
Missing	1276 (0.9%)
<b>Health</b>	
Mean (SD)	3.77 (0.898)
Median [Min, Max]	4.00 [1.00, 5.00]
Missing	295 (0.2%)
<b>Attitude to Income Equality</b>	
Mean (SD)	6.00 (2.96)
Median [Min, Max]	6.00 [1.00, 10.0]
Missing	2141 (1.6%)
<b>Political Participation</b>	
Mean (SD)	6.00 (2.96)
Median [Min, Max]	6.00 [1.00, 10.0]
Missing	2141 (1.6%)