



The post-materialist economic freedom puzzle

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Abstract

Countries with a higher proportion of people with post-materialist values are freer economically than those with a lower proportion. The reasons why this is puzzling are that post-materialist values are not obviously more supportive to economic freedom than materialist ones, and that post-materialism correlates negatively with market friendliness in the West and positively outside it. The paper argues that seeing market attitudes as opinions with which people express their materialist or post-materialist identity, an equilibrium in which post-materialists are market friendly and another in which they are market unfriendly are both possible. A change in the proportion of post-materialists, however, can easily trigger a shift from one equilibrium to the other. Regressions with data from the Integrated Values Survey confirm that post-materialists are more market unfriendly when their proportion in society is high enough, but this negative effect is mitigated by their political identity, the expressiveness of the individuals themselves, the ideology of the political parties in their country, and culture. The argument casts some doubt on the claim that post-materialism is a determinant of the institutions and policies of economic freedom.

Keywords Post-materialism · Economic freedom · Expressive behaviour

JEL Classification D72 · P10 · E14

1 Introduction

In the long run, economic development is accompanied by cultural change—a change in the beliefs and values people hold. Historical studies (Cheang and Palmer 2023, pp. 117–152; Henrich 2020; McCloskey 2017) have confirmed that this accompaniment is not just a happenstance but a causal relationship, possibly in both directions. A fundamental disagreement in this literature is about the deepness

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of the cultural determinants that shape institutions and policies: whereas Henrich (2020), for instance, emphasizes deep psychological changes having formed the Western European mind since the Early Middle Ages, McCloskey (2017) counters the deep culture story by focusing on ethics and rhetoric. In line with such ‘superficial’ factors, government ideology, too, has been shown to matter for economic freedom (Castro and Martins 2021; Murphy 2019; Jäger 2017; Potrafke 2017).

One recent line of research is concerned with those values and beliefs that are referred to as post-materialism (Inglehart 1997) and have been shown to have emerged in the last 4 decades or so, especially in Western democracies. As a part of the bigger question of how post-materialism influences economic freedom (Jordaan 2023), this paper is concerned with the question of how post-materialism is related to market friendly attitudes. As a higher value of post-materialism at the country level was found to lead to higher economic freedom, post-materialism may be among those ‘superficial’ cultural factors that complement the ‘deep’ ones in explaining economic freedom.

Economic freedom, however, seems to be neither materialist nor post-materialist, or it is both: the ‘economic’ part of it is materialist, while the ‘freedom’ part is post-materialist. In addition, there is no monotonous relationship between post-materialism and pro-market attitudes. So, is post-materialism really an independent determinant of institutions and policies of economic freedom? This paper provides some theoretical and empirical reasons to think that it is not.

If post-materialism was an independent determinant of economic freedom, one would expect it to correlate with market attitudes. In fact, however, as Sect. 3.1 will show, it is associated with market friendliness in some countries and with market unfriendliness in others. The paper then sets up a hypothesis based on an understanding of expressive behaviour (Sect. 3.2), which is tested in Sect. 4 with individual data from the Integrated Values Survey. Section 5 concludes.

2 Literature review: post-materialism and economic freedom

The way people think about the market economy has long been associated with a broader view about society. Hayek (2018/1948) and Hayek (2018/1942) found the intellectual roots of a planning mentality in different kinds of individualisms, similar to Sowell’s (2007) constrained and unconstrained ‘visions’, and in the misunderstanding of the methods of science. Lawson, Murphy, and Powell’s (2020) extensive review of the literature on the determinants of economic freedom, however, remains agnostic about—although it mentions—culture and ‘ideological forces’ as possible determinants.

How deep these intellectual roots are is a question that looms in the background of this literature. Recently, Henrich (2020) pushed forward the deep root cause substantially by showing that so-called WEIRD (Western, Educated, Industrialized, Rich, Democratic) people are psychologically different from the rest of the world as a result of several centuries, if not a millennium, of long coevolution of institutions, culture and psychology leading them to be more receptive to the institutions

of freedom.¹ Not all the cultural factors might be that deep, however. McCloskey (2017, 2021), for example, has long argued that they are constituted by some ‘superficial’ ethics that is ‘located in the way people talk’ (McCloskey 2021, p. 81).

A possible part of this superficial cultural package might be post-materialism. Post-materialism is the opposite of materialism, which Teague, Storr, and Fike (2020, p. 2, footnote 4) define as ‘desires to acquire material possessions for oneself above most other things’. ‘Postmaterialists’, on the other hand ‘do not place a negative value on economic and physical security—they value it positively, like everyone else; but unlike Materialists, they give even higher priority to self-expression and the quality of life’ (Inglehart 1997, p. 35).²

The most commonly used measure of post-materialism comes from Inglehart (1997, pp. 108–130) and also Welzel and Inglehart (2005). The so-called 4-item measure, which is included in the World Values Survey and European Values Study files which are available for the widest sample of countries, asks the respondent to choose two items from a list of four as national priorities: two of them, ‘maintaining order’ and ‘fighting rising prices’, are materialist, while the other two, ‘protecting freedom of speech’ and ‘giving people more say in important government decisions’, are post-materialist. The measure is calculated with regards to whether the first or the second choice is (post-)materialist, or both are so (WVS 2017a, p. 197; WVS 2017b, pp. 11–12). More broadly understood, post-materialism is not just a package of some (post-modern) values, but the lack of others, including religion and the work ethic (Kafka and Kostis 2021).

Ideas about economic policies are in mutual relationships with economic development (Caplan 2003; Davis and Knauss 2013), and so is post-materialism. Inglehart (1997) argues that a rise in GDP per capita is one of the main reasons for the rise of post-materialism as people turn to higher ideals once their material needs are satisfied and their lives are secure. After this, it is not surprising that post-materialism has also been found to reduce economic growth. Kafka and Kostis (2021) finds a negative effect among OECD countries for the period 1981–2021, although they do not control for economic freedom, but for regulatory quality. Jordaan and Dima (2020) and Jordaan (2023) separate direct and indirect effects of post-materialism on economic growth and find the direct effect, which is measured after controlling for institutional quality, to be negative.

The relationship between economic freedom and post-materialism seems much less straightforward *a priori*. Preferring ‘order’ and ‘fighting high prices’, which the measure of post-materialism mentioned above includes as possible national priorities, are neither pro- nor anti-market. ‘Order’ is a traditional and religious pro-market idea in the European history of economic thought (Krarup 2019). Yet Roepke

¹ The WEIRD literature was initiated by Henrich et al. (2010) and since then its implications have been recognized for several fields of social science and even for human physiology (Apicella et al. 2020). I am grateful for an anonymous referee to direct me to this literature.

² Post-materialists are somewhat akin to Fussell’s (1983, pp. 179–187) ‘X people’ who constitute a ‘classless class’ and for whom good food, drink and housing are evident, they are highly (self-) educated and ‘never go to church’ (ibid.: 185).

(1959, p. 233), one of the main protagonists of this ‘Ordnung’ tradition sounds quite post-materialist when writing that he ‘would stand for a free economic order even if it implied material sacrifice’. Also, ‘fighting rising prices’ might mean price regulation—quite an anti-market policy—as well as conservative central banking—quite a pro-market one.

How to view the relationship between markets and moral progress has also not been obvious in the past, as Hirschman’s (1982) ‘tableau idéologique’ makes clear. Markets were seen as forces of moral improvement as well as those of decline. They were also seen as constrained by traditions as well as supported by traditions.

Kafka and Kostis’s (2021) measure of post-materialism explicitly includes competition affinity and work ethic with a negative weight, two values that may be seen as parts of a pro-market attitude³. Surprisingly, religion, too, is considered a materialist value, and not only by Kafka and Kostis (2021, p. 908); Inglehart (2021) looks at the ‘sudden decline’ of religion as part of a shift from materialist to post-materialist values. Religion, on the other hand, is associated with a market friendly attitude (Guiso et al. 2003), too.

Because of this ambivalent nature of the relationship between market attitudes and post-materialism, the finding that post-materialism is a cultural determinant of economic freedom is surprising, especially considering that market friendly attitudes are positively associated with economic freedom (Czeglédi and Newland 2018). In addition, roughly at the same time as post-material values emerged, market friendliness declined (Czeglédi et al. 2021, pp. 679–681). The younger generation—probably the more post-materialist—is less market friendly than their elders (ibid., pp. 670–674), more concerned with egalitarian aspects of democracy, and less so with the liberal aspect of it (Facchini and Melki 2021).

The connection between post-materialism and economic freedom has been found to be mutually positive, however. More generally, a higher level of post-materialism is associated with some of those institutions that lead to higher economic growth. Jordaan and Dima (2020) find a causality that runs from post-materialism to GDP per capita through institutional quality measured by the World Bank Governance Indicators Kaufmann et al. (2010), while for Jordaan (2023) such an effect works through economic freedom. In both papers, this indirect effect is positive: even after controlling for different possible determinants, a less materialist (i.e. a more post-materialist) country has institutions that are not only of higher quality but economically freer. As for political institutions, Welzel and Inglehart (2005) show that post-materialist values, more precisely that subset of theirs which the authors call liberty aspirations, are good predictors of the democratisation of the 1990’s. But a positive relationship runs the other way around, too. A post-materialist attitude, Teague et al. (2020) find, is more widespread in countries that are richer or economically freer.

For either direction of the causality between economic freedom and post-materialism, it seems interesting to ask how post-materialism influences attitudes to markets. If post-materialism is an independent determinant of economic freedom, and

³ König and Wagener (2008, p. 4) incorporate the level of post-materialism into their model, too, as a parameter of the representative consumer’s utility function that increases the marginal disutility of work.

not just a manifestation of some deeper ones, then it should be in the superficial cultural package that affects institutions through ethics and rhetoric. Post-materialism and a market friendly attitude are therefore expected to be positively associated. The question is whether that is in fact the case.

3 Does post-materialism predict market friendliness?

An examination of the relationship between post-materialism and market friendliness suggests a puzzle which the literature reviewed above does not explain.

3.1 The puzzle of post-materialist economic freedom

One of the results I reviewed above is that more post-materialist countries are economically freer, which may be because more post-materialist people are more market friendly. The puzzle, as shown by Fig. 1, is that they are not. Figure 1 classifies countries into two groups: those of the West⁴ and those outside the West. This classification is suggested by the fact that post-materialism is most widespread in Western, affluent countries. To classify people as materialist, mixed, or post-materialist, Fig. 1 uses the 4-item post-materialist question (*Y002*) of the Integrated Values Surveys (EVS 2022; Haerpfer et al. 2022). The two dimensions of market friendliness are the attitudes to private ownership (*E036*) and to individual responsibility (*E037*) standardized by country, and rescaled so that a higher number means stronger support for either private ownership or for individual responsibility.⁵

⁴ The West does not include the same countries in each wave because not every country appears in each wave. Considering all the waves, the West includes Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Great Britain, Iceland, Ireland, Italy, Luxembourg, Malta, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, and the USA.

⁵ Though market attitudes probably have several dimensions (Goff and Noblet 2018), I am focusing on those concerned with the main institutional conditions of markets, not on the attitudes to the outcomes thereof, as I see market attitudes as one of the causes of market institutions. There are more than just two economic questions in the IVS, and indeed Czeglédi and Newland (2018) and Czeglédi et al. (2021), whom I cited in Sect. 2, use more than just two dimensions. In addition to the two questions I use here, they consider two other, the one that asks if competition is good, and the one that asks if wealth can grow for everyone. Although I think that these questions measure a certain kind of market attitudes, I also believe that such a broader definition of market attitudes would not fit the purpose of this paper. While the questions that are concerned with competition and wealth creation may serve as measures of positive-sum thinking, the answer to neither of these two questions in itself reflects only the intensity of preferring market institutions, but also that of a *possible reason* for doing so. Positive-sum thinking does not necessarily lead to a positive attitude to market institutions, and positive-sum thinking is not the only reason for preferring market institutions to other institutions. It is quite possible to believe that competition is good, but market competition is worse than other forms of competition, or that wealth can grow but markets are not the best means to grow it. Aggregating these four questions might be a good way to measure a certain kind of market attitudes. Using such a measure as the dependent variable would, however, exclude the possibility to identify post-materialism as one of the causes of being pro- or anti-market, provided that positive-sum thinking is different from post-materialism.

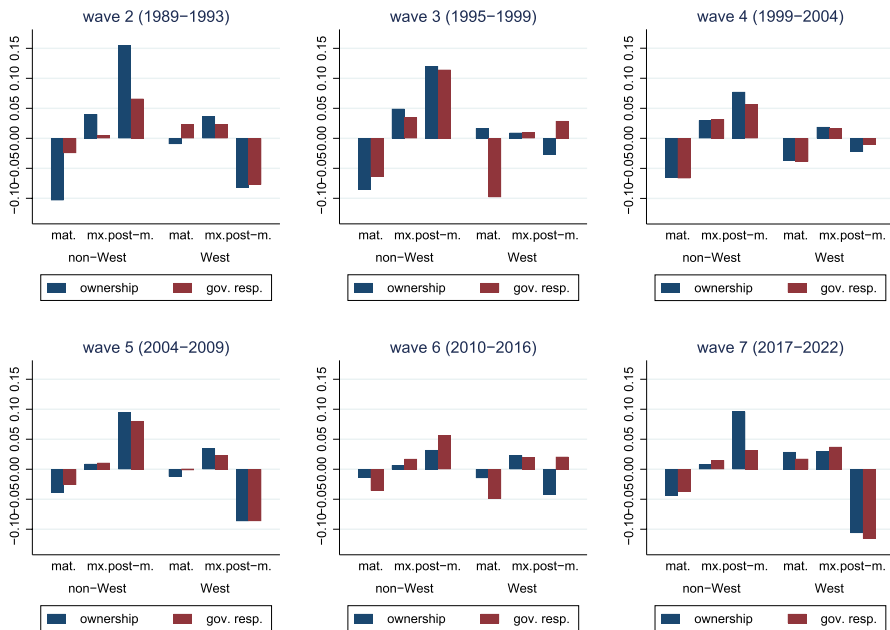


Fig. 1 Market friendliness and post-materialism Averages of questions *E036* and *E037* of the IVS rescaled in such a way that a higher number means a more sympathetic attitude to private ownership and individual responsibility, and normalized by country. mat.: materialist, mx.: mixed, post-m.: post-materialist

In Fig. 1, which shows all six waves of the Integrated Values Surveys for which the data in question are available, the West and the countries outside the West are in a sharp contrast. Outside the western countries, more post-materialist people seem indeed to be more market friendly on both dimensions. In the West, however, it is rather the people with post-materialist values who are less market friendly. The idea of a non-monotonous relationship of post-materialism with market friendliness is not new. Inglehart (1997, pp. 260–265) found the support for private property and post-materialism to be in a slightly inverted V-shaped relationship for a group of 28 non-post-socialist countries.

3.2 A hypothesis

My hypothesis to explain the non-monotonous relationship is based on the expressive theory of political behaviour (Brennan and Lomasky 1993; Hillman 2010; Holcombe 2023). Talking in a market friendly way is expressive behaviour, and, as we saw in the literature review, market friendliness is neither obviously materialist nor post-materialist. I assume that market (un)friendliness is an expressive preference, whereas (post-)materialism is part of people's identity. Expressive people, therefore, talk in a market friendly or a market unfriendly way, which is inferred by others to be materialist or post-materialist.

That is to say, I assume an attempt at consistency. By consistency I mean that if a person expresses a post-materialist mind-set on one scale (p), he or she wants to express the same mind-set on the market-friendliness (f) scale. That is, if a person is said to be post-materialist because of her answers on the post-materialism scale, she wants to be inferred to be post-materialist by the other scale as well.

Not everybody is supposed to talk about markets in an expressive way. As Sowell (1996/1980, p. 352) says, ‘Virtually everyone has political opinions, but not everyone has a political vision’. Using the language of expressive voting (Holcombe 2023, pp. 96–116), some people, let us call them ideologues or believers, have ‘anchor preferences’ while the others have ‘derivative preferences’, which are derived from the anchors by accepting an identity—and the opinions that go with it.

Suppose that the distribution of beliefs can be described by the probability distribution

$$\sum_{k \in \{b,e\}} \sum_{i \in \{p,m\}} \sum_{j \in \{f,u\}} \text{Pr}^k(i,j) \equiv \sum_{k \in \{b,e\}} \sum_{i \in \{p,m\}} \sum_{j \in \{f,u\}} \pi_{ij}^k = 1 \quad (1)$$

where p means post-materialist, m means materialist, f means market friendly, u means market unfriendly, and a person may be of a believer (b) or an expressive (e) type. $\text{Pr}^k(i,j)$ denotes the probability that a type k individual of identity i talks in manner j . For believers the probabilities π_{ij}^b are given, as they are determined by their visions, while for expressive voters it is only whether they are post-materialist or materialist that is given, and with this knowledge they then decide how to talk about markets.

The expected utility of an expressive person of identity i of talking in manner j is

$$U_i(j) = \text{Pr}(p|j)v_i(p) + \text{Pr}(m|j)v_i(m), i \in \{p,m\}, j \in \{f,u\}, \quad (2)$$

where $v_i(l)$, $l \in \{p,m\}$, is the utility of a post-materialist ($i = p$) or materialist ($i = m$) person of being considered a post-materialist or a materialist by others, and $\text{Pr}(i|j)$ is the conditional probability of a person being identified as i by talking j . Everybody is supposed to prefer to be inferred to be their own type:

$$v_i(i) > v_i(l), i, l \in \{p,m\}, i \neq l, \quad (3)$$

which is equivalent with assuming consistency.

Considering that

$$\text{Pr}(p|j) + \text{Pr}(m|j) = 1, j \in \{f,u\}, \quad (4)$$

the increase in utility for a type i person as a result of talking in a market friendly instead of a market unfriendly way is

$$U_i(f) - U_i(u) = [\text{Pr}(p|f) - \text{Pr}(p|u)] [v_i(p) - v_i(m)], i \in \{p,m\}. \quad (5)$$

Because of (3) inequality (5) predicts that there are two equilibria. There is an equilibrium, henceforth a P/F equilibrium, in which the post-materialist expressive

person talks in a market friendly way while the materialist person talks in a market unfriendly way, that is $\pi_{pu}^e = 0$ and $\pi_{mf}^e = 0$, if

$$\Pr(p|f) > \Pr(p|u). \quad (6)$$

There is another equilibrium, let us call it the M/F equilibrium, in which the opposite holds: the post-materialists choose to talk in a market unfriendly way and the materialists choose to talk in a market friendly way. In this equilibrium, $\pi_{pf}^e = 0$ and $\pi_{mu}^e = 0$, and it is possible if

$$\Pr(p|u) > \Pr(p|f). \quad (7)$$

Which equilibrium is more probable depends, then, on the distribution of the ideologies. Propositions 1 and 2, which can be found in Appendix A, detail the condition under which a P/F or a M/F equilibrium may arise. The conclusion is that a P/F equilibrium is more probable if

$$\pi_{pf}^b \pi_{mu}^b > \pi_{pu}^b \pi_{mf}^b, \quad (8)$$

and a M/F equilibrium is more probable if

$$\pi_{pf}^b \pi_{mu}^b < \pi_{pu}^b \pi_{mf}^b. \quad (9)$$

The intuition is that since each type wants to express her identity through market friendly or unfriendly talk, they choose the option which makes the others infer them to be their type with the highest probability. If post-materialists are market friendly, then the effective signal of post-materialism is to talk in a market friendly way. If it is the materialists that tend to talk in a market friendly way, however, the effective signal for a post-materialist person is to talk in a market unfriendly way.⁶

Assuming that the post-materialist vision has an anti-market bias,⁷ its rise can explain why the equilibrium changes from a P/F one, which we saw in Sect. 3.1 is the case outside the Western countries, to an M/F, which we saw is the case in the West. Seeing the two equilibria of the model as informational cascades (Bikhchandani et al. 1992), we have an explanation for how this change may happen. In the framework above, there are no signals independently observed; the only signal that is observed is the decision of those ahead of the person who is about to make his or her own decision about how to talk about markets. A change in the vision of the ideologies might be a signal to an expressive individual to change his or her talk about the market, whose behaviour will be observed by another expressive individual and taken as a signal, and so on.

⁶ Mathematically, much more sophisticated models of such dynamics are presented by Touboul (2019) and Smaldino and Epstein (2015). Whereas their models start from assuming a motivation to differ; however, mine starts from the motivation to be identified with those who differ, which is the reason why total conformity cannot be a stable outcome in my model unlike in that of Smaldino and Epstein (2015).

⁷ Inglehart (1997, pp. 237–266) presents post-materialism as a new Left whose main unifying theme is environmentalism.

That is, the change is induced by a change in the distribution of believers from the one described in condition (8) to the other one described in condition (9). Under condition 9 for example, the first expressive individual will choose to talk in a market friendly way if post-materialist, and a market unfriendly way if materialist, which makes it even easier for the second expressive individual to make the same decision.

The rise of post-materialism with any anti-market bias will not necessarily lead to a decrease in average market friendliness, because a shift from a P/F to an M/F equilibrium may increase the proportion of market friendly people by making the expressive materialists talk in a market friendly way. To see this, suppose that p_f is the proportion of post-materialists within the market friendly believers (π_f^b) and p_u is the same for market unfriendly believers (π_u^b). That is,

$$\pi_{pf}^b = p_f \pi_f^b, \pi_{mf}^b = (1 - p_f) \pi_f^b, \pi_{pu}^b = p_u \pi_u^b, \pi_{mu}^b = (1 - p_u) \pi_u^b, \quad (10)$$

which by conditions (8) and (9) implies that a P/F equilibrium is more probable if $p_f \geq p_u$, and an M/F equilibrium is more probable otherwise. That is, the proportion of those talking in a market friendly way, $F(p_e)$, is in a non-monotonous relationship with p_e , the proportion of post-materialists within the expressive voters (π^e):

$$F(p_e) = \begin{cases} \pi_f^b + p_e \pi^e & \text{if } p_f \geq p_u, \\ \pi_f^b + (1 - p_e) \pi^e & \text{if } p_f < p_u. \end{cases} \quad (11)$$

where $p_e \pi^e \equiv \pi_{pf}^e + \pi_{pu}^e$.

This means, first, that the increase in p_e will increase average market friendliness provided that the market friendly ideologues are more post-materialist than the market unfriendly ones. As the ideologues become more market unfriendly and more post-materialist at the same time, an M/F equilibrium becomes more probable and the relation of post-materialism and market friendliness becomes negative.

Second, a shift from the P/F equilibrium to the M/F one will not necessarily decrease the average market friendliness. A shift from a P/F to an M/F equilibrium might even increase it, if the market unfriendly ideologues are to a great extent ahead of the expressive ones in terms of post-materialism. For example, suppose that in the initial P/F equilibrium

$$\frac{1}{2} > p_f^1 > p_u^1 > p_e^1, \quad (12)$$

which changes to a new M/F one, in which

$$p_u^2 > p_f^2 > \frac{1}{2} > p_e^2 > p_e^1. \quad (13)$$

Then, average market friendliness in the first equilibrium will exceed that in the second, since according to (11)

$$F(p_e^2) > F(p_e^1). \quad (14)$$

4 Some empirics of post-materialism and market friendliness

The prediction of the framework above is that as the proportion of post-materialists increases, the post-materialists tend to be less market friendly, and the materialists more so. To see if this prediction can be given any empirical support, I will run regressions on individual and cross-country data in Sect. 4.1. Section 4.2 is an attempt to see if the reasons for the predictions that were given above may also be confirmed.

4.1 Market friendliness and the proportion of post-materialists

I will use data⁸ from the Integrated Values Survey (EVS 2022; Haerpfer et al. 2022) to check whether the proportion of post-materialists in a country matters for whether a post-materialist person is more or less market-friendly than is a materialist. The results are in Tables 1 and 2. The dependent variables in these regressions are the same as those I used in Sect. 3.1: the question on private versus government ownership (*E036*) and the question on individual versus government responsibilities (*E037*). The answers to both questions are normalized by country and rescaled in such a way that a higher number shows a stronger support for private ownership or individual responsibility.

The main independent variables are either materialism or post-materialism as identified by the 4-item post-materialism variable (*Y002*). Since the variable does not differentiate between materialists and post-materialists only, but introduces a mixed category, and it is not clear if ‘mixed’ people should be seen rather as materialists or post-materialists, I will run the regressions with materialism first, and then with post-materialism, as dependent variables.

Dummies for gender, 40 years old or younger, three education levels, ten income brackets, unemployed, and self-employed are also included among the explanatory variables as control variables, as are dummies for different IVS waves, for countries, and for election years.⁹ A year is defined as an election year if there was either a legislative or an executive election in that year as indicated by the variables *LEGELEC* and *EXELEC* in the Database of Political Institutions (DPI) by Cruz et al. (2021a, 2021b). Since the DPI covers years up to 2020 only, for the years 2021 and 2022 I used the Election Guide website of the International Foundations for Electoral Systems (IFES 2023). The reason for including this variable is that the political campaign that is going on in an election year might provide a reason to be more emphatic about our opinion.

The first two columns of Tables 1 and 2 show that both materialism and post-materialism have a negative, although small, effect on market friendliness. This small negative sign, however, hides a non-monotonous relationship, as indicated in columns 3–4 in both tables. The coefficient I am concerned with here is that of the cross-variable of materialism or post-materialism at the individual level

⁸ The descriptive statistics of the variables are in Table 5 in Appendix B.

⁹ Their estimated coefficients are not shown in the tables but available upon request.

Table 1 Post-materialism and private attitudes to private ownership

	Dependent variable: private ownership			
	1	2	3	4
<i>m/pm</i> =	Materialist	Post-mater	Materialist	Post-mater
<i>m/pm</i>	−0.039*** (0.003)	−0.009* (0.005)	−0.199*** (0.024)	0.693*** (0.045)
Proportion of mixed × <i>m/pm</i>			0.238*** (0.047)	−1.011*** (0.078)
Proportion of post-mat. × <i>m/pm</i>			0.306*** (0.057)	−0.671*** (0.060)
(Proportion of post-mat − proportion of mixed) × <i>m/pm</i>			0.068 (0.088)	0.340*** (0.109)
<i>R</i> ²	0.012	0.012	0.013	0.013
Obs.	438,836	438,836	438,836	438,836
Countries	115	115	115	115

m/pm is either a post-materialism dummy or a materialism dummy as indicated in the top of the columns and is based on the 4-item measure (*Y002*) in the IVS. *post-mater.* = 1 if *Y002* is 'post-materialist', zero otherwise, and *materialist* = 1 if *Y002* is 'materialist', zero otherwise. Controls (not shown): dummies for election years, gender, 40 years old or younger, three education levels, ten income brackets, unemployed, self-employed, IVS waves, countries. : ****p* < 0.01, : **p* < 0.1

and the proportion of materialists, post-materialists or mixed at the country level. The pattern is the same in both tables: at a low level of post-materialists—when the proportion of materialists is high and the proportions of post-materialists and mixed are low—materialism has a negative effect on market friendliness at the individual level. At a higher level of mixed and post-materialists, however, the effect of materialism becomes positive.

The coefficients in column 3 of Table 1, for instance, allow us to conclude that the effect of being a materialist on the preference of private ownerships is a negative 19.9% of a standard deviation. The effect becomes zero, however, when, for example, the proportion of materialists is reduced to 25% in such a way that 45% are mixed and 30% are post-materialists. If nobody is materialist, however, then the effect will be between a positive 3.9% and a 10.7% of a standard deviation. Similarly, the coefficients in column 4 of Table 1 indicate that with no post-materialists or mixed individuals in the population, post-materialist people are predicted to be 69% of a standard deviation more market friendly, and they are predicted to be (0.69–1.01 =) 32% of a standard deviation less market friendly when the proportion of mixed individuals is at its maximum.

The middle panels in both Tables 1 and 2 show whether a change between 'mixed' and post-materialists changes the effect of the materialist or post-materialist dummy. The answer is that it usually increases the effect (reduces the

Table 2 Post-materialism and attitudes to government responsibilities

	Dependent variable: government responsibility			
	1	2	3	4
m/pm=	Materialist	Post-mater	Materialist	Post-mater
m/pm	−0.037*** (0.003)	−0.025*** (0.005)	−0.173*** (0.023)	0.616*** (0.043)
Proportion of mixed × m/pm			0.175*** (0.045)	−0.927*** (−0.074)
Proportion of post-mat. × m/pm			0.408*** (0.055)	−0.588*** (−0.058)
(Proportion of post-mat −proportion of mixed) × m/pm			0.232*** (0.086)	0.339*** (0.104)
R ²	0.014	0.012	0.013	0.013
Obs.	471,671	471,671	471,671	471,671
Countries	116	116	116	116

See notes to Table 1

negative effect of) post-materialism, and this conclusion is much more uncertain for the case of materialism. The effect is always positive and statistically significant at the usual significance levels when post-materialism is the explanatory dummy (as can be seen in the last columns of Tables 1 and 2), but only so in one case (Table 2) when materialism is the explanatory variable. For example, the middle panel in column 4 of Table 1 shows that when the proportion of post-materialists increases at the expense of the proportion of mixed, the negative effect of post-materialism decreases. This qualification of the results, however, never changes the result that if the proportion of materialists decreases, then the effect of post-materialism on market friendliness decreases, too.

The control variables are usually significant. Females are found to have less market friendly values, while people in higher income brackets and with more education are more supportive of markets, and so are those who are self-employed. The unemployed are significantly less supportive. The effect of being young is positive with private ownership but slightly negative with government responsibility. The dummy for election years has a statistically significant effect only in the case of government responsibility, suggesting that this variable is the one that is shaped by expressive behaviour more. In addition, the effect is positive and roughly as big (0.019) as what undoes the (small) negative unconditional effect of post-materialism (−0.025) in column 2 of Table 2.

The main prediction, however, that the effect of post-materialism on market friendliness is positive at a low level of post-materialism and becomes negative at its higher levels can be given support with the IVS data. This is especially true if the category ‘mixed’ is considered rather post-materialist.

4.2 Political identity, expressiveness, and anchor preferences

What follows is a test to see if the explanation of the results I came to in Sect. 4.1 has anything to do with the hypothesis of Sect. 3.2. First, the mechanism at work is supposed to be an expressing of identity as opposed to other identities. The effect of an increase in the proportion of post-materialists should therefore be stronger among people with some identity and weaker among people with other identities. Second, the mechanism is supposed to work through expressive behaviour. For those with weaker intentions to be expressive, these effects should be mitigated. Third, the change in relations between market friendliness and materialism is supposed to be driven by the distribution of ‘ideologues’. The political preferences of the elite, therefore, should also shape the effects identified empirically in Sect. 4.1.

To see if these effects are at work, I will test four different variables for their cross-effect with the interaction between post-materialism at the individual level and the proportion of post-materialists within the country sample. In Tables 3 and 4, this additional variable is called Z, the actual meaning of which is shown at the top of each column.

Column 1 in Tables 3 and 4 checks for the possibility that the effect of the proportion of post-materialists on the relationship between post-materialism and market friendliness depends further on political self-identity. The variable *leftist* is created from the IVS variable E033, which asks the respondents to position themselves on a 10-unit political scale running from left to right. To calculate the variable *leftist*, the scale is reversed and the variable is normalized by country. The variable, as a result, runs roughly between -3.5 and 5.6 with a higher number meaning a political position further on the left. The results in column 1 of Tables 3 and 4 show that the change to a negative effect of post-materialism as the proportion of post-materialists increases is more pronounced among those with a more leftist self-identity. Among those with a right-wing identity, an increase in the proportion of post-materialists may even make the effect of post-materialism positive. The change in the proportion of those with mixed values is not affected by the inclusion of political identity.

Column 2 in Tables 3 and 4 represents an attempt to account for people’s willingness to be more or less expressive about their political opinions. The assumption is that a greater willingness to express political opinions is accompanied by more talking about politics, therefore those who talk more about politics are more expressive about their political identity. The variable (A062) I use here is the one that allows the respondents to choose between three answers to the question of how often they discuss ‘political matters’ with friends: frequently, occasionally, and never. As the first two answers seem to be dependent on culture, I normalize this variable, too, by country, and reverse the scale for a higher value to mean a more frequent discussion of politics. This results in a variable (*discuss*) that runs between -2.6 and 2.7 .

The results in Tables 3 and 4 confirm the expectations, if not perfectly. On the one hand, the cross-variable in question has a significantly negative coefficient in both Tables. Post-materialists and talkative people become more unfriendly to markets as the proportion of post-materialists around them grows than do post-materialists and non-talkative people. This means that among those who discuss ‘political matters’ more often with friends, an increase in the proportion of post-materialists

Table 3 Conditional effects of post-materialism on ownership attitudes

	Dependent variable: private ownership			
	1	2	3	4
Z=	Leftist	Discuss	Left-right share	Church exp.
pm	0.648*** (0.049)	0.661*** (0.060)	0.644*** (0.061)	0.636*** (0.052)
Proportion of mixed × pm	−0.948*** (0.084)	−0.961*** (0.104)	−0.830*** (0.118)	−0.889*** (0.096)
Proportion of mixed × pm × Z	−0.004 (0.021)	0.057** (0.023)	−0.364*** (0.085)	−0.024*** (0.007)
Proportion of post-mat. × pm	−0.423*** (0.065)	−0.535*** (0.078)	−0.860*** (0.194)	−0.707*** (0.130)
proportion of post-mat. × pm × Z	−0.676*** (0.066)	−0.400*** (0.073)	0.826*** (0.297)	0.051** (0.023)
Z	−0.057*** (0.002)	0.006*** (0.002)	0.068*** (0.019)	−0.001 (0.001)
R ²	0.020	0.016	0.017	0.012
Obs.	337,827	251,640	248,425	384,027
Countries	111	104	76	95

pm: post-materialism dummy, Z is an independent variable as indicated at the top of each column. *discuss*: how often people discuss political matters with friends, *leftist*: political self-positioning with a higher number meaning farther on the left; *left-right share*: voting share of political parties with a clearly left or right identity, *Church exp.*: exposure to Western Christianity measure in centuries. Controls (not shown): dummies for election years, gender, 40 years old or younger, three education levels, ten income brackets, unemployed, self-employed, IVS waves, countries. Country dummies are dropped in the last column. *** $p < 0.01$, ** $p < 0.05$

makes post-materialist values more negatively associated with market friendliness. In the interpretation of this paper, this is because they behave in a way that is more similar to the expressive behaviour the model assumes. On the other hand, the interaction of the variable *discuss* with the product of *mixed* and *post-materialism* has a slightly positive coefficient in Table 4, the interpretation of which fact is not clear.

Column 3 is an attempt to quantify the idea that those with a vision—the ‘ideologues’ with anchor preferences—have a role in shaping those without one. If political parties represent clear differences concerning economic policies, then expressive people will not choose their preferred economic policies to express their identity determined by their level of post-materialism. Rather, they will choose the economic policy of the party they identify with. In terms of the model in Sect. 3.2, if there are more ‘ideologues’ or they are more evenly distributed then there is less room for market friendliness to be chosen expressively.

Table 4 Conditional effects of post-materialism on responsibility attitudes

	Dependent variable: government responsibility			
	1	2	3	4
Z=	Leftist	Discuss	Left-right share	Church exp.
pm	0.507*** (0.046)	0.536*** (0.057)	0.780*** (0.056)	0.719*** (0.048)
Proportion of mixed × pm	−0.785*** (0.079)	−0.792*** (0.098)	−1.146*** (0.111)	−1.087*** (0.090)
Proportion of mixed × pm × Z	0.000 (0.020)	0.032 (0.022)	−0.184*** (0.082)	0.001 (0.001)
Proportion of post-mat. × pm	−0.229*** (0.063)	−0.518*** (0.076)	−0.783*** (0.188)	−0.619*** (0.127)
Proportion of post-mat. × pm × Z	−0.603*** (0.061)	−0.189*** (0.070)	0.613*** (0.287)	0.002 (0.022)
Z	−0.089*** (0.002)	0.009*** (0.002)	0.072*** (0.017)	−0.003*** (0.001)
R ²	0.026	0.018	0.017	0.014
Obs.	359,428	273,447	275,583	414,637
Countries	112	105	78	96

See notes to Table 3

A measure of political ideology¹⁰ is what I call *left-right share* in column 3 of Tables 3 and 4, calculated from the Database of Political Institutions (Cruz et al. 2021a). The *left-right share* is the total voting share of those parties in the legislation—the three largest government parties and the largest party of the opposition—that are identified as right or left. For the *left-right share* to be different from zero, legislative elections should be competitive enough,¹¹

The expectation is that the effects in question will be mitigated by the *left-right share* because with a larger share of parties clearly left or right, market-friendliness will not be chosen to indicate a deeper preference but will be chosen by the parties people associate with. In accordance with these expectations, the higher the voting share of right or left parties, the lesser the extent to which an increase in the proportion of post-materialists will make the post-materialist person more unfriendly to markets. At a total voting share of 1 (meaning 100%) of those parties that are clearly right or left, this effect is almost zero, both in the case of private ownership and private responsibility attitudes. A change in the proportion of those with mixed values has, however, the opposite effect.

In Table 3 and 4, I also use a proxy of WEIRDness mentioned in Sect. 2. The deeper mechanism of a WEIRD individualist psychology and culture with market institutions

¹⁰ I experimented with the measure of political polarization, too, which led to results similar to the ones with the *left-right share*. These results are not presented here but available from the author.

¹¹ The variable *LIEC* which measures the competitiveness of the legislative elections, (Cruz et al. 2021b), should have a value of at least 6.

might trump the more fleeting expressive behaviour, which I argue about. The proxy that I included in the regressions is the exposure to the Western Christian Church of the country as developed by Schulz (2022) and used to predict individualism by Schulz et al. (2019). The reason why exposure to Western Christianity is a proxy of WEIRDness is that the first step in the causal chain developed by Henrich (2020) to explain WEIRD psychology is the approach to marriage and kinship of Western Christianity. The exposure measure is calculated as the number of centuries since the foundation of bishoprics in the country after 506 (the prohibition on cousin marriage) before 1500 Schulz (2022, pp. 2588–2589). As the Church exposure variable is country specific, the country dummies are not included in the regressions of column 4 of Table 3 and 4.

Church exposure is only significant statistically when the dependent variable is the attitude to private ownership (column 4 of Table 3). This effect is substantial in a country whose norms had been affected by the Western Christian Church for a long time before 1500. In the countries with the longest Church exposure,¹² this could halve the effect in the increase in post-materialism.

In sum, post-materialist people become less market friendly as compared to materialists as the proportion of post-materialists increase, but this effect is stronger among people who (1) have a left-wing identity, (2) talk more about politics with friends, or (3) live in a country with a lower voting share of those parties that are clearly left- or right-wing. Living in a country with shorter time of exposure to Western Christianity also strengthens the effect but only in the case of private ownership.

5 Conclusion

As values and beliefs are one of the factors shaping institutions and economic performance, it is reasonable to ask how post-materialism, as a system of values and beliefs that have been emerging in the most developed countries and will probably do so elsewhere in the future, will shape economic freedom. As a part of the answer to that question, this paper has asked how post-materialism shapes the attitudes towards economic freedom, particularly those towards private ownership and private responsibility.

The literature review has revealed that (1) there are both a deep and a superficial cultural package that support economic freedom, with market friendly views being in the superficial package, and (2) higher levels of post-materialism being associated with higher levels of economic freedom. To these two propositions, this paper has added a third: (3) post-materialism and market friendly views are both ‘sweet talk’ (McCloskey 2021, p. 30) and as such their relationship is not monotonous or stable.

Putting these three propositions together allows one to doubt if post-materialism is included in the cultural package, be it deep or superficial, that shapes the institutions and policies of economic freedom. The three propositions seem to be more in line with the broad hypothesis that post-materialism or its recent rise is a manifestation of the deeper cultural package, while market friendly attitudes are part of the superficial one, and these two packages are complementary in explaining economic freedom.

¹² The Italian value is, for example, 9.75.

Appendix A

Propositions

Proposition 1 A P/F equilibrium can emerge if

$$\pi_{pf}^b \pi_{mu}^b > \pi_{pu}^b \pi_{mf}^b, \text{ or} \quad (\text{A1})$$

$$\pi_{pf}^b \pi_{mu}^b < \pi_{pu}^b \pi_{mf}^b, \text{ and} \quad (\text{A2})$$

$$\pi_{pu}^b \geq \left(1 - \sqrt{\pi_{mf}^b}\right)^2 \text{ and} \quad (\text{A3})$$

$$p_e \geq \frac{1 - 2\pi_{pf}^b - \pi_{pu}^b - \pi_{mf}^b - \sqrt{D_1}}{2\left(1 - \pi_{pf}^b - \pi_{pu}^b - \pi_{mf}^b - \pi_{mu}^b\right)} \text{ and} \quad (\text{A4})$$

$$p_e \leq \frac{1 - 2\pi_{pf}^b - \pi_{pu}^b - \pi_{mf}^b + \sqrt{D_1}}{2\left(1 - \pi_{pf}^b - \pi_{pu}^b - \pi_{mf}^b - \pi_{mu}^b\right)}, \quad (\text{A5})$$

$$\text{where } D_1 = (1 + \pi_{pu}^b - \pi_{mf}^b)^2 - 4\pi_{pu}^b. \quad (\text{A6})$$

Proof A P/F equilibrium will be able to emerge if $\Pr(p|f) > \Pr(p|u)$ implies $\pi_{pu}^e = 0$ and $\pi_{mf}^e = 0$, and vice versa.

As $\Pr(p|f) = \frac{\pi_{pf}^b + \pi_{pf}^e}{\pi_{pf}^b + \pi_{pf}^e + \pi_{mf}^b + \pi_{mf}^e}$ and $\Pr(p|u) = \frac{\pi_{pu}^b + \pi_{pu}^e}{\pi_{pu}^b + \pi_{pu}^e + \pi_{mu}^b + \pi_{mu}^e}$, and in the P/F equilibrium $\pi_{pu}^e = 0$, $\pi_{pf}^e = \pi_p^e$, $\pi_{mu}^e = \pi_m^e$, $\pi_{mf}^e = 0$, the condition of the equilibrium is equivalent with

$$(\pi_{pf}^b + \pi_p^e)(\pi_{mu}^b + \pi_m^e) > \pi_{pu}^b \pi_{mf}^b, \quad (\text{A7})$$

which will always hold if $\pi_{pf}^b \pi_{mu}^b > \pi_{pu}^b \pi_{mf}^b$ and vice versa. This proves the first part (Eq. A1) of proposition 1.

To prove the second part (Eqs. A2–A6) of proposition 1, rewrite inequality (A7) as

$$(s_p - \pi_{pu}^b)(s_m - \pi_{mf}^b) > \pi_{pu}^b \pi_{mf}^b, \quad (\text{A8})$$

$$\text{with } s_p = \pi_{pu}^b + \pi_{pf}^b + \pi_{pu}^e + \pi_{pf}^e \text{ and } s_p + s_m = 1. \quad (\text{A9})$$

Inequality (A8) then can be written as

$$(s_p)^2 - (1 + \pi_{pu}^b - \pi_{mf}^b)s_p + \pi_{pu}^b < 0. \quad (\text{A10})$$

For inequality (A10) to be satisfied, first of all we must have

$$D_1 = (1 + \pi_{pu}^b - \pi_{mf}^b)^2 - 4\pi_{pu}^b \geq 0, \quad (\text{A11})$$

which is possible if

$$\left(1 - \sqrt{\pi_{mf}^b}\right)^2 \leq \pi_{pu}^b \leq \left(1 + \sqrt{\pi_{mf}^b}\right)^2, \quad (\text{A12})$$

but the inequality on the right of (A12) will always hold since $\pi_{pu}^b \leq 1$, which leads to condition (A3).

With condition (A3) being satisfied, then inequality (A11) will hold if

$$s_p^1 \leq s_p \leq s_p^2, \quad (\text{A13})$$

$$\text{where } s_p^1 = \frac{1 + \pi_{pu}^b - \pi_{mf}^b - \sqrt{D_1}}{2} \text{ and } s_p^2 = \frac{1 + \pi_{pu}^b - \pi_{mf}^b + \sqrt{D_1}}{2}. \quad (\text{A14})$$

With the solutions in (A14), the definitions in (A9), and considering that

$$\pi_{pu}^e + \pi_{pf}^e = p_e \pi^e \text{ and } \pi_{pu}^b + \pi_{pf}^b + \pi_{mu}^b + \pi_{mf}^b + \pi^e = 1,$$

the two inequalities in (A13) are equivalent with condition (A4) and (A5) in proposition 1. $\square$

Proposition 2 *An M/F equilibrium can emerge if*

$$\pi_{pf}^b \pi_{mu}^b < \pi_{pu}^b \pi_{mf}^b, \text{ or} \quad (\text{A15})$$

$$\pi_{pf}^b \pi_{mu}^b > \pi_{pu}^b \pi_{mf}^b, \text{ and} \quad (\text{A16})$$

$$\pi_{pf}^b \geq \left(1 - \sqrt{\pi_{mu}^b}\right)^2 \text{ and} \quad (\text{A17})$$

$$p_e \geq \frac{1 - 2\pi_{pu}^b - \pi_{pf}^b - \pi_{mu}^b - \sqrt{D_2}}{2\left(1 - \pi_{pf}^b - \pi_{pu}^b - \pi_{mf}^b - \pi_{mu}^b\right)} \text{ and} \quad (\text{A18})$$

$$p_e \leq \frac{1 - 2\pi_{pu}^b - \pi_{pf}^b - \pi_{mu}^b + \sqrt{D_2}}{2\left(1 - \pi_{pf}^b - \pi_{pu}^b - \pi_{mf}^b - \pi_{mu}^b\right)}, \quad (\text{A19})$$

$$\text{where } D_2 = (1 + \pi_{pf}^b - \pi_{mu}^b)^2 - 4\pi_{pf}^b. \quad (\text{A20})$$

Proof An M/F equilibrium will be able to emerge if $\Pr(m|f) > \Pr(m|u)$ implies $\pi_{mu}^e = 0$ and $\pi_{pf}^e = 0$, and vice versa.

As $\Pr(m|f) = \frac{\pi_{mf}^b + \pi_{mf}^e}{\pi_{pf}^b + \pi_{pf}^e + \pi_{mf}^b + \pi_{mf}^e}$ and $\Pr(m|u) = \frac{\pi_{mu}^b + \pi_{mu}^e}{\pi_{pu}^b + \pi_{pu}^e + \pi_{mu}^b + \pi_{mu}^e}$, and in the M/F equilibrium $\pi_{pf}^e = 0$, $\pi_{pu}^e = \pi_p^e$, $\pi_{mf}^e = \pi_m^e$, $\pi_{mu}^e = 0$, the condition of the equilibrium is equivalent with

$$(\pi_{pu}^b + \pi_p^e)(\pi_{mf}^b + \pi_m^e) > \pi_{pf}^b \pi_{mu}^b, \quad (\text{A21})$$

which will always hold if $\pi_{pu}^b \pi_{mf}^b > \pi_{pf}^b \pi_{mu}^b$ and vice versa. This proves the first part (Eq. A15) of proposition 2.

To prove the second part (Eqs. A16–A20) of proposition 2, rewrite inequality (A21) as

$$(s_p - \pi_{pf}^b)(s_m - \pi_{mu}^b) > \pi_{pf}^b \pi_{mu}^b, \quad (\text{A22})$$

$$\text{with } s_p = \pi_{pu}^b + \pi_{pf}^b + \pi_{pu}^e + \pi_{pf}^e \text{ and } s_p + s_m = 1. \quad (\text{A23})$$

Inequality (A22) then can be written as

$$(s_p)^2 - (1 + \pi_{pf}^b - \pi_{mu}^b)s_p + \pi_{pf}^b < 0. \quad (\text{A24})$$

For inequality (A24) to be satisfied, first of all we must have

$$D_2 = (1 + \pi_{pf}^b - \pi_{mu}^b)^2 - 4\pi_{pf}^b \geq 0, \quad (\text{A25})$$

which is possible if

$$\left(1 - \sqrt{\pi_{mu}^b}\right)^2 \leq \pi_{pf}^b \leq \left(1 + \sqrt{\pi_{mu}^b}\right)^2, \quad (\text{A26})$$

but the inequality on the right of (A26) will always hold since $\pi_{pf}^b \leq 1$, which leads to condition (A17).

With condition (A17) being satisfied, then inequality (A25) will hold if

$$s_p^3 \leq s_p \leq s_p^4, \quad (\text{A27})$$

$$\text{where } s_p^3 = \frac{1 + \pi_{pf}^b - \pi_{mu}^b - \sqrt{D_2}}{2} \text{ and } s_p^4 = \frac{1 + \pi_{pf}^b - \pi_{mu}^b + \sqrt{D_2}}{2}. \quad (\text{A28})$$

With the solutions in (A28), the definitions in (A23), and considering that

$$\pi_{pu}^e + \pi_{pf}^e = p_e \pi^e \text{ and } \pi_{pu}^b + \pi_{pf}^b + \pi_{mu}^b + \pi_{mf}^b + \pi^e = 1,$$

the two inequalities in (A27) are equivalent with condition (A18) and (A19) in proposition 2. $\square$

Appendix B

Descriptive statistics

Table 5 Descriptive statistics of the variables used in the regressions

Variable	Mean	Std. dev.	Min.	Max.	Obs.	Tables
<i>Dependent variables</i>						
Priv. ownership	-0.0017	0.9973	-3.5484	2.6865	438,836	1
Gov. resp	-0.002	0.996	-2.9723	3.6124	471,671	2
<i>Key independent variables</i>						
Post-mater	0.1109	0.314	0	1	471,671	2
Materialist	0.3208	0.4668	0	1	471,671	2
Leftist	0.0041	0.9967	-3.5285	5.6048	359,428	4
Discuss	0.0226	0.9952	-2.5802	2.641	273,447	4
Left-right share	0.4814	0.2811	0	1	275,853	4
Church exp	2.455	3.0975	0	9.7511	414,637	4
Proportion of post-mat	0.1102	0.0776	0	0.3703	471,671	2
proportion of mixed	0.5683	0.085	0.2628	0.9768	471,671	2
<i>Controls</i>						
Election year	0.3035	0.4598	0	1	471,671	2
Gender	0.5234	0.4995	0	1	471,671	2
Young	0.494	0.5	0	1	471,671	2
Income bracket 2	0.1024	0.3032	0	1	471,671	2
Income bracket 3	0.1326	0.3391	0	1	471,671	2
Income bracket 4	0.1414	0.3484	0	1	471,671	2
Income bracket 5	0.1723	0.3777	0	1	471,671	2
Income bracket 6	0.1264	0.3323	0	1	471,671	2
Income bracket 7	0.1024	0.3031	0	1	471,671	2
Income bracket 8	0.067	0.2501	0	1	471,671	2
Income bracket 9	0.0339	0.1811	0	1	471,671	2
Income bracket 10	0.032	0.1761	0	1	471,671	2
Education level 2	0.4417	0.4966	0	1	471,671	2
Education level 3	0.2908	0.4541	0	1	471,671	2
Self-employed	0.1061	0.308	0	1	471,671	2
Unemployed	0.0908	0.2873	0	1	471,671	2

The last column refers to the number of the table in which the variable is used on the widest sample, which is also the one the descriptive statistic is presented for

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The author confirms sole responsibility for study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

Code availability Codes are available from the corresponding author upon request.

Declarations

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