

**Social values, institutions and economic growth:
Do institutions transmit growth effects of post materialism?**

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Abstract

There is a large body of evidence revealing positive effects of social values and institutions on economic development. However, many findings of such positive effects also reflect the difficulties surrounding the identification of the nature and direction of causality between these phenomena. Furthermore, it is often not clear how to disentangle the separate effects of social values and institutions or to account for their interrelationships, as social values often condition the types and functioning of institutions. In this paper, we conduct a cross-country econometric study on drivers of economic development that addresses these issues. To capture the effect of social values we focus on the concept of post materialism, reflecting the degree to which values such as quality of life, personal autonomy and social equality are becoming increasingly prominent. To ensure that we identify causal effects and to account for the relations between post materialism and institutions we deploy three stages least squares (3SLS) techniques. Doing so also allows us to identify the degree to which the economic effects of post materialism are transmitted via institutions. Our findings show that post materialism and institutions both have sizeable effects on economic performance. The effect of post materialism consists of a direct negative effect and a larger indirect positive effect that is transmitted via several political, economic and democratic institutions. These findings constitute new evidence on the importance of accounting for the interrelationships between social values, institutions and institutional change to understand their effects on economic behaviour and outcomes.

Key words: Post materialism, Institutions, Economic Development, Transmission Channels, 3SLS

1. Introduction

The last decades have seen a rapid development of economics research on drivers of processes of economic growth and factors that account for persistent income differences between countries. Importantly, this research is characterised by a growing emphasis on identifying the effects of fundamental rather than proximate causes of growth and economic performance (Rodrik et al., 2004; Spolaore and Wacziarg, 2015). One strand of research focuses on the important role of institutions for economic behaviour and outcomes (e.g. Acemoglu et al., 2005; Cagliardi, 2008; Jones and Romer, 2010; Lloyd and Lee, 2016). An early contribution to this research field is Rodrik et al. (2004), who find that institutional quality, measured by the rule of law, is strongly related to cross-country differences in economic performance, rendering alternative explanations related to trade policy and geographical aspects largely insignificant. Other examples of studies presenting positive economic effects of a variety of institutional country characteristics include Hall and Jones (1999), Acemoglu and Johnson (2005) and Gorodnichenko and Roland (2011).

Another research strand on economic growth and development is investigating the economic effects of culture and social values (Guiso et al., 2006; Alesina and Giuliano, 2015; Bjørnskov, 2017). A well-known study is Tabellini (2010), who finds that several cultural characteristics are significantly associated with persistent inter-regional output differences in the EU. Several other studies provide corroborating evidence that countries or regions with a high level of trust are characterised by higher growth rates (e.g. Beugelsdijk and van Schaik, 2005; Horvath, 2013; Knack and Keefer, 1997a). Related studies report similar positive effects of the degree of associational activity and social capital on economic outcomes (e.g. Akçomak and ter Weel., 2009; Westlund and Adam, 2010).

Our paper is related to these two key research strands in two ways. First, by investigating the effect of post materialism on economic development, we introduce a type of social value that has not been considered so far in research on the economic effects of social values. This is perhaps striking, given findings from research on socio-economic societal transformations that indicate that a growing number of people are substituting norms and values of a post-materialistic nature for more materialistic priorities (Inglehart, 1988; Inglehart and Welzel, 2005). As more and more citizens in an increasing number of countries have reached a stage where basic needs related to survival and security are met, priorities are changing, with greater value being given to issues such as quality of life, protection of the environment and social equality (Inglehart and Welzel, 2005). Given that such values and beliefs differ markedly from materialistic values that place a strong emphasis on economic values related to income maximisation, it is very likely that the growing degree of post materialism is impacting upon economic behaviour and outcomes.

Second, our paper contributes to the literature on the economic effects of institutions and the inter-relationships between social values, institutions and economic performance. In line with the framework provided by Williamson (2000), several studies find that cultural traits and social values influence the functioning and quality of a variety of institutions (see Alesina and Giuliano, 2015). For instance, Berggren and Bjørnskov (2013) identify for a large cross-section of countries a negative effect of religiosity on property rights and the rule of law in democratic countries. Guiso et al. (2004; 2008) present sets of findings indicating that cultural traits are associated with several aspects of financial institutions including stock market participation and the use of bank loans. Considering the large body of evidence that institutions exercise positive effects on economic performance (Efendic et al., 2011), we interpret the evidence that social values influence institutions as an important indication that institutions may act as a transmission channel of the economic effect of social values (Boulila et al., 2008; Bjørnskov and Méon, 2015). If institutions and social values exercise effects on economic outcomes and social values are related to institutions, it is likely that

institutions act as transmission channel of (part of) the effect of social values. In our analysis, we therefore account for the economic effects of post materialism and institutions and the possible relationship between post materialism and institutions. This ensures that we are able to distinguish between the direct effects of post materialism and institutions on economic performance and the indirect effect of post materialism that may be transmitted via institutions.

The paper is constructed as follows. Section two provides a selective literature review which we use to inform our research questions. In section three we discuss the data, model and estimation issues. Section four presents the empirical findings, which can be summarised as follows. When estimating models on drivers of economic performance that omit institutions, the economic effect of post materialism is positive, both in ordinary least squares (OLS) and instrumental variable (IV) estimations. When we control for both the effects of post materialism and institutions, the direct effect of post materialism turns negative, whereas the effect of a variety of institutions is consistently positive. The findings also indicate that institutions act as transmission channel of an indirect economic effect of post materialism. Further analysis of these findings shows that the overall economic effect of post materialism is positive, consisting of a negative direct effect and a larger positive indirect effect that is transmitted via institutions. Finally, section five summarises and concludes.

2. Literature review and research questions

Findings from the rapidly developing literature on the economic effects of culture and social values strongly indicate that they can exercise important effects on economic behaviour and outcomes. A range of cultural traits and social values is examined, following original research on the effects of factors including trust (Zak and Knack, 2001), social infrastructure (Hall and Jones, 1999), social capability (Temple and Johnson, 1998) and social capital (Knack and Keefer, 1997a). Guiso et al. (2006), Alesina and Giuliano (2015), Spolaore and Wacziarg (2013) and Algan and Cahuc (2014) provide comprehensive surveys of the large body of evidence that has developed in the last decades. Overall, these surveys find that the large majority of evidence indicates that social values are significantly associated to economic growth and performance, fostering the growing recognition of social values and culture as fundamental drivers of economic growth (Efendic et al., 2011; Alesina and Giuliano, 2015).

Given the variety of social values and cultural traits that are considered, it is striking that the concept of post materialism has remained largely unexamined in this literature. Initiated by the seminal work of Inglehart (1971, 1977), an extensive body of research has developed examining socio-economic transformations in a wide variety of countries. Due to ongoing processes of economic development, growing numbers of citizens are in situations where their direct basic needs for physical survival and security are met. As a result of this, post materialistic values and priorities are becoming more prominent, including values such as personal autonomy, quality of life and concerns for the environment and social equality (Inglehart and Welzel, 2005; Inglehart, 2008; Inglehart and Abramson, 1999; Delhey, 2010). As these changes in values and priorities are of a structural nature and diverge strongly from materialistic values related to production and income maximisation, their growing importance in a rising number of economies is likely to affect processes of economic growth and performance. In particular, the growing importance of post materialistic values and priorities is likely to have a dampening effect on processes of economic growth (Inglehart, 1988; Abramson and Inglehart, 1995).

Despite the clear implications of these societal changes, there is only limited and ambivalent evidence on the direct economic effects of the growing importance of post materialistic values.

Granato et al. (1996) present ordinary least squares (OLS) evidence for a small cross-section of countries that suggests that, if anything, the degree of post materialism in a country is negatively associated with economic growth. Edwards and Patterson (2009) re-examine the study by Granato et al. (1996) and find that the original results are sensitive to model specification and the use of OLS and instrumental variable (IV) techniques, however. Overall, their findings indicate that post materialism does not affect economic growth. In contrast, there is some evidence that post materialism may generate indirect economic effects. For instance, Uhlaner and Thurik (2007) find for a cross-section of countries that post materialism influences the degree of entrepreneurship. Fairbrother (2013) presents findings showing that post materialistic values are positively associated with the willingness to pay for environmental protection. Jordaan et al. (2016) conduct an extensive study for a heterogeneous set of countries and find that post materialism may foster economic growth as it exercises positive effects on financial development.

Irrespective of the type of social value that is examined, the effects of institutions need to be controlled for. Based on a variety of empirical approaches and testing the effect of an array of types of institutions and institutional settings, there is a wealth of evidence confirming that institutions play a key role in explaining economic growth and international income differences (Rodrik et al., 2004; Knack and Keefer, 1997b; Berggren et al., 2012; Acemoglu et al., 2014; Jalilian et al., 2007; Eicher and Leukert, 2009). However, it is important to note that most research on the economic effects of social values and institutions usually examines these two key concepts in isolation (Jordaan et al., 2016). The reason for this is that social values and culture are often interpreted as a form of informal institutions, overlapping to some degree with formal institutions (Alesina and Giuliano, 2015). Such interpretations have fostered a separation of research into the economic effects of social values and institutions.

The findings from the limited set of studies that do examine economic effects of social values and institutions simultaneously are indicative of the importance of doing so. For instance, Tabellini (2010) presents clear evidence that cultural traits are an important explanation for the existence of regional income differences in the EU. However, when replicating the analysis for Italian regions whilst controlling for both cultural traits and the quality of regional government institutions, the effect of culture turns insignificant (see Tabellini, 2010). Balamoune-Lutz (2011) conducts a panel data analysis on drivers of economic performance for a set of developing countries and finds that both social capital and institutional quality are important. Williamson and Mathers (2011) also find that both culture and economic institutions related to economic freedom are important for economic growth. Importantly, in their study the effect of culture becomes weaker when controlling for the growth effect of institutions. Ahlerup et al. (2009) find that the economic effect of social capital weakens when the institutional strength of countries increases. These findings are in agreement with Alesina and Giuliano (2015), who argue that, by focusing on economic, legal and democratic institutions, it is possible and necessary to try and control for the economic effects of both social values and institutions.

Another interpretation of the overlap between the economic effects of social values and institutions is that social values and culture can act as important conditioning factors for the existence and functioning of institutions. This interpretation is in line with Williamson (2000), who posits that customs, norms, traditions and other social values constitute the highest form of social analysis. The next level consists of the institutional environment, which is conditioned or influenced by culture and social values. Using this ordering, many studies examine the effects of culture and social values on institutions, and, to a lesser degree, on how culture and institutions may evolve jointly (Alesina and Giuliano, 2015; Bidner and Francois, 2010). A well-known example of a study that examines the effect of culture on institutions is Licht et al. (2007), who find that countries that value autonomy and egalitarianism are characterised by more democratic accountability and less

corruption. Knack (2002) finds for US states that several indicators of regional social capital are positively associated with governmental performance. Klasing (2013) conducts an extensive econometric study and provides a range of evidence on which social values are influencing institutional quality.

Combining the body of evidence that social values and institutions generate economic effects with findings that show that social values and culture influence or condition the functioning and quality of institutions suggests that institutions may act as transmission channel of (part of) the economic effect of social values. Although intuitively appealing, only a limited number of studies have attempted to assess to what extent such transmission effects are important (Bjørnskov, 2012; Voigt and Park, 2008). Jordaan et al. (2016) use 3SLS estimation techniques in their analysis of the effects of post materialism and institutions on financial development and find that a substantial part of the positive effect of post materialism runs via institutions. Boulia et al. (2008) estimate a simultaneous equation model on drivers of economic growth for a cross-section of countries and find that social capital enhances growth via its positive effect on institutional quality. Bjørnskov (2012) conducts a similar analysis and finds that trust has a positive effect on growth via its effects on quality of governance measured by the rule of law. Bjørnskov and Méon (2015) provide the most extensive study on institutions as transmission channel of social values. Using 3SLS techniques, they find that trust exercises a positive effect on country level productivity, an effect that runs via economic and judicial institutions.

Research questions

The selective literature review identifies a number of studies that provide evidence of significant effects of a variety of social values on economic behaviour and outcomes. Considering the nature of post materialistic values and priorities and the apparent growing prominence of these values, it is likely that post materialism also influences economic growth and performance. Therefore, our first research question is whether post materialism exercises such an effect. In line with Inglehart (1988) and Abramson and Inglehart (1995), our expectation is that post materialism dampens economic performance, as it places less emphasis on materialistic priorities related to production and income maximisation. Second, we recognise the need to also control for the effect of institutions when trying to identify the effect of post materialism. As the literature review highlights, not only is it likely that institutions influence economic performance, their effect may also influence the relationship between post materialism and economic development. Therefore, our second research question is whether post materialism and institutions both exercise economic effects. In extension of this, we also need to account for the possible inter-relationships between post materialism, institutions and economic development. Following Williamson's (2000) notion that social values and culture affect institutions, we expect that a growing importance of post materialistic values and beliefs will impact upon institutions. If so, this may generate economic effects through the relations between institutions and economic performance. Consequently, our third research question is whether institutions act as transmission channel of (part of) the effect of post materialism on economic development.

3. Data, model and estimation strategy

To answer our research questions, we estimate a variety of specifications of the following base line cross-sectional regression model:

$$(1) \frac{GDP}{Cap}_i = \beta_0 + \beta_1 PostMaterialism_i + \beta_2 Institutions_i + \beta_3 X_i + \varepsilon_i$$

This model posits economic performance of country i measured by GDP per capita as a function of post materialism, several indicators of institutional characteristics, a vector X containing additional control variables and the idiosyncratic error term.

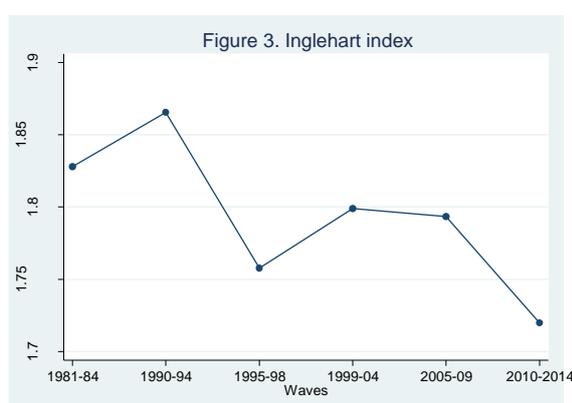
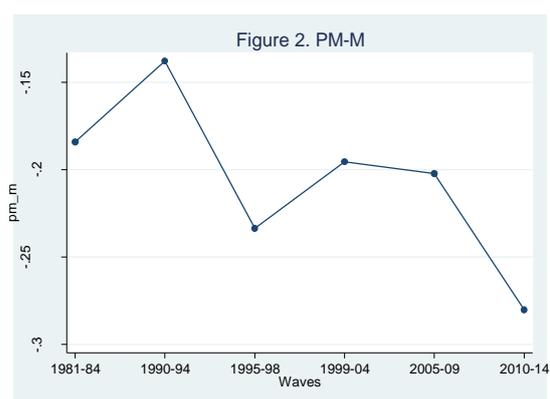
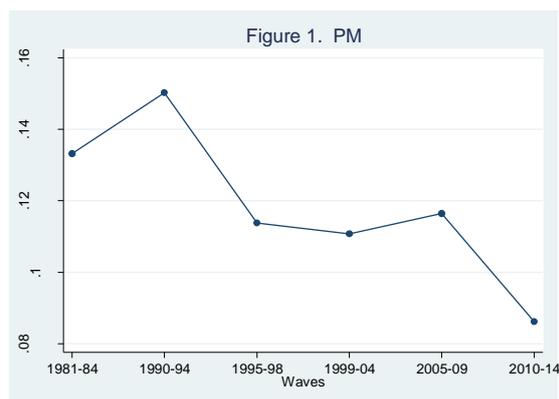
We follow Hall and Jones (1999) in using GDP per capita as dependent variable rather than average growth of GDP per capita over some time-period for two reasons. First, as Hall and Jones (1999) note, the variation of GDP/Capita over a cross-section of countries capture differences in long run economic performance that are most directly linked to welfare measured by the consumption of goods and services. Second, indicators of average growth of GDP per capita for relative long time-periods are affected by the issue that growth rates over shorter time periods within such time frames may be only weakly correlated (e.g. Easterly et al., 1993; Sen et al, 2009; Pritchett, 2016; Berg et al., 2012). Focusing on changes of GDP per capita over shorter time periods in a panel data framework is also problematic, as social values and institutional characteristics change only slowly over time (Efendic et al., 2011).

Our selection of countries is driven primarily by data availability to construct indicators of post materialism. The information to construct these variables is available from the World Value Survey and the European Value study. These international and nationally representative surveys have been conducted in several waves over the last decades, addressing a range of political, economic, cultural and social issues. Among the extensive list of topics and questions, the surveys contain a set of two questions on national priorities (see Inglehart, 1977). Respondents that select as main national priorities “maintaining order” an “fighting rising prices” are classified as having materialistic values. Respondents selecting both “giving people more say in important government decisions” and “protection of freedom of speech” are classified as having post materialistic values. Respondents selecting both a materialistic and post materialistic priority are classified as having mixed values.

Using this information, we calculate several indicators of the level of post materialism. One straightforward indicator, labelled “PM”, is the share of post materialistic respondents in the total number of respondents of a country. The drawback of this indicator is that it looks at post materialistic respondents in isolation, not considering the values of the other respondents. A partial solution to this is to subtract the share of respondents with materialistic values from the share of respondents with post materialistic values, labelled as “PM-M”, representing the two groups in a country with contrasting views. A third indicator is the well-known and often used “Inglehart index” (Inglehart, 1977). To calculate this index, a respondent classified as having materialistic values is assigned the value of 1; respondents with mixed values receive a score of 2 and post materialistic respondents are assigned the value 3. To obtain the country level Inglehart index, the scores are aggregated and averaged across the respondents.

Figures 1, 2 and 3 show the developments of the three indicators of the level of post materialism averaged for the countries participating in the various waves¹. Figure 1 shows the share of post materialistic respondents in the total number of respondents; figure 2 shows the developments of the share of respondents with post materialistic values minus the share of respondents with materialistic values; figure 3 shows the developments of the Inglehart index.

¹ There have been six waves of the world value survey and four waves of the European value study. Using information from the European value study (<http://www.europeanvaluesstudy.eu/page/surveys.html>), we have linked the waves of the European study to the waves of the world value survey.



All three figures indicate an increase in the prominence of post materialism from the first to the second wave. Also similar is the marked drop in post materialism from the second to the third wave. To understand this change, it is important to consider that the number of countries covered by the surveys increased substantially with the third wave. As the average level of post materialism was lower in the newly included countries, the overall level of post materialism for the entire group of countries decreased. The implication for our analysis is that we use the level of post materialism from the third wave for our estimation of model (1)². This prevents our findings from being affected by the apparent selection effect that appears to have influenced the findings from the earlier waves.

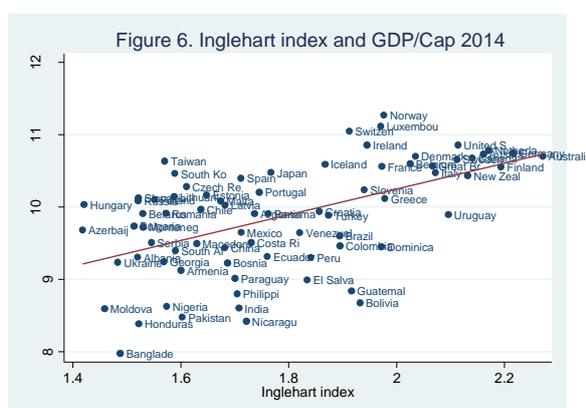
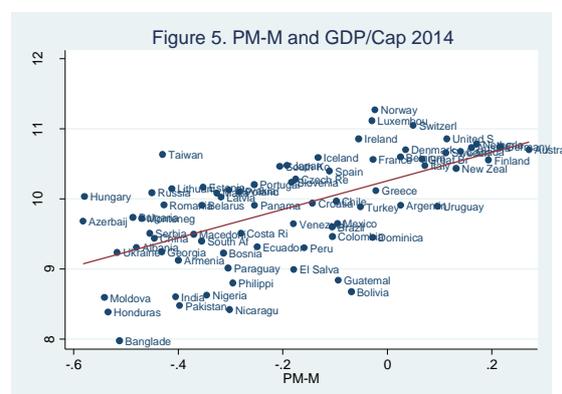
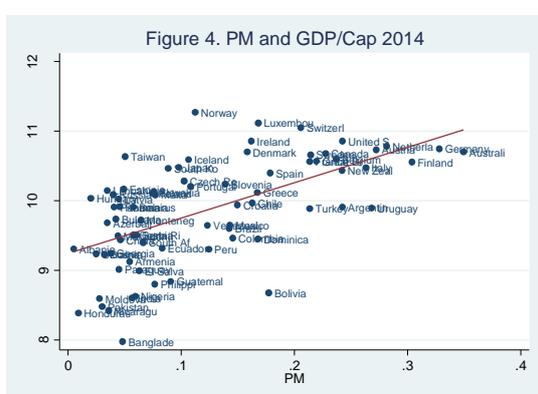
Looking at the development of the indicators from the mid-1990s onwards, there has been a modest increase of post materialism up until the fifth wave. Between the fifth and sixth wave, there is a clear drop in the level of post materialism. This may be explained by the international financial crisis of 2007-2008³. This crisis confronted many respondents with economic insecurity and hardship, fostering an increased prominence of income related materialistic values. The implication of this for our analysis is that we estimate model (1) with two alternative dependent variables. One variable is GDP/Cap measured in 2014, linking the effect of post materialism in the 1990s and the other control variables to international differences in economic performance for the entire period. As alternative dependent variable, we use GDP/Cap in 2006, to identify the effect of post materialism on the level of economic performance unaffected by the financial crisis and its aftermath. Differences in the degree to which countries experienced and dealt with the financial

² See the appendix for a table with the country averages of the three indicators of post materialism from the third wave.

³ Another explanation may be that the last survey covered several additional countries compared to earlier waves.

crisis may have impacted upon their economic performance, and therefore may indirectly have created changes in the level of post materialism. By comparing the findings from estimating model (1) with the two alternative dependent variables we can assess whether this is the case.

To get an impression of the relation between post materialism and economic performance, figures 4, 5 and 6 present scatterplots between GDP/Cap in 2014 and the three indicators of post materialism. For all three indicators, we can identify a clear positive relationship, suggesting that post materialism has fostered economic performance for the time-period under analysis. To get some indication of the strength of the relationship, a bivariate regression of GDP/Capita on the share of respondents with post materialist values (figure 4) gives a positive coefficient of 5.10 (significant at 1%) with an adjusted R square of 0.34. For figures 5 and 6, the coefficients are 2.04 and 1.78 (both significant at 1%) with adjusted R squares of 0.36 and 0.29.



The second set of variables in model (1) contains a variety of institutional characteristics. The source of the institutional variables is the well-known Worldwide Governance Indicators Project (WGIP)⁴. This project provides freely available aggregate indicators of institutional characteristics covering political, economic, judicial and democratic dimensions. The aggregate indicators are derived from a large array of underlying data, obtained from public sector organisations, non-governmental organisations, commercial business information providers and household and firm level surveys. This data is used to calculate weighted averages to obtain composite governance indicators in units of a standard normal distribution, with mean zero and standard deviation of 1.

⁴ <http://info.worldbank.org/governance/wgi/#home>.

The indicators range roughly between -2.5 and 2.5, with a high score indicating a better functioning institution.⁵

The variable “voice and accountability” captures aspects related to personal freedom, participation in elections and freedom of association. “Political stability and absence of violence” measures the likelihood of political instability and politically motivated violence. “Government effectiveness” refers to the quality of public services and the civil service and the degree of independence from political pressures. “Regulatory quality” captures the degree that governments are able to formulate and implement sound policies and regulations that promote private sector development. “Rule of law” captures perceptions of the degree that citizens have confidence in and abide by the rules of society. “Control of corruption” indicates the degree to which public power is exercised for private gain.⁶

The vector X contains a set of additional control variables that may affect economic development. In an attempt to specify a parsimonious model, and loosely based on Hall and Jones (1999), we include the following variables. The variable “fractionalisation” captures the degree of ethnolinguistic variation in the countries and is expected to exercise a negative effect (Alesina and la Ferrara, 2005; Alesina et al., 2003). Next, we include a variable labelled “monarchy” to control for the feature that countries that have a monarchy tend to be characterised by better economic performance (e.g. Wright, 2008). We also control for the shares of Muslims and Catholics in the population of the countries to capture the feature that countries with a high share of Protestants are characterised by higher economic performance (Guiso et al., 2006). Finally, we include the degree of trade openness, measured as the share of exports in GDP, capturing the positive effect of trade on GDP per capita (Frankel and Romer, 1999; Sachs and Warner, 1995).

Estimation strategy: Endogeneity of post materialism and institutions

The estimation of model (1) is based on the premise that post materialism and institutions influence economic development. However, it is well-known that these relationships may just as easily run the other way around, where the level of GDP per capita may influence social values and the existence and functioning of institutions. A good example for the present analysis is the marked drop in the level of post materialism following the financial crisis as shown in figures 1-3. Therefore, it is very likely that the estimated coefficients in model (1) are affected by endogeneity of the post materialism and institutional variables.

To deal with this, we resort to the use of instrumental variable techniques. We follow Jordaan et al. (2016) in the selection of an instrument for post materialism. They conduct an econometric study on the effect of post materialism on financial development measured by the size of stock markets, a relationship that is affected by a negative effect of the dependent variable on post materialism. As instrument for post materialism they use a variable that captures a core characteristic of the official language of the countries in their sample (see Jordaan et al., 2016). Linguistic country characteristics feature strongly in contemporary research that tries to identify causal effects of social values (Davis and Abdurazokzoda, 2016; Licht et al., 2007; Tabellini, 2008, 2010). The use of language characteristics is based on the language relativity hypothesis that holds that a language influences a person’s perceptions. Kashima and Kashima (1998, 2005) use this to

⁵ For a detailed explanation, see Kaufman et al. (2010)

⁶ As there is little guidance on which type of institution is more likely to be related to post materialism, we prefer to examine this range of institutional characteristics. The drawback of this exploratory strategy is that, given the well-known high degree of correlation between the institutional variables of the WGIP, we can only examine one institutional characteristic per estimated model.

propose the argument that therefore grammatical rules of a country's language influence cultural beliefs and values. A key link between grammatical rules and social values is that they relate to the degrees of individualism and collectivism in a country. A language where a personal pronoun can be dropped when used as a subject in a sentence (e.g. Spanish) is more likely to be linked to a society where there is a stronger emphasis on the collective and less on the individual (Davis and Abdurazokzoda, 2016). In contrast, societies with languages where the pronoun cannot be dropped (e.g. Dutch) are likely to place a stronger emphasis on the individual.

The link between this linguistic characteristic and the degree of individualism versus collectivism suggests that it can serve as an instrument for the degree of the country level of post materialism (Jordaan et al., 2016). All else equal, a society with a stronger emphasis on the collective is likely to have more post materialistic values, including protection of the environment, social participation and tolerance of minorities. In contrast, a society that places greater value on individualism is more likely to contain more materialistic values. To capture this, we use the pronoun drop variable from Davis and Abdurazokzoda (2016). They provide for a large set of countries a dummy variable taking the value of 1 when a country's language does not allow for the pronoun to be dropped when used as a subject, capturing countries with a stronger emphasis on individualism.

Table 1 reports the results from bivariate regressions of our indicators of post materialism on the pronoun drop dummy variable. The estimated effect of the variable capturing the core linguistic characteristic on the degree of post materialism is in line with our expectations. The negative effect of the pronoun drop rule indicates that countries with a language where the pronoun cannot be dropped are characterised by a lower degree of post materialism, suggesting that individualism lowers post materialistic values.

Table 1 Relation between post materialism and pronoun drop rule

Dep variable	PM	PM-M	Inglehart index
Pronoun drop rule	-0.09 (0.02)a	-0.25 (0.05)a	-0.26 (0.05)a
F	24.09	26.67	28.65
Adj. R-square	0.24	0.26	0.27
n	75	75	75

Note: a indicates significance level of 1%. Estimations include constant. Robust standard errors in parentheses.

Next, the estimated effect of the institutional variables is also surrounded by issues of endogeneity, requiring the use of instrumental variables (Guiso et al., 2006). In our instrumentation of the institutional variables we follow the approach that uses social values as instrument for institutions, based on theoretical considerations (Williamson, 2000) and empirical evidence that social values can exercise important effects on institutions (e.g. Alesina and Giuliano, 2015; Knack, 2002; Bjørnskov, 2010). In line with this, we use the degree of post materialism as instrument for institutions (Jordaan et al., 2016). Citizens with post materialistic beliefs and values are likely to put pressure on institutions to change and improve to promote their values. If so, we can use this relation between post materialism and institutions to control for the endogenous component of the relation between economic development and institutions. Table 2 shows the findings from bivariate regressions of the six institutional variables on the country level of post materialism as captured by the Inglehart index. For all six institutional variables, the estimation identifies a positive and

Table 2 Relation between institutions and post materialism

Dep variable	Voice and accountability	Political stability	Government effectiveness	Regulatory quality	Rule of law	Control of corruption
Inglehart index	2.38 (0.36)a	2.08 (0.41)a	2.99 (0.40)a	2.40 (0.34)a	2.91 (0.42)a	3.59 (0.44)a
F	42.32	25.58	57.03	50.34	48.64	65.63
Adj. R-square	0.36	0.25	0.43	0.40	0.39	0.47

Note: a indicates significance level of 1%. Estimations include constant. Robust standard errors in parentheses.

significant effect of post materialism, suggesting that post materialistic values and beliefs act as a driver of institutional change.

Combining the instrumentation of the post materialism variable and the institutional variables results in the following system of equations that we can estimate with 3SLS techniques:

$$(2a) \frac{GDP}{Cap}_i = \beta_0 + \beta_1 PostMaterialism_i + \beta_2 Institutions_i + \beta_3 X_i + \varepsilon_i$$

$$(2b) Institutions_i = \delta_0 + \delta_1 PostMaterialism_i + \gamma_i$$

$$(2c) PostMaterialism_i = \vartheta_0 + \vartheta_1 PronoundDrop_i + \mu_i$$

The appealing feature of this system of equations is two-fold. First, by instrumenting both the post materialism and the institutional variables we ensure that we identify causal effects of these variables on economic development, cleared from endogeneity concerns. Second, by instrumenting the institutional variables with the instrumented post materialism variable, the findings will indicate whether and to what degree the effect of post materialism on economic development is transmitted via the institutional characteristics of the countries in the sample.

4. Empirical findings

4.1. Post materialism and economic performance

We start our analysis by examining the general effect of post materialism on economic development. Table 3 contains a set of findings obtained from estimating several specifications of regression model (1), omitting the institutional variables. The first three columns contain results from OLS regressions. All three indicators of post materialism carry positive and significant coefficients, suggesting that post materialism enhances economic performance⁷. However, as discussed above, this positive effect is likely to include a positive effect of the level of economic development on the degree of post materialism.

The estimated effects of the other control variables are also in line with expectations, suggesting that the model performs satisfactory. The estimated negative effect of ethnic

⁷ We also estimated the models adding squared terms of the post materialism variables, as research on the economic effects of other social values indicates that relations between social values and economic performance may be characterised by non-linearity (e.g. Horvath, 2013; Peiró-Palomino, 2016). None of the squared terms carry significant coefficients however, suggesting that this issue does not affect our estimations.

Table 3 Post materialism and economic performance

Dep variable	GDP/Cap 2014							
Estimation method	OLS	OLS	OLS	IV	IV	IV	IV	IV
PM	3.33 (0.72)a			5.42 (1.82)a				
PM-M		1.36 (0.30)a			2.17 (0.72)a			
Inglehart index			0.96 (0.31)a			2.18 (0.82)a	2.26 (0.80)a	2.19 (0.77a)
Ethnic	-0.53 (0.25)b	-0.58 (0.25)b	-0.63 (0.26)b	-0.38 (0.27)	-0.50 (0.26)b	-0.49 (0.29)c	-0.25 (0.31)	-0.36 (0.28)
Monarchy	0.10 (0.18)	0.05 (0.19)	0.16 (0.20)	-0.10 (0.25)	-0.17 (0.27)	-0.17 (0.30)	-0.15 (0.28)	-0.10 (0.27)
Sharecath	-0.43 (0.15)a	-0.46 (0.15)a	-0.39 (0.16)b	-0.51 (0.17)a	-0.57 (0.17)a	-0.49 (0.18)a	-0.12 (0.20)	-0.35 (0.17)b
Sharemuslim	-0.77 (0.25)a	-0.69 (0.26)b	-0.71 (0.16)a	-0.72 (0.26)a	-0.58 (0.27)b	-0.55 (0.31)c	-0.66 (0.29)b	-0.52 (0.25)b
Tradeopenness	1.54 (0.31)a	1.51 (0.31)a	1.56 (0.33)a	1.44 (0.32)a	1.41 (0.32)a	1.40 (0.36)a	0.94 (0.42)b	0.85 (0.14)a
Latin America							-0.56 (0.23)a	
Europe								0.42 (0.14)a
Constant	9.45 (0.16)a	10.16 (0.17)a	8.15 (0.33)	9.23 (0.24)a	10.38 (0.26)a	6.04 (0.36)a	5.94 (1.37)a	5.85 (1.34)a
F first stage				12.66	13.78	12.92	13.26	12.91
Adj. R-square first stage				0.16	0.17	0.16	0.17	0.16
Anderson LM statistic				11.762 (0.00)	12.624 (0.00)	11.964 (0.00)	12.38 (0.00)	12.110 (0.00)
F second stage	22.73	22.45	18.11	17.89	17.95	14.28	13.29	14.34
Adj. R-square second stage	0.67	0.66	0.58	0.62	0.63	0.53	0.57	0.58
N	75	75	75	75	75	75	75	75

Note: a and b indicate significance levels of 1 and 5%. Robust standard errors in parentheses.

fractionalisation is in line with expectations, as are the negative effects of the shares of Catholics and Muslims, reflecting the productivity advantage of Protestantism. The estimated positive effect of trade openness is also in line with findings in the literature. The estimated coefficient of the variable Monarchy carries the correct sign but is insignificant.

The second set of columns contains the results when we instrument the post materialism indicators with the pronoun drop rule dummy variable. Judging from the first stage statistics, the instrumentation of the post materialism indicators functions satisfactory. Looking at the estimated effect of post materialism with the IV estimations, the findings show estimated coefficients that are larger than those obtained with the OLS estimations. This is contrary to expectations. As argued by Inglehart (1988) and Abramson and Inglehart (1995), post materialistic beliefs and values are likely to have a dampening effect on economic performance compared to materialistic values that emphasise income maximisation. The present findings indicate that when we control for the effect of economic development on post materialism, the causal effect of post materialism on GDP per

capita appears to be positive. Further on in our analysis we will assess whether the inclusion of institutions into the model changes this finding.

The final two columns contain the results from adding multi-country regional dummies to the regression model. We use a parsimonious model specification, which, especially in cross-sectional settings, creates the possibility that important control variables are omitted from the model. In the sample, there are relatively large groups of European countries and countries from the American continent. To assess whether this affects the estimations, we estimate the model with dummy variables for these two groups of countries. As the findings show, the inclusion of these dummy variables does not influence the estimated effect of our key variable of interest. Looking at the other control variables, the estimated effect of ethnic fractionalisation appears to be sensitive to the inclusion of the regional dummy variables.

As discussed earlier, the development of the level of post materialism in the last decades appears to have been affected by the financial crisis. To assess whether and how this may have impacted on the economic effect of post materialism, we re-estimate the regression model using GDP/Cap for 2006 as dependent variable. The results are shown in the first set of columns of table 4. Compared to the results in table 3, the estimated coefficients of the post materialism variables are somewhat larger when we focus on the pre-financial crisis period. However, Chow tests indicate that the differences between the coefficients of tables 3 and 4 are not significant, suggesting that the estimated relation between post materialism and economic development is robust to the choice of period of analysis.

Next, we estimate the model on a restricted sample. Setting aside the decrease in post materialism following the financial crisis, the overall impression is that there has been a slow but steady increase in post materialism in the world economy. However, several countries in our sample consist of former communist countries. For these countries, the relationship between post materialism and economic performance may be structurally different from the other countries, given the likelihood that concepts of materialism and post materialism were given different meanings in countries under communist regimes. Also, the strong and structural changes that these countries have experienced since the fall of communism in the late 1980s is likely to have affected processes fostering materialistic and/or post materialistic values, which we measure for the mid-1990s.

To assess whether the presence of former communist countries in the sample is affecting our results, we estimate regression model (1) (both with GDP/Cap 2014 and GDP/Cap 2006) on a restricted sample that omits former communist countries. As table 4 reports, the findings for GDP/Cap 2014 show coefficients of the post materialism variables that are smaller than for the full sample. However, again the differences are not significant, suggesting that any structural differences between former communist countries and the other countries in the sample are not affecting the estimated relation between post materialism and economic development. A similar conclusion can be drawn from comparing the findings with GDP/Cap for 2006 as dependent variable.

4.2. Post materialism & institutions: effects and interrelationships

The findings in the previous section provide clear evidence that post materialism influences economic performance, be it that the nature of the effect is contrary to expectations. The next step in our analysis is to include the effect of institutions and to examine the relationships between post materialism and institutions. As discussed in section 3, this involves estimating the system of equations 2(a)-2(c). We estimate the system of equations separately for each of the six institutional

Table 4 Economic effect of post materialism: additional findings

Dep variable	GDP/Cap 2006	GDP/Cap 2006	GDP/Cap 2006	GDP/Cap 2014	GDP/Cap 2014	GDP/Cap 2014	GDP/Cap 2006	GDP/Cap 2006	GDP/Cap 2006
Sample	Full	Full	Full	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted
Estimation method	IV								
PM	6.46 (2.08)a			4.80 (1.49)a			5.92 (1.75)a		
PM-M		2.58 (0.82)a			1.92 (0.59)a			2.37 (0.69)a	
Inglehart index			2.59 (0.93)a			1.93 (0.66)a			2.38 (0.77)a
Ethnic	-0.42 (0.31)	-0.55 (0.29)c	-0.54 (0.33)c	-0.45 (0.28)	-0.57 (0.28)b	-0.56 (0.31)c	-0.51 (0.34)	-0.64 (0.33)b	-0.65 (0.37)c
Monarchy	-0.07 (0.28)	-0.14 (0.30)	-0.14 (0.34)	0.04 (0.22)	-0.01 (0.22)	0.009 (0.25)	0.07 (0.25)	-0.002 (0.26)	0.03 (0.29)
Sharecath	-0.57 (0.19)a	-0.63 (0.20)a	-0.54 (0.21)b	-0.48 (0.18)a	-0.49 (0.18)a	-0.38 (0.20)c	-0.56 (0.21)a	-0.58 (0.21)a	-0.45 (0.24)b
Sharemuslim	-0.95 (0.30)a	-0.78 (0.30)b	-0.74 (0.35)b	-0.96 (0.31)a	-0.81 (0.32)a	-0.72 (0.37)b	-1.14 (0.37)a	-0.96 (0.37)b	-0.85 (0.43)b
Tradeopenness	1.52 (0.37)a	1.49 (0.36)a	1.48 (0.41)a	1.29 (0.35)a	1.33 (0.35)a	1.30 (0.39)a	1.34 (0.42)a	1.39 (0.41)a	1.35 (0.46)a
Constant	1.52 (0.37)a	10.22 (0.29)a	5.05 (1.59)a	9.31 (0.25)a	10.33 (0.21)a	6.40 (1.21)a	8.95 (0.42)a	10.15 (0.41)a	5.36 (0.46)a
F first stage	12.66	13.78	12.92	18.26	22.87	23.05	18.26	22.87	23.05
Adj. R-square first stage	0.16	0.17	0.16	0.27	0.32	0.32	0.27	0.32	0.32
F	18.64	19.10	15.12	16.20	16.58	13.19	15.62	16.25	12.86
Adj. R-square second stage	0.63	0.64	0.55	0.68	0.69	0.61	0.66	0.68	0.59
N	75	75	75	56	56	56	56	56	56

Note: a and b indicate significance levels of 1 and 5%. Robust standard errors in parentheses.

variables. In the estimations, we use GDP/Cap 2014 as dependent variable and the Inglehart index as indicator of post materialism.

The findings are presented in table 5. We report the coefficients of the key variables of interest and the goodness of fit statistic for the third stage. The findings for the first and second stage are presented in the appendix. As the results in the appendix indicate, the pronoun drop rule variable is significantly and negatively associated with the post materialism index, whereas the post materialism index exercises a significant positive effect on the individual institutional variables.

The top left of table 5 presents the findings for the system of equations where we control for voice and accountability as institutional variable. The results reveal two important features. First, in strong contrast to the findings of section 4.1, the effect of post materialism has turned negative, suggesting that the direct effect of this type of social value dampens economic performance. This is in line with the expected effect of post materialism (Inglehart, 1988; Abramson and Inglehart, 1995). Therefore, the negative effect of post materialism is only identified when we also control for the effect of institutions in the model. Second, the effect of the variable voice and accountability is positive, confirming the positive effect of this type of institution on economic development. Given that the variable voice and accountability is instrumented by the post materialism variable, this finding also indicates that this institution acts as a transmission channel of a positive effect of post

Table 5 Post materialism, institutions and economic performance: 3SLS estimations

Dep var: GDP/Cap 2014	3 rd stage		Dep var: GDP/Cap 2014	3 rd stage
Inglehart index	-1.84 (0.73)b		Inglehart index	-0.78 (0.61)
Voice and accountability	1.27 (0.16)a		Rule of law	0.89 (0.11a)
Goodness of fit	128.58		Goodness of fit	160.12
Inglehart index	-1.93 (0.73)a		Inglehart index	-3.10 (0.73)a
Regulatory quality	1.37 (0.16)a		Government effectiveness	1.18 (0.13)a
Goodness of fit	146.24		Goodness of fit	158.55
Inglehart index	0.89 (0.48)b		Inglehart index	-2.38 (0.78)a
Political stability	0.69 (0.10)a		Corruption	0.96 (0.12)a
Goodness of fit	158.38		Goodness of fit	134.0

Note: a and b indicate significance levels of 1 and 5 %. The table presents the estimated coefficients of the Inglehart index and institutions in the 3rd stage. Findings for the 1st and 2nd stage are presented in the appendix. The PM index is instrumented with the pronoun drop rule variable; the institutional variables are instrumented with the post materialism index variable.

materialism on economic performance. Therefore, when accounting for the inter-relationship between post materialism and institutions, we obtain the results in line with expectations according to the literature review: there is a direct negative effect of post materialism and an indirect effect that runs via institutions.

Looking at the results from the estimations with the other institutional variables, the majority of findings are in line with the key finding that post materialism generates a negative direct and a positive indirect effect on economic development via institutions⁸. In all cases, the estimated effect of institutions is positive, which is fully in line with the literature on the effects of institutions on economic development. An exception regarding the direct effect of post materialism is the system of equations that controls for political stability, where both post materialism and government effectiveness foster economic development. Given the findings for the other institutional variables, the findings with political stability may be interpreted as indicating that part of the positive indirect effect of post materialism runs via channels other than government effectiveness. As the estimation does not account for possible other channels, this would explain the estimated positive effect of the post materialism variable. Furthermore, when using the institutional variable rule of law, the direct effect of post materialism is insignificant, suggesting that the effect of post materialism is entirely absorbed by this institution.

To complete the analysis, we use the approach of residual generated regressors (see Pagan, 1984; Gomanee et al., 2005; Jordaan et al., 2016) to obtain an indication of the sizes of the direct and indirect effects of post materialism on economic development. To do so, we adjust the system of equations in the following way. We regress the institutional variables on the Inglehart index:

⁸ We also estimated the systems of equations with the alternative dependent variable and for the restricted sample. Overall, there are only minor differences between the findings from these additional estimations and the findings reported in table 5. Findings from these additional estimations are available upon request.

$$(3a) \text{Institutions}_i = \delta_0 + \delta_1 \text{PostMaterialism}_i + \gamma_i$$

where the residuals contain the part of institutions that is unexplained by post materialism. The full equation that we estimated for table 5 is:

$$(3b) \frac{GDP}{Cap}_i = \beta_0 + \beta_1 \text{PostMaterialism}_i + \beta_2 \text{Institutions}_i + \beta_3 X_i + \varepsilon_i$$

Substituting (3a) into (3b) gives:

$$(3c) \frac{GDP}{cap}_i = (\beta_0 + \beta_3 \delta_0) + (\beta_1 + \beta_3 \delta_1) \text{PostMaterialism}_i + \beta_2 \gamma_i + \beta_3 X_i + \varepsilon_i$$

where post materialism is instrumented with the pronoun drop rule. The estimation of (3b) and (3c) gives similar effects for the control variables except for the estimated effect of the post materialism index. In equation (3c), $(\beta_1 + \beta_3 \delta_1)$ identifies the total effect of post materialism, consisting of a direct effect β_1 and an indirect effect $\beta_3 \delta_1$.

Table 6 reports the findings on the estimated total effect of the Inglehart index from estimating (3a)-(3c) with GDP/Cap 2014 or GDP/Cap 2006 as dependent variable. Looking first at the results for the full period, the full positive effect of post materialism is larger than the direct negative effect. This indicates that, when accounting for both the negative direct and positive indirect effects, post materialism exercises an overall positive effect on economic performance. Looking at the total effect that arises from post materialism and its relationship with the various institutions, the total effect of post materialism is the largest when accounting for the effect that runs via the institution of voice and accountability, followed by the effect that controls for the interrelation between post materialism and regulatory quality. Rule of law, political stability and control of corruption are linked to similarly sized effects of post materialism. The total effect of post materialism is the smallest when allowing for the effect that runs via government effectiveness⁹. Looking at the findings for the time-period up to 2006, the differences in the total effect of post materialism when accounting for its relationship with the various institutional characteristics is similar, be it the differences appear to be somewhat smaller. In any case, the findings are clear in revealing that the total effect of post materialism on economic development is of a positive nature, consisting, in most cases, of a direct negative effect and a larger indirect positive effect.

5. Summary and conclusions

Recent economics research finds that culture, social values and institutions are impacting upon economic behaviour and outcomes. As such, they play important roles in research that is focused on identifying and analysing fundamental causes of economic growth and international differences in economic performance. Important challenges of research on the effects of social values and institutions is that the nature and direction of key relationships is often not clear and that there appears to be a rigid distinction between research on the effects of social values and institutions.

In this paper, we conduct a cross-sectional econometric investigation that attempts to address these challenges. We introduce the concept of post materialism as a form of social values that has not been considered in the literature. Also, we account for the economic effects of both

⁹ The differences of the total effect of post materialism between the various types of institutions are small. This is caused by fact the high degree of correlation between the various institutional indicators of the WGIP.

Table 6 Direct and total effect post materialism on economic development

Dep var. 3 rd stage	GDP/Cap 2016		GDP/Cap 2006	
	Direct effect Inglehart index (β_1)	Total effect Inglehart index ($\beta_1 + \beta_3\delta_1$)	Direct effect Inglehart index (β_1)	Total effect Inglehart index ($\beta_1 + \beta_3\delta_1$)
Voice and accountability	-1.84	2.98	-1.45	3.33
Political stability	0.89	2.67	1.43	3.18
Government effectiveness	-3.10	2.17	-2.73	2.56
Regulatory quality	-1.93	2.75	-1.75	3.29
Rule of law	0	2.69	0	3.17
corruption	-2.38	2.64	-1.98	3.10

Note: The direct effect of the Inglehart index is estimated with the system of equations 2(a)-2(c).

this type of social values and institutions. Furthermore, using a 3SLS framework, we capture the interrelationships that may exist between post materialism, institutions and economic performance, to assess whether institutions act as transmission channel in the relation between post materialism and economic development.

Of course, our empirical specification and identification strategy create certain limitations. For instance, we focus on the effects of post materialism and institutions on long run international income differences. Therefore, we do not consider the impacts that these factors may have on processes of economic growth, nor do we assess whether changes in social values and institutions may play a role. Also, our choice of examining a range of institutional characteristics rather than attempting to focus in depth on a more limited set of such characteristics means that it is somewhat difficult to assess which institutional features may be most important when examining the effect of and the interrelationships with post materialism. Regarding the latter factor, more work is also required to obtain a better understanding of the concept of post materialism and to develop ways to improve its measurement. We accept these caveats and interpret them as avenues for future research.

Focusing on the results of the present paper, our main findings can be summarised as follows. First, we obtain clear evidence that post materialism is significantly associated with international income differences. This association with economic development is robust to the use of instrumental variable techniques. As such, this finding indicates that the concept of post materialism can be added to the collection of social values that the literature considers as potential fundamental drivers of growth and development.

Second, our findings underline the importance of controlling for both the effects of social values and institutions. When we omit institutions from our estimations, we identify a significant effect of post materialism but the effect is positive, which is not in line with expectations. Only when we also control for the effect of institutions do we identify the expected negative effect of post materialism on GDP per capita. The estimated effect of all the institutional characteristics that we examine is positive, in line with the literature.

Finally, our findings indicate that institutions act as transmission channel of part of the economic effect of post materialism. More precisely, our results show that whereas the direct effect of post materialism is negative, its indirect effect that runs via institutions is positive. A comparison of the direct and total effects for the set of models with individual institutional indicators shows that the positive indirect effect is larger than the direct negative effect. This means that post materialism,

through its impact on institutions, exercises a positive effect on economic development. This finding serves to indicate the importance of accounting for interrelationships between social values and institutions when trying to identify their effects on economic behaviour and outcomes.

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Appendix 1. Post materialism indicators; Wave 3

Country	PM	PM-M	Inglehart index	Country	pm share	pm share – m share	Inglehart index
Albania	0.005061	-0.47976	1.52024	Lithuania	0.034884	-0.41226	1.58774
Argentina	0.242524	0.025819	1.73674	Luxembourg	0.168083	-0.02927	1.97073
Armenia	0.054536	-0.39959	1.60041	Macedonia	0.044133	-0.37029	1.62971
Australia	0.349553	0.271102	2.2711	Malta	0.077189	-0.32596	1.67404
Austria	0.272483	0.160891	2.16089	Mexico	0.143012	-0.09504	1.71219
Azerbaijan	0.0348	-0.58188	1.41812	Moldova	0.02795	-0.54141	1.45859
Bangladesh	0.048376	-0.51226	1.48774	Montenegro	0.064516	-0.47005	1.52995
Belarus	0.057974	-0.35445	1.52977	Netherlands	0.281718	0.171514	2.17151
Belgium	0.237089	0.02533	2.02533	New Zealand	0.242268	0.131959	2.13196
Bolivia	0.177461	-0.06865	1.93264	Nicaragua	0.035783	-0.30174	1.72147
Bosnia	0.032134	-0.31363	1.68638	Nigeria	0.059349	-0.34506	1.57385
Brazil	0.142593	-0.10556	1.89444	Norway	0.1124	-0.02319	1.97681
Bulgaria	0.042308	-0.48654	1.51346	Pakistan	0.030014	-0.397	1.603
Canada	0.227608	0.140777	2.14078	Panama	0.040796	-0.25373	1.76219
Chile	0.162826	-0.09762	1.6373	Paraguay	0.045151	-0.30435	1.70067
China	0.046305	-0.44557	1.68167	Peru	0.124357	-0.15866	1.84134
Colombia	0.145646	-0.10511	1.89489	Philippines	0.076795	-0.29549	1.70451
Costa Rica	0.057942	-0.27972	1.73027	Poland	0.07485	-0.28283	1.55139
Croatia	0.149784	-0.14286	1.85714	Portugal	0.108448	-0.2547	1.7453
Czech Republic	0.102622	-0.17524	1.61072	Romania	0.045568	-0.42751	1.57249
Denmark	0.158353	0.035242	2.03524	Russia	0.039984	-0.45026	1.5208
Dominican Republic	0.167939	-0.02799	1.97201	Serbia	0.060533	-0.4544	1.5456
Ecuador	0.083333	-0.24917	1.76083	Slovakia	0.075832	-0.30253	1.52145
El Salvador	0.062812	-0.17847	1.8345	Slovenia	0.138831	-0.18344	1.9405
Estonia	0.049147	-0.35206	1.64794	South Africa	0.066386	-0.35523	1.59007
Finland	0.304025	0.193856	2.19386	South Korea	0.088605	-0.20539	1.58923
France	0.213552	-0.02738	1.97262	Spain	0.178775	-0.1103	1.71184
Georgia	0.037821	-0.43117	1.56884	Sweden	0.214358	0.112235	2.11224
Germany	0.328149	0.216257	2.21626	Switzerland	0.205929	0.049881	1.9124
Great Britain	0.219579	0.066789	2.06679	Taiwan	0.050477	-0.42974	1.57026
Greece	0.167286	-0.02138	1.97863	Turkey	0.213629	-0.05102	1.87379
Guatemala	0.090909	-0.09391	1.91608	Ukraine	0.025	-0.51654	1.48346
Honduras	0.009018	-0.53407	1.52204	United States	0.242608	0.114247	2.11425
Hungary	0.020186	-0.57919	1.42081	Uruguay	0.268371	0.095847	2.09585
Iceland	0.106602	-0.13253	1.86747	Venezuela	0.123311	-0.17905	1.82095
India	0.056537	-0.40478	1.7078				
Ireland	0.161989	-0.0547	1.9453				
Italy	0.263143	0.0722	2.0722				
Japan	0.098058	-0.19162	1.76772				
Latvia	0.044789	-0.31783	1.68217				

Note: PM share is % of respondents classified as having post materialistic values; PM-M is % respondents with post materialistic values - % respondents with materialistic values; Inglehart index calculated following Inglehart (1977).

Appendix 2. First and second stage results of 3SLS estimations of table 5

	1 st stage	2 nd stage		1 st stage	2 nd stage		1 st stage	2 nd stage
	Dep. variable			Dep. Variable			Dep. variable	
	Inglehart index	Voice & acc.		Inglehart index	Pol. stab		Inglehart index	Gov. effect.
Inglehart index		4.88 (0.56)a	Inglehart index		4.71 (0.63)a	Inglehart index		6.47 (0.61)a
Voice and accountability			Political stability			Government effectiveness		
Pronoun drop	-0.24 (0.04)a		Pronoun drop	-0.24 (0.04)a		Pronoun drop	-0.23 (0.04)a	
Goodness of fit	30.47	76.09	Goodness of fit	30.60	57.01	Goodness of fit	29.37	114.28
	Dep. variable			Dep. variable			Dep. variable	
	Inglehart index	Reg. quality		Inglehart index	Rule of law		Inglehart index	Contr. Corr.
Inglehart index		4.63 (0.52)a	Inglehart index		5.67 (0.63)a	Inglehart index		7.08 (0.68)a
Regulatory quality			Rule of law			Control of corruption		
Pronoun drop	-0.24 (0.04)a		Pronoun drop	-0.24 (0.04)a		Pronoun drop	-0.23 (0.04)a	
Goodness of fit	30.18	78.23	Goodness of fit	30.45	80.74	Goodness of fit	29.75	109.74