Socio-Economic Development and Protests

A Quantitative Reanalysis

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Abstract

The current article investigates societal indicators associated with economic development that may account for the strong positive correlation between GDP per capita and protest intensity. The authors' tests reveal that the expansion of democratization, education, and urbanization are one of the main influences accounting for this positive relationship between GDP per capita growth and anti-government protest intensity. Moreover, when controlling for these factors, the relationship between GDP per capita and anti-state protests becomes negative indicating that the forces associated with economic development at a certain point play a larger role than economic growth itself. The results of this study, thus, have implications for both Resource Mobilization and Cultural Theorists due to the fact that further GDP per capita growth becomes an inhibitor of protests in the high-income countries instead of a promoter.

Keywords

protests – economic development – education – urbanization – democratization – per capita GDP

1   Introduction

Despite the paradigmatic shift in social movement theory, a large collection of literature continues to thrive in which it is argued that the macroeconomic backdrop to political protests remains relevant, that "misery matters." Hardship from economic crisis is generally understood to be a catalyst to large-scale anti-state mobilization (Foran, 2005; McVeigh, 2009; Cress and Snow 1996; Snow, Cress et al., 1998; Snow, Soule et al., 2005). As per the quotidian disruption theory, mobilization can occur in the event that socioeconomic "shocks" interfere with the daily life of an individual, making life untenable, or when growth in demand for resources is larger than available resources (Snow, Cress et al., 1998). In a cross-national study of 145 countries from 1960–2006, Caren, Gaby and Herrold (2017) detected a negative correlation between the number of contentious events and economic growth, with the strongest effects felt in countries experiencing extreme economic decline and in non-democratic regimes.

Contrary to the effects on mobilization from a dip in GDP growth, however, a nearly opposite dynamic has been identified with regards GDP per capita and protests; as the level of economic development increases, we generally tend to find more political protests and of a higher intensity (Ang et al., 2014; Brancati, 2014; Korotayev, Bilyuga et al., 2018; Korotayev, Vaskin et al., 2018; Nam, 2007; Su, 2015). In fact, the earliest work describing how the growth of per capita income could lead to the growth of socio-political destabilization belongs to Mancur Olson (1963). Expecting a negative correlation between GDP per capita and the number of protest events, Nam (2007) instead discovered that economic factors played a much larger role than did the institutional environment protests were held in; an increase in GDP per capita was shown to lead to an increased amount of protest events. While testing for the role that youth bulges and access to information and communications technology have on levels of protest, Ang, Dinar, and Lucas (2014) likewise found that GDP had a positive correlation with the number of anti-government demonstrations. Dalton and van Sickle (2005) identified the same dynamic when using the amount of protest activity recorded in the World Values Surveys (see also Dalton et al. 2010).

Nam (2007) has argued that this correlation leads one to find support for the resource mobilization theories put forth by social movement theorists as John McCarthy and Mayer Zald (1977; see also Zald 1992). As a country develops, one would expect to find more demonstrations to occur as dissident leaders have more access to the resources of a society (Lichbach, 1995).

These results also lend support to the classic theory of modernization originally proposed by Lipset in 1959. As the argument goes, citizens of a more economically developed country are less tolerant of repressive regimes and are more likely to undergo a transition from an autocratic state to a democratic one (Lipset, 1959). The correlation with protests is explained by both the intensification of pro-democracy protests and the fewer number of consistently autocratic regimes as GDP per capita increases. The empirical studies provided by both Lipset and a whole host of subsequent researchers have gone on to support this thesis (Lipset, 1959; Boix, 2011; Brunk et al., 1987; Burkhart and Lewis-Beck, 1994; Cutright, 1963; Dahl, 1971; Epstein et al. 2006; Londregan and Poole, 1996; Moore, 1996; Rueschemayer et al. 1992).

Huntington's theory proposes that instead of a completely linear relationship between levels of GDP per capita and certain types of socio-political destabilization, we should instead find a U-shaped relationship; those countries with the least likelihood of having anti-state demonstrations occur are those in either the low-income or high-income categories whereas the middle-income countries are more prone to destabilization (Huntington, 1968). On the other hand, it has been shown that the very strong correlation between per capita GDP and the intensity of anti-government protests is observed in a very wide range of GDP per capita values up to 20,000 international 2011 dollars at PPP encompassing the overwhelming majority of the world population (six out of seven billion), whereas the negative correlation observed for high-income countries only (around one billion of the world population) is rather weak or even insignificant in some tests (Korotayev, Bilyuga et al., 2018). Thus, for the whole range of GDP per capita values we observe generally a strong and positive relation between GDP per capita and anti-government demonstration intensity (see Figure 1 below).

Research has also tended to support the fact that economic development in the middle-income countries can increase socio-political instability through what Samuel Huntington termed the "central collapse model", whereby the principle form of anti-state opposition appears in the cities and is often constituted by anti-government protests (Huntington, 1968; Korotayev, Bilyuga et al., 2018; Korotayev et al., 2015).
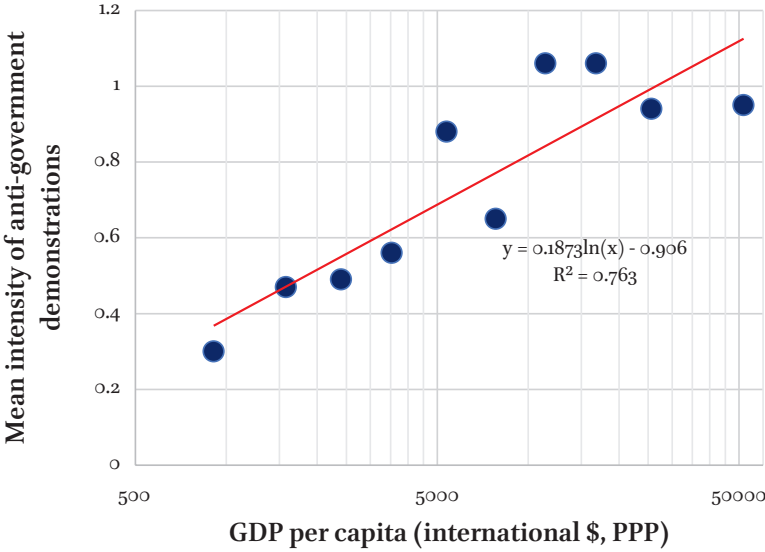
Note: Correlation between GDP per capita (2011 international dollars, PPP) and intensity of anti-government demonstrations in respective years, 1960–2015 (scatterplot with a fitted logarithmic regression line). Mean values of intensity of anti-government demonstrations per decile.

FIGURE 1   Per decile correlation between GDP per capita (2011 international dollars, PPP) and intensity of anti-government demonstrations in respective years, 1960–2015 (scatterplot with a fitted logarithmic regression line)
CNTS DATABASE (BANKS, WILSON 2017); WORLD DEVELOPMENT INDICATORS DATABASE (WORLD BANK, 2017)

2   Accounting for the Correlation between GDP per Capita and Protest Intensity

What then could account for the positive correlation between GDP per capita and the intensity of political protests? It has been suggested that this correlation can be partly explained by the following factors:

1.   GDP growth in authoritarian regimes leads to the strengthening of the movement for democracy and thus to intensified anti-government demonstrations. A given country's population tends to grow less tolerant of the corrupt and repressive nature of authoritarian regimes as said country's economic development progresses and larger efforts to democratize the political system are made (see Lipset, 1959; Boix, 2011; Brunk et al., 1987; Burkhart and Lewis-Beck, 1994; Cutright, 1963; Dahl, 1971; Epstein et al., 2006; Kalandadze and Orenstein, 2009; Londregan and Poole,

1996; Moore, 1966; Rueschemeyer et al. 1992). Modernization also brings about a political culture that is more apt to question authority, emphasize participation in politics and self-expression, and challenge ruling elites (Inglehart, 1989, 1997; Inglehart and Welzel, 2005). The dispersion of these values in a society is statistically correlated with higher tendencies to protest (Inglehart, 1989). And, as in relevant databases (as well as in reality), authoritarian states constitute a very high percentage of the total number of states with low values of per capita income, the effect of increasing internal pressure on authoritarian regimes in the direction of democratization with the economic growth to some extent (but not fully) explains the strong correlation between GDP per capita and intensity of anti-government demonstrations for low- and middle income countries. For their part, Kim and Kroeger (2019) have provided robust evidence for four ways in which nonviolent protests can lead to democratic transitions; nonviolent movements can directly overthrow autocratic regimes, the can coerce political elites into democratic reforms, they can encourage elite splits, and they can encourage the likelihood of changes in the autocratic leadership which will permit the extraction of concessions by the protesters. A number of studies over the last decade have also demonstrated the extent to which protests which originate in one country can be 'diffused' to the citizenry of neighboring countries who will then launch their own protests for democracy (Brinks and Coppedge, 2006; Csordás and Ludwig, 2011; Gunitsky 2014; Leeson and Dean 2009; O'Loughlin et al. 1998; Starr 1991; Starr and Lindborg 2003; Strand et al. 2013; Teorell 2010; Wejnert 2005, 2014).

2. In the interval of per capita GDP up to \$20,000, the increase of this indicator is quite strongly correlated with a decrease in the proportion of authoritarian regimes and an increase in the share of non-authoritarian regimes (democratic and intermediate), which are much less likely to suppress protests; in these democracies, protests are much more common and tolerated by both citizens and elites (Norris 2002, Inglehart and Welzel 2005) and in certain cases become a fully-institutionalized feature of democratic politics in the so-called "social movement societies" (Meyer and Tarrow, 1998; Soule and Earl, 2005). Elections, for example, have become a period during which protests commonly occur, either mobilizing proactively to influence the direction of an election or reactively to the results of one (McAdam and Tarrow, 2013). The presence of non-authoritarian regimes in this range significantly and positively correlates with higher intensity of anti-government demonstrations. This is another mechanism which causes the presence of the strong positive correlation between GDP per capita and intensity of anti-government

demonstrations to occur within this range. Aside from Lipset, Przeworski and Limongi (1997) have suggested another explanation as to why among the more economically developed countries we find significantly more democratic regimes. They argue that the probability of a democratic regime emerging is more or less the same at all levels of economic development, however, in the more economically developed countries democratic regimes have a much higher chance of survival (Przeworski and Limongi, 1997). This argument is more complimentary to the many contemporary studies which downplay the extent to which political protests affect the initial push towards democratization, instead pointing towards such dynamics as clusters of democratization in neighboring countries (Houle and Kayser, 2019) or the structure of the international order (Boix, 2011). It should be noted that we believe that both explanations are not necessarily mutually exclusive, together providing an appropriate explanation as to why there is a significantly lower proportion of economically developed countries with fully autocratic regimes in comparison to economically underdeveloped states. At the same time, anti-government demonstrations have been shown to occur in countries with political regimes other than full autocracies significantly more often than in full autocracies. The presence of full autocracy is a statistically significant inhibitor of political protests which implies that the presence of any other regime (from partial autocracy to consolidated democracy) is a factor promoting the political protest intensity (Korotayev, Bilyuga et al., 2018). This also to a significant extent (but not completely) explains why the growth of GDP per capita in the long term is accompanied by an increase in the intensity of protests.

3. The positive correlation between per capita GDP and intensity of anti-government demonstrations in the interval up to $20,000 can be partly accounted for by the point that there is a strong positive correlation between proliferation of formal education and the level and economic growth at the early phases of modernization (Barro, 1991; Barro and Sala-i-Martin, 1995; Benos and Zotou, 2014; Sadovnichij et al., 2016; Sala-i-Martin, 1997). Moreover, GDP per capita growth allows social systems to increase spending on education, which promotes its quantitative expansion; whereas at the later phases of modernization transition the issue of education quality becomes more important (Sachs and Warner, 1997; Hanushek and Kimko, 2000; Hanushek and Woessmann, 2008, 2009, 2011, 2012; Atherton et al., 2013). Furthermore, a number of studies have demonstrated that the level of formal education is a significant factor of non-violent protests over more violent forms of collective

action due to it being the preferred method of protest for the educated (Hall et al., 1986; Jenkins and Wallace, 1996; Korotayev, Bilyuga et al., 2018; Olson, 1963; Sawyer & Korotayev, 2021). Inglehart's (1970) Theory of Cognitive Mobilization rests upon these foundations; as the individual's level of education increases, they are better able to "receive and interpret messages relating to a remote political community." In Dahlum and Wig's (2019) study of protest events in Africa, anti-government protests were found to occur more often in regions with more educated populations due in part to two channels; a 'motivational channel' in which education leads to changes in ideological preferences for democracy and the economy, and an 'opportunity channel' wherein increased education brings about a higher capacity for collective action. Using survey data of American respondents, McVeigh and Smith (1999), the authors find that even when controlled for factors such as income level, they find that those with higher levels of educational attainment were more likely to be active in protests whereas those with higher incomes tended, on the whole, to participate in institutionalized politics. Cross-national studies have reported similar findings in Europe (Kostelka and Rovny, 2019), Latin America (Machado et al., 2009; Moseley, 2015), the Caribbean (Moseley, 2015), Africa (Dahlum and Wig, 2019), and Russia (Volkov, 2012).

However, formal tests have shown that these factors could account for the positive correlation between GDP per capita and anti-government demonstration intensity only partly which suggests the need to look for additional factors accounting for this correlation (Korotayev, Bilyuga et al. 2018). Thus, the current article intends to investigate another societal indicator associated with economic development that may account for this correlation by adding measures for urbanization.

We introduce urbanization as a factor due to its importance in many theories involving the emergence of protests (Gledistch and Rivera, 2017; Goldstone, 2002; Tilly, 1995; Turchin, 2013; Ang et al. 2014). Non-violent protest actions tend to occur more often in cities, and as Gledistch and Rivera (2017) have shown, urban populations tend to have more access to societal resources as well as denser personal networks making them more prone to protest. Moreover, the fact that efforts to undermine governmental forces are more effective in urban areas also leads to more protests occurring in key cities and other large metropolis areas instead of the rural outskirts. Within the framework of the Political Opportunity Theory; it is understood that as urbanization rates increase, political entrepreneurs are more able to connect and direct the actions of large groups of people (Tilly, 1995). City centers serve as central hubs for large diverse portions of the populations ready to be activated by political

entrepreneurs based on various social cleavages. According to Tilly (1995), when higher urbanization rates and other economic and demographic trends are combined with processes such as democratisation and politicization, a "shift" in the Political Opportunity Structure occurs and the possibility for social mobilization is likely to occur.

Finally, beginning with Castell's *The City and the Grassroots* (1983) a number of researchers have focused on the rise of urban social movements, such as the new social movements in the 70s and those consisting of the urban poor in the 60s, that are defined by their demands to a "right to the city" that they inhabit (Hamel, 2014; Harvey, 2012; see also Castells, 1972; Eckstein, 1989; Escobar and Alvarez, 1992; Jelin, 1987; Schuurman and Naerssen, 2011; Slater, 1985; Wignaraja, 1993). As economies develop and urbanization rates increase, these movements become more and more prominent due in part to the increased number of people living in poverty in urban dwellings. According to the UN Human Settlements Programme's estimates, the percentage of the urban population living in "slums" was 30% in 2014, the equivalent of nearly 881 million residents (UN Habitat, 2016, p. 13). When spurred to action, this section of the urban population can resort to protest and rioting when their structural position in society is perceived as being unfair. Such was the case with the anti-IMF protests of the 1980s (Davis, 2017, pp. 158–163; Walton and Ragin, 1990; Walton and Seddon, 1994, pp. 39–45). In their 1990 study, Walton and Ragin uncovered a relationship between the more 'overurbanized' countries that involved international agencies, such as the International Monetary Fund, and the intensity of anti-government protests. Thus, the first hypothesis that we propose is as follows:

> H1: Urbanization is positively correlated with the intensity of political protests.

In Figure 2, one can observe that the more economically developed countries tend to have a higher proportion of their population living in cities.

Thus, economic development is very logically accompanied by the growth of urbanization. This is explained by the fact that during the modernization process, economic growth is achieved up to a very considerable extent by the movement of labor from traditional sectors concentrated in rural areas to the modern sectors concentrated mostly in the cities. On the other hand, modernization through economic growth creates more and more resources to support larger and larger urban populations (e.g. Zinkina et al., 2019, pp. 131–134).

Hence, one the one hand, modernization leads through economic development to a pronounced increased GDP per capita. On the other hand, it creates powerful forces leading to the growth of anti-government protest intensity:

GDP per capita (in 2011 international dollars at PPP), logarithmic scale
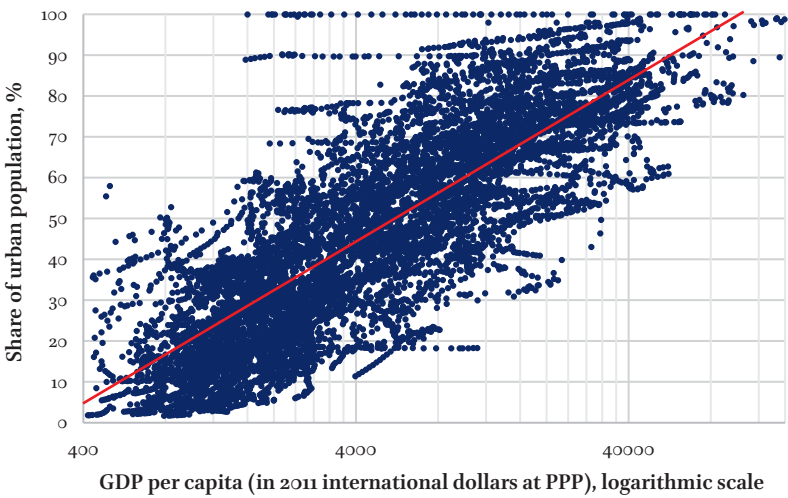
Note: Correlation between GDP per capita (2011 international dollars, PPP) and the proportion of the urban population in respective years, 1950–2016 (scatterplot with a fitted logarithmic regression line).

FIGURE 2   Correlation between urbanization and GDP per capita
            COPPEDGE ET AL. (2020). BASED ON CNTS DATABASE (BANKS,
            WILSON 2017); WORLD BANK 2017

(1) It leads to a decrease in the proportion of full autocracies, whereas the transition to hybrid and democratic regimes leads to an increase in peaceful protest intensity normally inhibited by full autocracies; (2) It leads to a proliferation of formal education that also promotes peaceful protests; (3) It leads to a systematic increase in the proportion of the urban population that also amplifies the intensity of political protests. Below, we will try to find if the positive correlation observed between GDP per capita and protest intensity can be accounted for by these three factors. With this in mind, we propose a second, more fundamental hypothesis:

> H2: When controlled for with factors that are influenced by economic development, such as democratization, the proliferation of education, and urbanization, the relationship between GDP per capita and political protest intensity becomes negative.

3   Materials and Methods

Our database covers the time period from 1950 to 2016 and includes 213 countries, which allows our study to provide ample evidence for the aforementioned mechanisms on the level of the world system. In order to observe the

effect that each socio-economic transformation has during the modernization process, we begin with a regression with only GDP per capita included in order to demonstrate the positive relationship between it and political protest. From there, the subsequent models will include the additional effects associated with economic development, as mentioned in the theoretical section, so as to observe the change in relationship between GDP per capita and political protests, as well as the correlation between urbanization and political protests once all controls are included.

The key method used in the research is a negative binomial regression. Its specification allows one to avoid biases connected with the non-normalized Poisson distribution of a dependent variable containing a large number of zeroes. Due to this, we are unable to apply a standard parametric OLS-regression, which assumes that the dependent variable is arranged as a normal distribution (see Hilbe, 2011). We use the maximum likelihood of generalized linear model (GLM) with Newton-Ralphson methods as implemented in the pglm R package (pglm: Panel Generalized Linear Models. R package version 0.2-2). As our data contains country-year observations and is organized as panel data, we introduce fixed effects on countries and years. Moreover, as our data involves observations for both country and year, organized as panel data, we introduce fixed effects for both in order to account for this. The descriptive statistics for all variables can be found in Table A2 in the Appendix.

3.1 *Dependent Variable*

In order to test the link between GDP per capita and protest intensity, we make use of the data from the Cross-Sectional Time-Series Database (Banks and Wilson, 2020), which contains our main dependent variables "anti-government demonstrations" and "riots". Banks and Wilson define anti-government demonstrations as "any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature" (Wilson, 2020, p. 13). Considering that protests can also be violent in nature we also make use of the CNTS variable denoting "riots" which is a measure of "any violent demonstration or clash of more than 100 citizens involving the use of physical force" (Wilson, 2020, p. 13). Thus, by "protest", we refer both to peaceful and more institutionalized forms of political protest as well as riots in our investigation. Our main dependent variable of interest is political protests, and is a combination of the two aforementioned variables.

3.2   *Independent and Control Variables*

We use the GDP per capita figures from the Maddison Project Database provided in the Varieties of Democracy (V-Dem) dataset as our principal independent variable (Bolt et al., 2018; Coppedge et al., 2020). We chose this dataset because of the scope of time it covers (up to 2016) as well as its coverage of developing countries during the very important period of 1950 to 1970 that is not covered by the World Bank data. In order to ensure that the distribution we are using is normalized, we take the logged figures of GDP per capita.

As mentioned earlier in the previous section, we introduce the variable urbanization to our models due to its theoretical relevance to the generation of protests and protest movements (Gleditsch and Rivera, 2017; Goldstone, 2002; Tilly, 1995; Ang et al. 2014). A significant structural shift that often promotes anti-government demonstrations is the urbanization process. With economic development, urban centers begin to expand and industrialization pushes workers out of rural environments and into the cities. Massive levels of rural-urban migration creates a significant number of dissatisfied and precarious workers as they are only able to get unskilled low-paying jobs and low-quality housing. While job creation expands in the urban areas, typically, it is not enough to keep up with the large increase in the population creating higher levels of unemployment among the youth. This disenfranchised population is often the source of various forms of social-destabilization such as protest as it becomes a reasonable way to ameliorate their conditions (Davis, 2017, pp. 158–163; Korotayev, et al., 2011; Piven and Cloward, 1979). For these measures, we take the urbanization variable, defined as the "ratio of urban population to total population", from the UN Population Division (2018) dataset. As we use this variable from this database, ultimately, we have to rely on the definition provided by the developers of this database and their understanding of what is 'urban'. It should be noted that our variable is the share of the urban population out of the total population and not the total number of urban residents. The data provided by the UNPD is useful for our purposes insofar as it takes into account various definitions of what it means to be "urban". In the few cases where national statistical offices provide different definitions of urban areas, the maintainers of the database adjust for these figures to maintain consistency.

As GDP per capita increases along the interval up to $20,000, one finds this to be strongly correlated with a progressive decrease in the proportion of consistently authoritarian regimes and an increase in non-authoritarian regimes

(both democratic and hybrid), which are characterized by their lower likelihood of suppressing anti-government protests. Thus, to take into account the theories put forth by Lipset (1959) and Przeworski and Limongi (1997), we include a control for fully authoritarian regimes. Our source for political regime type is that used by Jack Goldstone et al. (2010) in their *Global Model for Forecasting Political Instability*. As the principal difference in protest activity is understood to revolve around those regimes which are fully autocratic our data reflects this; our data is coded using a dummy variable to represent either fully authoritarian regimes or the rest.

Given that past findings have demonstrated strong positive correlations between educational attainment and anti-government intensity in countries (Hall et al. 1986; Jenkins and Wallace 1996; Korotayev, Bilyuga et al., 2018), we too expect to find this relationship in the subsequent tests. In order to control for education levels, which as previously mentioned is expected to expand due to economic development, subsequently leading citizens to protest more, we incorporate the variable for mean years of schooling from the United Nations Development Programme reports database (UNDP, 2020) and the Barro and Lee database (1996, 2020). The Barro and Lee data only consists of data from 1950 to 2010, therefore these figures were combined with the report by UNDP to cover the period between 2011 and 2018. The method for the calculation of mean years of schooling in the UNDP report is the same as the method used by Barro and Lee, thus making the data transformation possible. The combined variable contains 10350 observations for 78 countries from 1950 to 2018. The United Nations Development Programme defines this variable as the "average number of years of education received by people ages 25 and older, converted from education attainment levels using official durations of each level" (Jahan, 2018, p. 25). For each age group, the proportion that attained a given level of education is multiplied by the official duration of that level in a given country. The sum of the resulting values yields the mean years of schooling for the population in that specific country. Mean years of schooling is measured in years.

Finally, as it is logical (and generally understood) that protests generally tend to occur more often and with larger intensity in countries with larger populations, we decided to control for this variable (Ang et al. 2014; Powell, 1982; Su, 2015; Lichbach, 1995; Nam, 2007). Powell (1982) demonstrates that the size of a country's population has a major influence on the occurrence of riots and protests in democratic countries as state authorities can find it more difficult to curb the outbreak of collective action efforts when population size is larger. Moreover, from the perspective of the Rational Choice Theory, Nam (2007) explains that larger populations can facilitate opportunities for communication and organization conducive to protests by providing a solution to "Rebel's

Dilemma" proposed by Lichmach (1995). We control for the total population of each country using the data from the V-Dem dataset (Coppedge et al., 2020). Again, this variable is logged in order to ensure a normal distribution.

4 Results

Quite in congruence with the research reviewed above, a bivariate negative binomial regression performed on political protests with GDP per capita as the only independent variable produces a rather strong and significant positive correlation (see Table 1, Model 1). This relationship remains very strong and significant after adding a control for population (see Table 1, Model 2).

Upon adding a control for full autocracy, the relationship between GDP per capita and anti-government protest intensity remains positive and highly significant, though, its strength appreciably declines (see Table 1, Model 3). Note that the correlation between full autocracy and political protest intensity is significant and in the theoretically predicted (positive) direction. Thus, this test supports earlier findings that the presence of full autocracy is a statistically significant inhibitor of political protests which implies that the presence of any other regime (from partial autocracy to consolidated democracy) is a factor promoting the political protest intensity.

Adding a control for education results in a rather dramatic difference. The correlation between GDP and political protests diminishes in strength and becomes statistically insignificant. (see Table 1, Model 4). Note also that the relationship between education and protest intensity turns out to be significant and in the theoretically predicted (positive) direction. Thus, our test also supports earlier findings that the proliferation of formal education can be a significant factor for the growth of the intensity of political protests.

The introduction of a control for urbanization results in the consolidation of the above obtained results. The correlation between GDP per capita and political protest intensity after the introduction of all our controls turns from positive to statistically significant negative. Thus, as we theoretically expected, the introduction of controls for political regime type, education, and urbanization, transforms the positive relationship between GDP per capita and anti-government protest intensity into a negative correlation. Being controlled for political regime type, education, and urbanization, the higher GDP per capita turns out to be a factor inhibiting rather than promoting anti-government protests. Note also that our tests support earlier findings that the expansion of urbanization can be a significant factor for the growth of intensity of anti-government protests.

TABLE 1   Negative binomial regression of the intensity of Political Protest, 1950–2016

	Model 1	Model 2	Model 3	Model 4	Model 5
GDP per capita (log)	0.204***	0.176***	0.116***	0.054	-0.142**
	(0.022)	(0.024)	(0.026)	(0.042)	(0.054)
Population (log)		0.255***	0.211***	0.221***	0.240***
		(0.018)	(0.019)	(0.020)	(0.021)
Full Autocracy [=1] vs.			-0.751***	-0.665***	-0.639***
Other Regimes [=0]			(0.066)	(0.071)	(0.072)
Mean Years of				0.048***	0.032*
Education				(0.013)	(0.014)
Share of urban					0.014***
population, %					(0.002)
Time Fixed-Effects	Yes	Yes	Yes	Yes	Yes
Country Fixed-Effects	Yes	Yes	Yes	Yes	Yes
N	9863	8702	8069	7230	7230
Akaike Inf. Crit.	22279.63	19169.01	17668.57	16095.12	16064.52

Note: *** p<0.001, ** p<0.01, * p<0.05

5   Discussion

The results of our tests suggest that GDP per capita growth generally inhibits the intensity of political protests if controls for democratization, education, and urbanization are taken into account. This is, in fact, quite intuitive as common sense suggests that more well-to-do people would tend to protest less under the assumption that the increase in GDP per capita is not accompanied by dramatic regime change or sharp increases in education or urbanization. However, we have theoretical grounds to expect that pronounced GDP per capita growth unleashes such powerful forces as democratization, urbanization, and a proliferation of formal education that appear to overwhelm the inhibiting influence of GDP per capita growth per se. These theoretical expectations have been supported by the performed tests. After the introduction of the relevant controls, high GDP per capita turns out to be a factor which decreases the intensity of protests, whereas without these controls it turns out to be a significant predictor of a higher intensity of non-violent protest. Thus, a high GDP per capita turns out to be a significant negative *proximate* factor of the

intensity of political protests, while being an even more significant positive *ultimate* factor of the intensity of protests (see Figure 3).

Thus, one of the main conclusions of this study is that the expansion of democratization, education, and urbanization are one of the main influences accounting for GDP per capita growth on the anti-government protest intensity.

That having been said, we are in no way claiming that urbanization, education, and democratization are the only factors transforming the relationship between GDP per capita and political protests. One more plausible factor has been spelled out by Inglehart and Welzel (2005) who have demonstrated that in the modern world, GDP per capita growth is accompanied by a transition from materialist survival values to post-materialist values of self-expression. On the other hand, Inglehart and Welzel have provided direct empirical evidence on the basis of the data from their World Values Survey (Inglehart et al., 2014) that those respondents who adhere to values of self-expression statistically tend to report having participated in protests more frequently than adherents to survival values and even if they have not participated they tend to express a significantly higher readiness to participate (Inglehart and Welzel, 2005). For our study, it turned out to be impossible to add this control to our regression model as due to the small number of data points for which we have empirical information on the proliferation of self-expression/survival values, it would have dramatically reduced (by almost two orders of magnitude) the size of our sample. However, taking the value dimension into account looks like a very plausible direction for future research on the relationship between GDP per capita and political protest intensity. On the other hand, we have no doubt that further research will help identify new factors translating GDP per capita growth into an increase in political protest intensity.

6   Conclusion

In the current article, we focus on the influence of GDP per capita growth on the intensity of non-violent protest activity. In the introductory section, we have shown that a straightforward analysis of the correlation between GDP per capita and the intensity of non-violent protests detects a significant positive correlation. However, there are grounds to hypothesize that in this case we are dealing with the effect of economic development and its consequences. Economic growth unleashes powerful forces that by far overwhelm the basic inhibiting influence of GDP per capita on political protests. As a result, the intensity of non-violent protests in more developed countries is generally
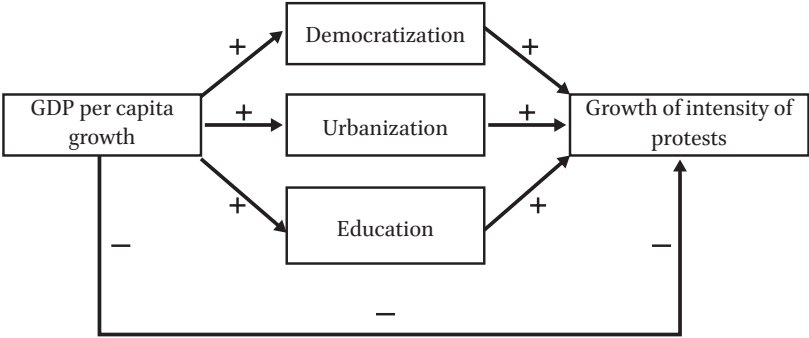
FIGURE 3   Connection between GDP per capita and political protest intensity.
              A cognitive scheme

higher. This is accounted for by a few mechanisms. For example, economic growth tends to be accompanied by a growth in the proportion of democracies; as a result, the proportion of non-autocratic states among countries with higher income levels tend to be significantly higher than in lower income countries. In other words, more developed countries tend to be much less authoritarian, which increases the number of peaceful demonstrations, whereas full autocracies are almost by definition rather strong inhibitors of peaceful anti-government protests and the decrease of their number among more economically developed countries is bound to be associated with an increase in the intensity of anti-government protests. Other important factors are the proliferation of urbanization and formal education that have been shown to be rather strong factors increasing the intensity of protest activity. Thus, one of the principal conclusions of our tests has been to demonstrate that the proliferation of formal education, increases in the rate of urbanization, and the transition from full autocracies to partial autocracies or democratic regimes are the main factors accounting for the relationship between GDP per capita and anti-government protest intensity.

Our tests have demonstrated that GDP per capita growth can be regarded as a significant inhibitor of political protests, but on the other hand, it unleashes such powerful forces as democratization, urbanization, and formal education proliferation that appear to overwhelm the generally inhibiting influence of economic development. Thus, our theoretical expectations associated with the second hypothesis have been supported by the performed tests. After the introduction of the relevant controls, high GDP per capita turns out to be a factor decreasing significantly the intensity of protests, whereas without these controls it turns out to be a predictor of a high level of non-violent protest intensity.

Our tests also permit us to estimate the relative contribution of democratization, formal education, and urbanization to the transformation of the GDP per capita relationship with political protests from a negative into a positive one. Indeed, Model 6 suggests that among these three factors, urbanization turns out to be by far the strongest and most significant. Democratization appears to be the second strongest factor, whereas the proliferation of education turns out to be the weakest but still a statistically significant factor.

Moreover, our tests can provide an explanation as to why we observe a negative rather than positive correlation between GDP per capita and protest intensity in the GDP per capita range over $20,000 international 2011 dollars (PPP). The reason for this is that once a country crosses the $20,000 threshold, there is a saturation effect in which the social forces generating anti-government protests associated with economic growth (democratization, education, and urbanization) have approached their saturation levels and the effects produced by these forces on the further growth of protest activities extinguishes.

For example, as countries approach the $20,000 threshold for GDP per capita, there is a significant decrease in fully authoritarian regimes; even as countries move into the "lower-middle" and "middle-middle" income groups, there is a sharp decline in fully autocratic regimes that would otherwise suppress political protests (see Figure 4).

The majority of the high-income countries are full democracies and further economic growth among them is not accompanied by any significant decrease in the proportion of full autocracies that could promote a further increase in protest intensity.

As regards urbanization, high-income countries also approach these saturation levels and there is no room at all for any further significant increase in the urbanization level. All those who felt impelled to migrate from rural areas to the urban centers have more or less already done so by the $20,000 threshold and further economic growth logically cannot increase these figures above one-hundred percent (United Nations Department of Economic and Social Affairs: Population Division, 2018).

Education, too, reaches a saturation point in high-income countries as further economic growth is not accompanied by any significant increases in education levels measured by enrollment rates or mean years of schooling (Jahan, 2018, p. 22). Unlike the middle-income countries, there is no significant variance between the high-income countries in terms of primary school attendance or mean years of schooling.

Finally, among the high-income countries, the decline in full autocracies has already occurred and does not remain a factor contributing to further increases
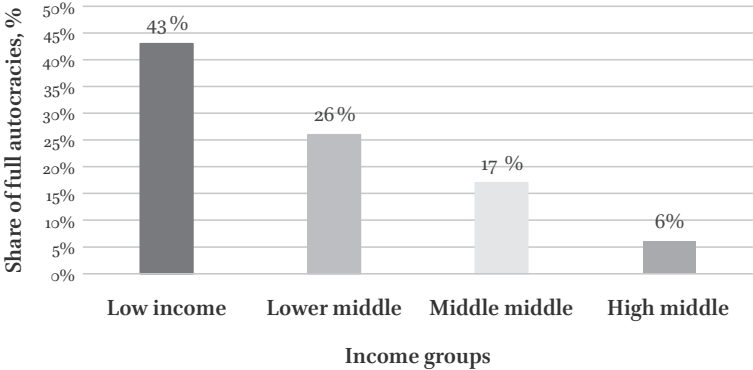
Note: Share of autocracies per income groups (up to $20,000), 1960–2014. Countries were aggregated in groups by GDP per capita values (based on the optimization of the World Bank methodology; World Bank, 2017) as follows: (a) low income – up to $1,045 per capita; (b) lower middle income – from $1,046 to $4,125 per capita; (c) middle middle income – $4,126 to $12,735 per capita; and (d) upper middle income – $12,736 to $20,000 dollars per capita.

FIGURE 4   Share of autocracies per income groups (up to $20,000), 1960–2014
                   WORLD BANK (2017); POLITY IV (2017)

in protest intensity (Center for Systemic Peace, 2020). Thus, as these variables flatten and every high-income country has more or less similar levels of each factor, they automatically become controlled for democratization, education, and urbanization and, as is predicted by our model, the relationship between GDP per capita and protest intensity becomes negative rather than positive.

On the other hand, we would like to emphasize the fact that, in the absence of controls, the statistically significant positive correlation between per capita GDP and the intensity of non-violent protests observed for the majority of human societies[1] is still of its own interest. It follows from this point that by itself the knowledge that in Country A we find a very high GDP per capita, and in Country B it is very low, predicts that we should expect a higher intensity of non-violent protests in Country A. Hence, one should be cautious not to rush to conclusions when considering our findings that the introduction of our controls reveals a negative correlation between GDP per capita and political protest intensity. GDP per capita growth is normally accompanied by growth in urbanization, democratization, and education which by far compensate for the direct inhibiting influence of per capita GDP.

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1   With the only exception of high-income countries where just one out of more than seven billion of the world population lives.

When considering the appearance of social movements, our results would seem to lend credence to the Political Opportunity Theory, which emphasizes changes in state-making, economic development, demographic characteristics, and a country's past experiences with contentious politics (Tilly, 1995). Moreover, given the change in GDP per capita from a positive to negative predictor of our dependent variable when controlled for other factors, and previous tests which uncovered a strong positive relationship only up until the $20,000 threshold (Korotayev, Bilyuga et al., 2017, 2018), it would seem to be the case that in the high income countries, access to material resources do not necessarily increase protest intensity to higher levels than those found in the middle income countries. This could only be explained in one of two ways according to the Research Mobilization theorists; either the citizens of the high-income countries live so well that they simply have less grievances than those in middle-income countries, or starting at a certain point, other kinds of resources, such as human, moral, or cultural resources, may play a larger role. Both of these questions deserve more investigation.

The same goes for cultural theorists, such as Inglehart (1989), who claim that the postwar prosperity felt in the United States and Western Europe led to a "silent revolution" of post-materialist values which engendered the New Social Movements (NSMs). Assuming this shift in cultural values is to blame for the change in protest activity, it is curious to know why in the most developed countries we now find that the rates of protest mobilization decline and what effect, if any, cultural values have in this.

Acknowledgments

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Appendix

TABLE A1   List of countries included in the sample for regression analysis

№	Country	№	Country	№	Country
1	Afghanistan	34	Croatia	66	Jamaica
2	Albania	35	Cuba	67	Jordan
3	Algeria	36	Czech Republic	68	Kazakhstan
4	Angola	37	Democratic Republic	69	Kenia
5	Argentina		of the Congo	70	Kuwait
6	Armenia	38	Denmark	71	Kyrgyzstan
7	Australia	39	Djibouti	72	Laos
8	Austria	40	Dominican	73	Latvia
9	Azerbaijan		Republic	74	Lebanon
10	Bahrain	41	Ecuador	75	Lesotho
11	Bangladesh	42	Egypt	76	Liberia
12	Belarus	43	El Salvador	77	Libya
13	Belgium	44	Equatorial Guinea	78	Lithuania
14	Benin	45	Estonia	79	Macedonia
15	Bolivia	46	Ethiopia	80	Madagascar
16	Botswana	47	Finland	81	Malawi
17	Brazil	48	France	82	Malaysia
18	Bulgaria	49	Gabon	83	Mali
19	Burkina Faso	50	Gambia	84	Mauritania
20	Burundi	51	Georgia	85	Mauritius
21	Cambodia	52	Ghana	86	Mexico
22	Cameroon	53	Greece	87	Moldavia
23	Canada	54	Guatemala	88	Mongolia
24	Cape Verde	55	Guinea	89	Morocco
25	Central African	56	Guinea-Bissau	90	Mozambique
	Republic	57	Honduras	91	Myanmar
26	Chad	58	Hungary	92	Namibia
27	Chili	59	India	93	Nepal
28	China	60	Indonesia	94	Netherlands
29	Columbia	61	Iran	95	New Zealand
30	Comoros	62	Iraq	96	Nicaragua
31	Congo	63	Ireland	97	Niger
32	Costa Rica	64	Israel	98	Nigeria
33	Cote d'Ivoire	65	Italy	99	Norway

TABLE A1   List of countries included in the sample for regression analysis (*cont.*)

№	Country	№	Country	№	Country
100	Oman	116	Slovenia	132	Trinidad and
101	Panama	117	Somali		Tobago
102	Paraguay	118	South Africa	133	Tunisia
103	Peru	119	South Korea	134	Turkey
104	Philippines	120	Spain	135	Uganda
105	Poland	121	Sri Lanka	136	Ukraine
106	Portugal	122	Sudan	137	United Arab
107	Qatar	123	Swaziland		Emirates
108	Romania	124	Sweden	138	United Kingdom
109	Russia	125	Switzerland	139	United States
110	Rwanda	126	Syria	140	Uruguay
111	Saudi Arabia	127	Taiwan	141	Uzbekistan
112	Senegal	128	Tajikistan	142	Venezuela
113	Sierra Leone	129	Tanzania	143	Yemen
114	Singapore	130	Thailand	144	Zambia
115	Slovakia	131	Togo	145	Zimbabwe

TABLE A2   Descriptive statistics

	Mean	Median	Min	Max	SD
Political Protest	1.316	0	0	197	5.085
Share of Urban Population, %	46.80	45.01	1.70	100	25.208
GDP per capita	8761	3972	134	220717	12950.62
Population	25162	4646.6	0.6	1424548	102404.5
Mean Years of Schooling	5.769	5.576	0.020	14.1	3.34
Full Autocracy [= 1] vs. Other Regimes [=0]	0.28	0	0	1	0.449