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Do Citizens Matter for Economic Growth? – Evidence from Panel Data[1]

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Abstract

This paper examines the role of civic engagement in economic growth by using panel data of 118 countries from 1990 to 2010. We measure civic engagement by the civic activism index of the Indices of Social Development data. We use pooled OLS and panel fixed and random effects models to examine the impact. Our analyses strongly support the positive and significant contribution of civic engagement to economic growth. Our results show that civic activism has significant positive impacts on the political institution-based polity2 index, thus supporting the view that Citizens matter for democracy.

JEL Classification *A14 · O40*

Keywords *Social capital · economic growth · civic activism index · civic engagement*

1. Introduction

There is a burgeoning body of literature that has recognised the positive role of social capital, especially virtues like trust and civic values, in shaping development (Gundlach and Svendsen 2019, Algan and Cahuc 2010, Tabellini

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1. This paper is based on an earlier research work, disseminated as working paper titled 'Revisiting the Role of Social Capital in Development', by the Indices of Social Development, International Institute of Social Studies (ISS), The Hague, the Netherlands (Khan 2016). However, the present version of the paper is revised and modified. The authors acknowledge Professor Irene Van Staveren of ISS for her valuable suggestions during the initial stage of the study.

2010, Dincer and Uslaner 2010, Diermon and Grier 2009, Paxton 2002, Whiteley 2000, Knack and Keefer 1997, La Porta et al. 1996, Zak and Knack 2001, Beugelsdijk et al. 2004, Fukuyama 1995, Putnam 1993, Coleman 1988). It is suggested that social capital plays a crucial role in building efficient institutions and fostering economic development. It reduces transaction costs, increases social interactions, facilitates the free flow of information, solves collective action problems, and benefits risk-sharing and innovation (Gundlach and Svendsen 2019, Skidmore 2001, Putnam 1993, Van Staveren and Knorringa 2007).

Despite the growing recognition of the positive contribution of social capital in economic development, it remains a contested concept (Beugelsdijk 2006, Bartolini and Bonatti 2008). Some authors have expressed sceptical views about the pivotal role of social capital in economic development (Levin 2015, Berggren et al. 2008, Durlauf 2002, Durlauf and Fafchamps 2004, Roth 2009). While analysing the social capital effect in economic development, most of the studies have paid attention to the role of 'generalised trust'.

However, the role of another related indicator, commonly termed 'civic engagement, ' is relatively less analysed (although its role is acknowledged in the political science literature). This paper aims to bridge the gap by paying attention to the contribution of civic engagement to economic growth. Another novelty of this work is that it uses a panel dataset of a relatively large set of countries (118 countries), while most empirical literature on social capital uses cross-country regressions.

The remainder of the paper is organised as follows: section 2 highlights the role of civic involvement and social capital in economic development, section 3 presents our empirical methodology, section 4 provides results and analysis, with the conclusion in section 5.

2. Civic Engagement, Social Capital and Economic Development

The impact of civic culture on economic growth has long been an area of interest since Weber's thesis published that the Protestant culture was the driving force behind the Capitalist development in Northern Europe (Weber 1930, Granato et al. 1996). In recent times, there has been a revival of interest in this field (Campante and Yanagizawa 2015, Tabellini 2010, McCleary et al. 2006, Barro et al. 2003, Inglehart and Welzel 2005, Inglehart and Baker 2000, Granato et al. 1996, Swank 1996, Fukuyama 1995, Putnam 1993, Muller and Seligson 1994, Almond and Verba 1963).

Civic culture can impact economic growth through several ways – (a) it can provide a stable democracy with long-lasting constitutional regimes and less

political violence, which is favourable for growth; (b) it can create social and economic institutions which are conducive to cooperative economies and thus favourable for growth (for example, Putnam's Northern Italy; self-organisation of the microcredit recipients of Grameen Bank Bangladesh); and (c) it may create a rent-seekers cartel through their associational engagement, which may have negative effects on growth (Swank 1996, Skidmore 2001). Some cultures promote motivation for achievement by encouraging thrift and determination, thus raising investment and growth (Granato et al. 1996). Again, certain forms of religious beliefs and practices have significant impacts on growth and productivity (Campante and Yanagizawa 2015, McCleary et al. 2006, Barro et al. 2003). Fukuyama (1995) attributed the role of culture rather than the role of the industrial policy behind the historical success of industrialisation in Japan and the USA. According to him, the historical track record of dense associations in these societies had created high levels of general trust in their early stage of industrialisation, which was pivotal to creating and managing large scale and professionally managed corporations (Fukuyama 1995). Putnam (1993) provided a detailed account of how a society's historical stock of social capital can impact its economic and institutional performance. While comparing the performance of the regional governance reforms in northern and southern Italy, he argued that the northern regions performed better due to their citizens' being more civic than southern regions. He identified four elements of a community's 'civic-ness' – a. vibrancy of associational life; b. newspaper readership and access to mass media; c. participation in political life (turnout in elections, referenda); and d. preferenc e voting (as an indicator of patron-client relationships) (Putnam 1993).

The success or failure of a democratic government depends a great deal on the nature of its citizens. Citizens interested in public issues and involve themselves in public concerns can be termed 'enlightened' citizens. They are bonded together by a horizontal relationship of mutual cooperation and show a culture of trust, solidarity and tolerance for each other (Putnam 1993). Thus, cooperative civic norms may act as a constraint against narrow self-interest, thus facilitating the provision of public goods. Citizens' greater involvement in associations, their access to newspapers and media, knowledge about politics can reduce narrow opportunism of politicians and bureaucrats, thus shaping the nature of political institutions and governance (Griesshaber and Geys 2012, Knack and Keefer 1997, Putnam 1993, Muller and Seligson 1994, Norris 1999,).

It should be noted that certain forms of associational behaviour might lead to opportunism, rent-seeking and entry-barriers and thus may be detrimental to growth (Acemoglu et al. 2014, Griesshaber and Geys 2012, Sabatini 2008,

Skidmore 2001, Fukuyama 2001). A robust civil society may sometimes resist implementing specific reforms and cause political unrest, agitation. However, a strong and vibrant civil society is considered complementary to the efficient functioning of the Market and the State (Skidmore 2001). During the last two decades, an emerging body of literature has grown up, tending to build models alternative to traditional market based economic growth models within the sustainable development paradigm. This literature, which may be collectively coined as the 'civil society perspective', has highlighted the positive contribution of civic engagement to local economic growth and sustainable development (Goldberger 2011, Mencken et al. 2006, Tolbert et al. 2002).

Griesshaber and Geys (2012) found that higher levels of civic engagement are significantly associated with low levels of corruption in a cross-section of 20 European countries. They measured civic engagement using data of voluntary associations' involvement from the 2002-03 round of the European Social Survey and Transparency International's Corruption Perception Index.

Paxton (2002) argued that social capital and democracy are interrelated. She measured social capital by the World Values Survey (WVS) data of 'generalised trust' and 'number of associations'; and the Union of International Associations (UIA) data of the 'number of INGOs'. Using cross-lagged panel design models, she argued that social capital affects democracy, and democracy affects social capital. She argued that an increase in the number of INGOs causes an increase in the democracy score, and an increase in the democracy score causes an increase in the INGOs with some lagged effects.

Knack and Keefer (1997) conducted a cross-sectional study on 29 market economies using WVS data (1981 -1992) to estimate the impact of social capital on economic growth. In addition to using the WVS indicator of generalised trust, they used a composite measure of civic norms as an indicator of social capital. They found that trust and civic norms have strong positive effects on economic growth, which works directly through influencing the accumulation of physical and human capital, and indirectly through improving property and contractual rights and bureaucratic efficiency and government performance. La Porta et al. (1996) used 'civic participation' as one of the four performance indicators to measure the effect of trust on the performance of large scale organisations. They found that increased trust significantly increases participation in civic activities and professional associations.

3. Methodology

3.1 Empirical Strategy

We have used five-yearly panel data of 118 countries from 1990 to 2010 to estimate the impact of civic engagement on economic growth. We utilise the following model:

$$Gr_{it} = \alpha_0 + \alpha_1 \ln Y_{t-1} + \alpha_2 \, Physical\ Capital_{it-1} + \alpha_3 \, Human\ Capital_{it-1} + \alpha_4 Civic\ Activism_{it-1} + \alpha_5 X_{it} + \lambda T_i + u_t + e_{it} \quad \ldots\ldots(1)$$

Where Grit = (lnYit– lnYt-1) = growth of real GDP per capita. Xitis the vector of other macroeconomic control variables; ut represents unobserved country fixed effects, and Ti represents time fixed effects. It assumes that the idiosyncratic errors (eit) are not correlated with the explanatory variables; they are homoscedastic, and there is no serial correlation. Although the explanatory variables are uncorrelated with the idiosyncratic errors, applying OLS in FE models may produce an inefficient estimate because the time-invariant fixed effects (ut) may cause autocorrelation of the composite error terms [i.e., (ut + eit)]. The random effects (RE) model corrects for this autocorrelation and thus assumes that the unobserved country fixed effects are uncorrelated over time (Wooldridge 2009). Therefore, in addition to estimating the FE model, we have used RE models. We have also used pooled cross-sectional model, which does not consider changes over time and unobserved country heterogeneity. The advantage of a pooled model is that we can increase the number of observations.

To control for the initial per capita income (PCI) in panel data growth regression, we have used the value of PCI in the first year of the preceding five-year interval as the proxy of initial income of the next five-year interval. Thus we have taken the PCI 1990 as the proxy for the initial income of 1995-2000 time periods, the PCI 1995 to proxy for the initial income of 2000 – 2005 periods, and so on.

One limitation of our empirical model is that it may suffer from endogeneity problems. Endogeneity may cause if a critical explanatory variable is omitted and if there is simultaneity or reverse causality (Wooldridge 2009). We have used lagged values of the explanatory variables to reduce the potential endogeneity problems. For example, income growth may itself influence the accumulation of physical, human and social capital. Thus by taking the lagged values of these variables, we could reduce reverse causality. However, there might be other factors that may influence the accumulation of physical, human and social capital and at the same time have an influence on growth. Using lagged values can reduce

such problems, but still, there might be some endogeneity due to these omitted variables. One solution would be to introduce instrumental variable(s), which would be highly correlated with civic engagement but uncorrelated with growth. Some studies have used instrumental variables to identify the effects of the institution and social capital on economic performance (Acemoglu et al. 2001, Hall and Jones 1999, Knack and Keefer 1997). However, these studies are based on cross-country regressions. As we have used panel data for various countries, finding such time-varying instrument(s) is notoriously difficult. Roth (2009) has also used lagged values of social capital in panel data fixed and random effects models to estimate their growth impacts. Considering the given limitations to tackle the endogeneity adequately, we have tried to generate some complementary evidence in Section 4.2 to examine if civic activism has significant impacts on the development of other institutions.

3.2 Measuring Civic Engagement

We have measured civic engagement by the Indices of Social Development (ISD, June 2013) compiled at the International Institute of Social Studies.[2] The index comprises 33 different indicators from different sources, including Afrobarometer, Civicus, Latinobarometer, International Telecommunication Union, Global Civil Society project, World Values Survey. The index is measured on a 0-1 scale, and the higher value means more civic involvement. The indicators include data on citizens' access to media, involvement and activities of the INGOs, involvement in peaceful demonstrations. The following types of indicators have been used – Civil Society ratings by Civicus; % people who participated/ready to participate in peaceful demonstrations; % people who signed/ready to sign petitions; density of international organisations/memberships with the INGOs/ employment in the NGO sector; % people accessed newspapers, radio and TV news; % people accessed internets/email, etc.[3]

The ISD index is computed with both 'real' indicators (for example, % of people participating in peaceful demonstrations) as well as 'perception' based indicators (example, Civicus civil society ratings) (Foa and Tanner 2012). The index is constructed by the 'matching percentile' method developed by Lambsdorff (2006) in the corruption perception index. It is an iterative process by which countries are ranked based on the values of an earlier ('master') indicator, and then indicators are added successively. While adding an indicator, a country

2. www.indisocdev.org.
3. http://www.indsocdev.org/home.html;accessed on 01 July 2015.(for details see Khan 2016).

is ranked on the scores of that indicator and then is assigned an equivalent value of the ranking of the master indicator. Finally, the values are averaged to get the index. Thus the ranking of the countries is based on their 'ordinal' rather than their 'cardinal' values. A country is ranked and indexed for an indicator if at least 3 independent sources match the indicator. The exact process is repeated 1,000 times by altering the master indicators ('bootstrapping') (Foa: 'Indices of Social Development Handbook'.[4] Foa and Tanner 2012, Lambsdorff 2006). The process of constructing the ISD index is explained in Khan (2016).

4. Results and Analysis

4.1 Civic Activism and Economic Growth

Table 1 shows the results of pooled OLS and panel fixed and random effect models. Models (1), (3), and (5) control for civic activism, per capita income, and physical and human capital variables. Models (2), (4), and (6) add two other macro variables, namely government expenditure and trade openness. The results show highly statistically significant impacts of civic activism on economic growth in all specifications. The size of the coefficients in models 1 and 2 dictates that a one standard deviation increase in the civic activism in the preceding 5 years cause 0.055 and 0.059 standard deviations increase in growth in the next 5 years, respectively (which are equivalent to 36.7% and 39.1% of the standard deviation of growth respectively).[5] The fixed effects result in models (3) and (4) show that the corresponding increases in growth are 0.61 standard deviations in both models (which are equivalent to 40.7% of the standard deviations of growth). The random-effects result of models (5) and (6) suggest the corresponding increases to be 0.073 and 0.076 standard deviations, equivalent to 48.6% and 50.9% of the standard deviations of growth, respectively.

The sign and significance of lag PCI indicate the validity of the convergence hypothesis. However, the other variables do not have significant impacts on

4. Foa, R.(undated) 'Indices of Social Development Handbook' (http://www.indsocdev.org /resources/Indices%20of%20Social%20Development%20Handbook.pdf; accessed on 01 October 2015).
5. From A1 in the Appendix, we can see that the standard deviations of civic activism and growth are respectively 0.11 and 0.15. Therefore, the size of the coefficient in model (1) suggest that one standard deviation increase in civic activism leads to 0.055 (=0.11*0.504) standard deviation increase in growth. Similarly, the size of the coefficient in model (2) indicates a 0.059 (= 0.11*0.533) standard deviation increase in growth.

Table 1: Relationship between civic activism and growth

Growth	Pooled OLS		Fixed Effect		Random Effect	
	(1)	(2)	(3)	(4)	(5)	(6)
Lag civic activism	0.504**	0.533***	0.553***	0.550***	0.663***	0.694***
	(0.15)	(0.16)	(0.12)	(0.11)	(0.15)	(0.15)
Log of lag PCI	-0.034***	-0.034***	0.638***	0.622***	0.053***	0.054***
	(0.01)	(0.01)	(0.10)	(0.10)	(0.01)	(0.01)
Lag physical capital	0.002	0.002	-0.001	-0.001	-0.002	-0.002
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Lag human capital	-0.001	-0.001	0.007	0.005	0.003	0.003
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Lag govt. expenditure		-0.002		-0.006		-0.003
		(0.00)		(0.00)		(0.00)
Lag trade openness		0.000*		0.001		0.000*
		(0.00)		(0.00)		(0.00)
Constant	0.008	0.021	4.899***	4.842***	0.131	0.153
	(0.07)	(0.07)	(0.75)	(0.75)	(0.08)	(0.08)
N	423	423	423	423	423	423
No of countries	118	118	118	118	118	118
R-squared	0.113	0.126	0.491	0.509	0.043	0.035
Hausman (models 3 and 5)			chi2(7)= 1057.20 (Prob>chi2 = 0.0000)			
Hausman (models 4 and 6)			chi2(9)= 43.26 (Prob>chi2 = 0.0000)			

Note: Values in parentheses indicate robust standard errors. The asterisk signs (***, **, and *) indicate significance at 1%, 5%, and 10% levels respectively. The FE and RE models consider time effects also. The R-squared value indicates within R-squared for FE model and between R-squared for RE model. The Hausman tests have been conducted without robust errors.

growth in the subsequent periods. The pooled OLS results explain about 11-13% variation, while the FE results explain about 49-51% of the within variation in growth. The Hausman test results suggest that the estimates of the FE models are consistent and efficient.

It is sometimes argued that panel FE results may not give good estimates once the PCI and human capital variables are controlled, as they already capture unobserved heterogeneity across countries (Durlauf et al., 2004). Therefore, to see if this has any impact on our results, we have run FE models without controlling

for these two variables. The results suggest that the coefficients are still significant at 1% levels, and the magnitude of the coefficients does not change much, although the relative explanatory power declines considerably (see appendix A2).

Table 2 shows the results by the economic status of the countries based on the World Development Indicators (WDI) income group classification. The results show that the significance of civic activism on growth is relatively more pronounced in high-income countries than in low and middle-income countries. A possible reason why civic activism is more significant in rich countries is that they are more democratic and have greater constraints on the executive, which makes civic activism have more significant impacts in these countries. This can be noticed from the partial regression plots in the appendix (A3), which shows that the richer countries have more civic activism than the poorer countries.

Table 2: Relationship between civic activism and growth by the economic status of countries

Growth	High-Income countries (OECD and non-OECD)			Low and middle-income countries		
	Pooled OLS	Fixed Effects	Random Effects	Pooled OLS	Fixed Effects	Random Effects
Lag civic activism	0.400**	0.341*	0.471***	0.742*	0.277	0.648*
	(0.14)	(0.13)	(0.12)	(0.34)	(0.25)	(0.30)
Log of lag PCI	-0.078**	- 0.418***	- 0.098***	-0.029*	- 0.617***	-0.048*
	(0.02)	(0.12)	(0.02)	(0.01)	(0.14)	(0.02)
Lag physical capital	-0.005	-0.013**	-0.010	0.003*	0.002	0.001
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Lag human capital	0.008	0.056*	0.015*	-0.003	0.011	-0.005
	(0.00)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
Lag govt. expenditure	0.001	-0.016*	-0.001	-0.004	-0.004	-0.004
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Lag trade openness	0.001***	0.002*	0.001***	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.584***	3.810***	0.795***	-0.060	4.162***	0.096
	(0.12)	(0.83)	(0.10)	(0.15)	(0.87)	(0.13)
N	187	187	187	236	236	236
No of countries	53	53	53	65	65	65
R-squared	0.188	0.490	0.1225	0.095	0.534	0.1240

Note: Values in parentheses indicate robust standard errors. The FE and RE models consider time effects also. The R-squared value indicates within R-squared for FE model and between R-squared for RE model. The asterisk signs (***, **, and *) indicate significance at 1%, 5%, and 10% levels.

4.2 Civic Activism and the Quality of Institutions

In the preceding section, we have found that civic activism has significant impacts on growth in the panel regressions. One potential channel of how civic activism contributes to growth is that it impacts institutional development. However, it is not necessarily that civic activism impacts growth through one or two institutional dimensions. There may be many possible institutional channels through which civic activism may affect growth. The objective of this section is to examine if civic activism translates into better political and economic governance. We have used two institutional indicators - ICRG bureaucratic quality index, which captures the institutions of governance, and polity, two indexes of the political

Table 3: Relationship between civic activism and institutional quality

	Dependent variable: Bureaucratic Quality			Dependent variable: Polity 2		
	Pooled OLS	FE	RE	Pooled OLS	FE	RE
lagcivic	3.689***	0.408	1.732***	19.370***	4.997**	8.065***
	(0.44)	(0.52)	(0.48)	(3.80)	(1.60)	(1.74)
lnlagpci	0.282***	0.673	0.358***	-0.874*	-2.509	-0.604
	(0.04)	(0.37)	(0.06)	(0.36)	(1.29)	(0.46)
lagcform	0.023***	0.005	0.015*	0.009	0.006	-0.008
	(0.01)	(0.01)	(0.01)	(0.06)	(0.03)	(0.03)
lagschool	0.018	-0.064	0.039	1.036***	0.206	0.961***
	(0.02)	(0.09)	(0.03)	(0.15)	(0.33)	(0.23)
N	368	368	368	368	368	368
No of countries	103	103	103	103	103	103
R-squared	0.636	0.0564	0.6903	0.3052	0.1245	0.3089
Hausman		Chi2(7) =32.86 Prob>chi2=0.000			Chi2(7) =143.9 Prob> Chi2(7)=0.000	

Note: Values in parentheses indicate robust standard errors. The FE and RE models consider time effects also. The R-squared value indicates within R-squared for FE model and between R-squared for RE model. The asterisk signs (***, **, and *) indicate significance at 1%, 5%, and 10% levels. The Hausman tests have been conducted without robust errors.

institution based polity IV data. The partial regression plots between civic activism and political institution indicate positive relationships between civic activism and institutional development (See appendix A3 andA4). To examine the significant impacts of civic activism on institutions, we have run separate regressions by taking institutions as dependent variables – (a) ICRG bureaucratic quality on civic activism; and (b) Polity 2 on civic activism. Table 3 presents the results. It indicates that the impact of civic activism is significant at 1% and 5% levels across all three specifications for the polity two variable. The FE result is not significant for bureaucratic quality, although the OLS and RE results are significant. Thus, the impact of civic engagement is more pronounced on political institutions (democracy) rather than on governance institutions.

5. Conclusion

Perhaps, the greatest remaining puzzle in macroeconomics is the factors that promote economic growth beyond the immediate proximate production function type causes. This paper has examined the impact of citizens' involvement in economic growth by using pooled OLS and panel fixed and random effects models. We have attempted to test and gauge the contribution of social factors in determining economic outcomes. Among the candidates that explain growth are institutional quality and social cohesion. Civic engagement in society can promote a conducive atmosphere that enhances economic growth directly by lowering transactions costs of economic interaction and indirectly via enhanced institutional quality.

Our findings strongly support a positive contribution of civic engagement in economic growth, and the results are significant at 1% and 5% levels across different specifications. Given the difficulty of finding suitable instruments in growth regressions, we have tried to reduce endogeneity problems by taking lagged values of civic activism and other control variables. Our results also support that civic activism has significant impacts on democratic institutional quality. Our result has one particular implication for policy. It underscores the need for a robust civil society, mass media, and INGOs to maximise economic growth in lower-income developing countries, particularly our results indicate that civic engagement is higher in more affluent developing countries.

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Appendix

A 1: Summary statistics

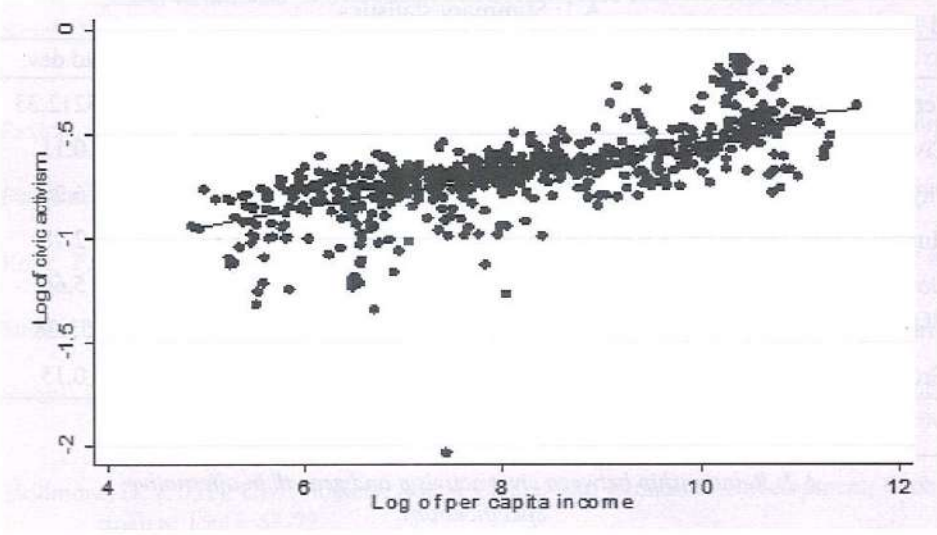
	Obs.	Mean	Std.dev.
Per capita income (PCI)(at $ 2005)	546	11317.79	15212.33
Civic activism (0-1 scale)	546	0.53	0.11
Physical capital (% GDP)	546	21.81	6.25
Human capital (mean yrs. Of schooling)	546	7.82	2.78
Govt. Expenditure (% GDP)	546	16.02	5.66
Trade openness (% GDP)	546	83.45	53.38
Growth	423	0.10	0.15

A 2: Relationship between civic activism and growth in alternative specifications

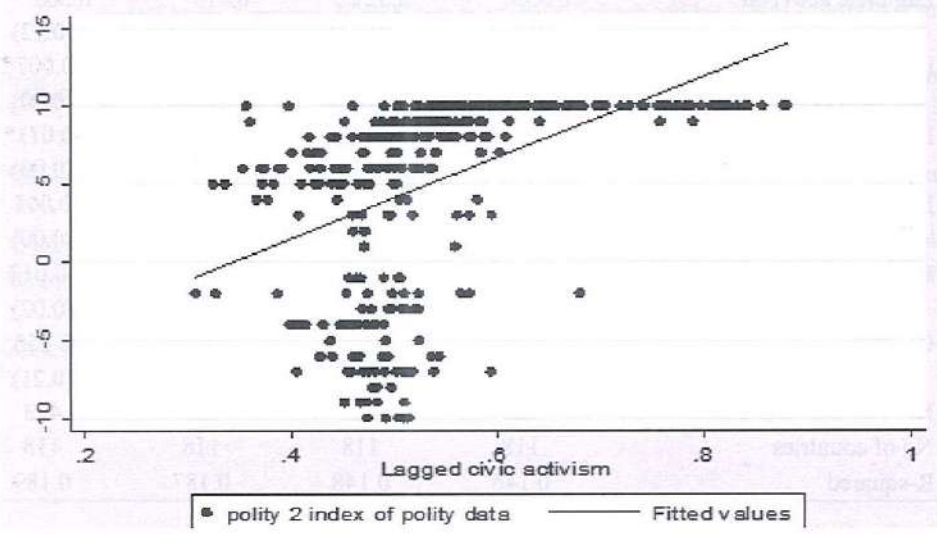
	Fixed Effect results			
	(1)	(2)	(3)	(4)
Lag civic activism	0.533***	0.521***	0.519***	0.505***
	(0.13)	(0.12)	(0.12)	(0.12)
Lag physical capital	-0.006*	-0.006*	-0.007*	-0.007*
	(0.00)	(0.00)	(0.00)	(0.00)
Lag govt. expenditure			-0.011*	-0.011*
			(0.00)	(0.00)
Lag trade openness			0.001	0.001
			(0.00)	(0.00)
Lag human capital		-0.015		-0.017
		(0.02)		(0.02)
Constant	-0.107	0.003	0.029	0.156
	(0.08)	(0.15)	(0.14)	(0.21)
N	423	423	423	423
No of countries	118	118	118	118
R-squared	0.146	0.148	0.187	0.189

Note: Values in parentheses indicate robust standard errors. The model considers time effects also. The R-squared indicates within R-squared value. The asterisk signs (***, *) indicate significance at 1% and 10% levels, respectively.

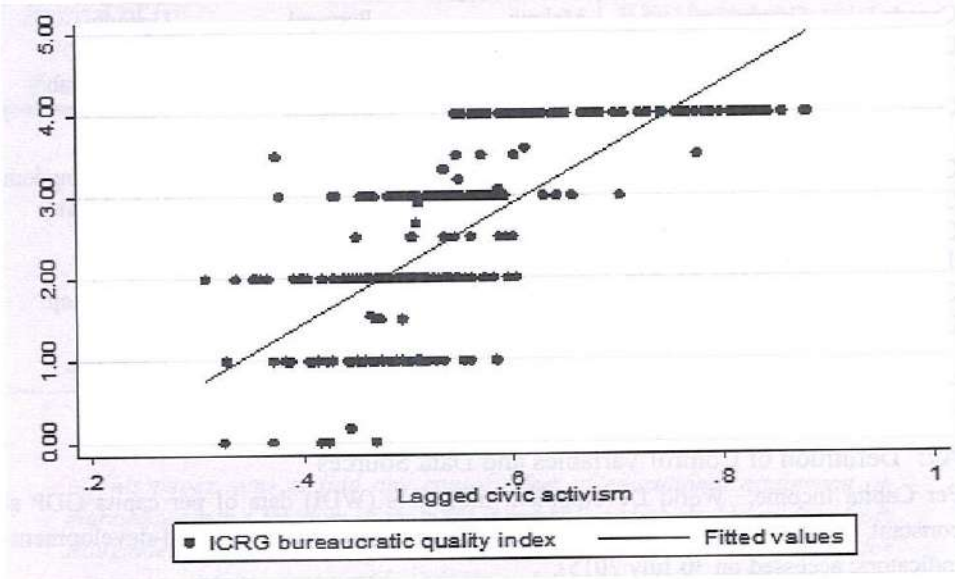
A3: Partial regression plots of per capita income and civic activism



A4: Partial regression plots of civic activism and polity2



A5: Partial regression plots of civic activism and bureaucratic quality



A6: List of sample countries

Albania	Cyprus	Iran, Islamic Rep.	Morocco	Slovak Republic
Algeria	Czech Republic	Iraq	Mozambique	Slovenia
Argentina	Denmark	Israel	Namibia	South Africa
Armenia	Dominican Republic	Italy	Nepal	Spain
Australia	Ecuador	Japan	Netherlands	Sri Lanka
Austria	Egypt, Arab Rep.	Jordan	New Zealand	Sudan
Bahrain	El Salvador	Kazakhstan	Nicaragua	Swaziland
Bangladesh	Eritrea	Kenya	Norway	Sweden
Barbados	Estonia	Korea, Rep.	Oman	Switzerland
				The Syrian Arab
Bermuda	Ethiopia	Kuwait	Pakistan	Republic
Bolivia	Fiji	Kyrgyz Republic	Panama	Tajikistan
			Papua New	
Botswana	Finland	Latvia	Guinea	Tanzania
Brazil	France	Lebanon	Paraguay	Thailand
Bulgaria	Gabon	Lesotho	Peru	Tonga
				Trinidad and
Cambodia	Germany	Libya	Philippines	Tobago
Cameroon	Ghana	Luxembourg	Poland	Tunisia

Cameroon	Ghana	Luxembourg	Poland	Tunisia
Canada	Greece	Malawi	Portugal	Uganda
Chile	Guatemala	Malaysia	Qatar	Ukraine
China	Guyana	Mali	Romania	United Arab Emirates
Colombia	Honduras	Malta	Russian Federation	United Kingdom
Costa Rica	Hong Kong, China	Mauritius	Rwanda	United States
Cote d'Ivoire	Hungary	Mexico	Saudi Arabia	Uruguay
Croatia	India	Moldova	Senegal	Yemen, Rep.
Cuba	Indonesia	Mongolia	Singapore	Zambia
				Zimbabwe

A7: Definition of Control Variables and Data Sources

Per Capita Income: World Development Indicators (WDI) data of per capita GDP at constant 2005 US dollar(http://data.worldbank.org/data-catalog/world-development-indicators; accessed on 30 July 2015).

Physical capital: WDI data of gross fixed capital formation (% of GDP)(http://data.worldbank.org/data-catalog/world-development-indicators; accessed on 30 July 2015).

Human Capital: Average years of schooling of the 15+ years of population of the Barro Lee data set(http://www.barrolee.com/; accessed on 28 August 2015).

Government expenditure-GDP ratio: WDI data of 'general government final consumption expenditure (% of GDP)'.

Trade openness: 'trade-GDP ratio (%)' of the WDI data (where trade is the sum of export and import of goods and service).

ICRG index of Bureaucratic Quality: The data is accessed through the PRS (Political Risk Services) group (http://www.prsgroup.com)[6]. The index is scored on a 0-4 scale with a higher value indicating better institutions and greater bureaucracy's autonomy to implement policies without the influence of the government (Howel 2013).

Polity 2 index: The Polity IV data measure the extent of democracy and autocracy of the political regime (http://www.systemicpeace.org/inscrdata.html; accessed on 28 August 2015). The index gives a combined democracy and autocracy score of a political regime. It ranges from -10 (perfect autocracy) to +10 (perfect democracy) (Marshall et al. 2014).

6 We have accessed the data from the EDEM research group of the International Institute of Social Studies (ISS), The Hague.