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ORIGINAL PUBLICATION:**

Anderson Macedo de Jesus and Irene van Staveren, 'Civic Activism and Social Accountability: a Quantitative Approach', in Kees Biekart, Wendy Harcourt and Peter Knorringa (eds.) *Exploring Civic Innovation for Social and Economic Transformation*. London : Routledge, 2016, pp. 215-232.

**CIVIC ACTIVISM AND SOCIAL ACCOUNTABILITY: A QUANTITATIVE  
APPROACH**

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**Introduction: why a quantitative approach?**

Does civic activism contribute to the social accountability of governments? If so, how? And how is civic activism measured? And can we measure social accountability in a meaningful way? If there is a relationship, does it also appear on a large scale, across countries?

These are typical questions that cannot be answered at the individual country level. If we agree that in country X, governments do a bad job in providing the population with access to good quality health care services, how can we improve this? If it is a fragile state, with an armed conflict or recovering from a natural disaster, or a deeply corrupt state, it is likely that these are the factors standing in the way of adequate service delivery. If country Y is among the poorest ten counties in the world, it is very likely that it is a lack of financial resources - income and public expenditures on health - which constrains the delivery of adequate health care services to all people, urban and rural, rich, middle class and poor. But if country Z is not a low-income country and not a fragile state, and we nevertheless agree that its health care

services are underperforming, can we expect that civic activism will contribute to better service delivery? Of course, we can follow a country like Z over time to see if civic activism generates the social transformation pushing for more social accountability of the government of country Z. But if health care services improve over time in this country, how do we know this is not because of economic growth? Or because a new government spends more money on health care? How do we know whether civic activism really plays a role that makes a difference? Moreover, how do we measure that health care services improve - do we measure the number of hospital beds available, or the number of doctors per one thousand inhabitants? Do we know that it is not a more intensive use of health care services by the middle class rather than wider access for the poor? More accessible service in cities than in rural areas?

These are many questions. And they cannot be answered with a case study at the country level because there are so many factors at play and we cannot compare country Z with other countries which have a different level of GDP, lower or higher health expenditures, and better or worse health care services, or more or less social exclusion. So, whatever we find for country Z cannot be generalized because all the variation of all relevant variables is limited to  $n = 1$ . With a one-country study we have only one level of GDP per capita, only one level of health care spending, only one level of government effectiveness, and only one level of health care services. In other words, the sample size is one ( $n = 1$ ) and this does not allow to analyse how different levels of the relevant variables just mentioned influence better health care service delivery.

The advantage of using a cross-country quantitative approach is that the analysis can make use of a large sample size, even including all developing countries (as long as data availability allows, of course). The variation thus created in the sample (with  $n > 100$  in the case of all developing countries) allows us to detect statistical relationships between variables. These relationships may be positive or negative, large or small, and statistically significant rather than occurring by chance (the standard probability used for a true relationship is 95%, with 90% as the lower alternative and 99% as the higher alternative). So, a cross-country quantitative analysis of the role of civic activism for social accountability adds the civic innovation concept of *scale* to the key concept of *activism*. By increasing the scale of the analysis, we can give an answer to the question whether, in general, civic activism is positively related to social accountability and how strong that relationship is

relative to other factors contributing to social accountability.

What is more difficult to assess with a quantitative study is the direction of causality. This is an important question. If we assume that civic activism improves health care services, we should be able to eliminate the possibility that better health care services create more civic activism (through shifting people's priorities from their family's health to social issues), or that better health care services generate higher incomes (through healthier workers). Can quantitative studies do this? Well, let's first see if qualitative studies can eliminate reverse causality. Would an in-depth case study of civic activism and health care services in country Z be able to uncover a one-directional relationship from civic activism to health care? There is no guarantee that better health services contribute to more civic activism by shifting people's priorities. And economic growth may play its part as well. Hence, a quantitative study suffers from a similar weakness when it comes to eliminating the possibility of reverse causality. Of course, a case study can trace mechanisms by asking people, by observation of processes, and analysing newspapers or policy documents that have been published at different points time. But this results in a very contextual causal analysis, which may not at all be relevant in a different country context or time period.

There are econometric techniques available that at least help to check for the reverse causality. First, a time-consistency test of changes in the dependent variable and changes in the explanatory variable. If, as we assume, the explanatory variable causes the dependent variable, increases in the explanatory variable should precede increases in the dependent variable over time. Just like the application of fertilizer precedes the growth of plants in time. The econometric tests for this is the Granger-causality test. Simply compares the data over time of two sets of variables to see if changes in the one (increases or decreases) precede changes in the other (increases or decreases) variable. In a regression analysis, the idea behind this test can also be integrated by using time-lags in explanatory variables. So that variable  $X_{t-1}$  is used as the explanatory variable in a regression with  $Y_t$  as dependent variable. For example,  $t$  is the year 2010 and  $t-1$  is the year 1999. Or you may want to use  $t-5$  for a five-year time-lag, so that the  $X$  variable used is for the year 2005, whereas the  $Y$  variable used is for the year 2010. If then  $X$  has a statistically significant and sizeable relationship to  $Y$  we may well assume that  $X$  is a causal factor of  $Y$  rather than the other way around.

But this test can only be applied for time-series data. Not for cross-section data, which uses data from countries at only one point in time. A second test can be applied for panel data. This is a dataset for which there is data available for more than one year per country. It has the following structure: country X year 1; country X year 2; country Y year 1; country Y year 2; etc. The dataset that we will introduce in this chapter has five data points per country, so, year 1 until 5. With such a panel of data we can 'switch off' the variation within countries over time in the analysis and only use the variation between countries. In this way, we are able to disregard that country X undergoes significant changes over time, such as a military coup or a draught or a change of government. So that at least such changes cannot cause any changes in the explanatory variables. So, such kind of reversal causation is 'switched off'. A third econometric test for reversed causality is the most advanced and requires data for an additional variable, often a historical variable that logically cannot be influenced by the dependent variable. This is called an instrumental variable (often referred to as IV). For example, if the dependent variable is better maternal health care services, and we want to be sure that this does not have any causal influence on civic activism, we need an instrumental variable, which substitutes for civic activism but cannot logically be influenced by better maternal health care. Perhaps a law allowing or prohibiting civic activism would be a suggestion for such an instrumental variable. Because it is not likely that an improvement of maternal health care will cause a law change on demonstrations.

Finally, our question as stated in the first sentence, whether civic activism can help governments' social accountability, can only be addressed meaningfully when we also take other factors into account that are likely to improve social accountability. In econometrics we call these control variables. Because we need to control for their influence. If civic activism has a sizeable, positive and statistically significant relationship with maternal health care, and we have tested for reverse causality, can we be sure that all the improvement in maternal health care is indeed caused by civic activism? Here comes in the difference between what is called a bi-variate regression analysis and a multi-variate regression analysis. The first one analyzes the relationship between only two variables: a dependent variable and an explanatory variable (also called independent variable). The problem with that is that it does not control for other factors that may also have an influence on the dependent variable. Multivariate regression analysis includes control variables. The results will show the

effects of each variable on the dependent variable. Hence, we can compare the influence of each variable. It allows us to see which variable has the biggest influence (size effect), and whether all variables are statistically significant or not, or only some. For example, with high economic growth and some civic activism, maternal mortality rates may go down. But the effect of civic activism may be very small compared to the effect of higher incomes. Or the effect of civic activism may seem big but it is not statistically significant, at least not at the 95% level of probability. So, multivariate regressions allow us to estimate the influence of each individual variable, to compare their relative influence, and to add up all effects to find the total effect.

But quantitative analysis has its own weaknesses. These vary from problems of measurement at the cross-country level and data limitations, to the fact that causality can never be established with full certainty. Moreover, not everything that matters can be measured. So, quantitative analysis and qualitative analysis are generally complementary. We argue in this chapter that this is also the case for research on civic innovation, as we show with our analysis of civic activism and social accountability.

In this study, we present and critically discuss the why and how of quantitative analysis of the relationship between civic activism and social accountability. An important variable that we include is press freedom, because it provides the necessary information that both parliamentarians and civil society need in order to be able to demand social accountability from the government. Hence, the literature below discusses the literature on the following three variables: social accountability, civic activism, and press freedom.

### **Quantitative literature on social accountability, civic activism and press freedom**

We will first review the quantitative literature about the relationships between social accountability, civic activism, and press freedom. This will provide an overview of what we know and what we do not know yet from a macro-level perspective. It gives insights into relevant variables and relationships and gaps and disagreements in the current empirical debate.

### Social accountability

Government accountability has a social dimension, concerned with adequate service delivery, and a political dimension, concerned with democracy. Social accountability is concerned with the extent to which governments deliver what people demand (and pay for with their taxes), in particular universal public goods such as health care. This inevitably brings in values, about what is good health care and what is the responsibility of government to provide services to contribute to these social values. Hence, it is in the concept of social accountability that we bring in the civic innovation concept of *values*. In particular the social values of good health care as what people may expect from their governments.

We use the definition of service-delivery focused government accountability in line with Khemani (2005: 186), who gives three criteria. A public agency is accountable for service delivery if it (1) assumes and is assigned responsibility, (2) has some minimum resources and capacity, and (3) undertakes appropriate actions towards service delivery, given resource and capacity constraints. For this understanding of social accountability, Shah (2008) has argued that citizen-centric governance is the most effective approach to enforce service delivery. Both definitions are reflected in a recent study by IDS, in which citizens' engagement is regarded crucial for governments to enable people to realize their right and gain access to resources (IDS, 2006).

Social accountability may also have a more transformational purpose, in the sense of empowerment. But we focus on the actual delivery of what governments are obliged to their populations: service delivery, and hence, the development dimensions of social accountability (Gaventa and McGee, 2013).

This social accountability model for service delivery implies, according to Shah, responsiveness, fairness, responsibility, and judicial accountability. This would result, among others, in public services consistent with citizen preferences, improvements in economic and social outcomes and quality of life, improvements in quantity, quality and access of public services, including for the poor, minorities and disadvantaged groups, and better and cheaper services.

A literature review by IDS on accountability and service delivery makes a distinction between social and political accountability. It recognizes that social accountability of government is through "a continuous relationship of citizen's demands through street protests and mobilizations, public naming and shaming,

signing of petitions, etc.” (Mejia Acosta, 2010: 13) Social accountability is particularly focused on service delivery, according to IDS: “The core feature of social accountability mechanisms is to exert direct political influence on government officials to extract increased – and effective – government action in the short run. Through social accountability mechanisms, citizens have organized to demand service provision from government officials in charge of specific sectors (health, water, sanitation), sometimes even bypassing some elected bodies (national legislatures, city councils)” (idem).

The IDS desk review of sixteen case studies is qualitative but interestingly, it uses rather similar criteria for the process of social accountability as quantitative analyses:

- demand for social accountability (production and use of independent media)
- responsiveness in service delivery (social expenditures)
- standards for service delivery (health outcomes)
- enforceability (rule of law, government effectiveness)

On the basis of the qualitative desk review, the IDS report suggests “a positive association between effective accountability and the adequate provision of government service.” (idem: 28) But the report admits that it cannot say anything about size effects and direction of causality. How big is the effect relative to effects of other factors, which influence adequate service delivery? Is it a major effect, or much less as compared to adequate budgets, for example? And how can we know that there is a causality running from the demand for accountability to increased standards for service delivery? Here is where quantitative analysis comes in to provide complementary insights. Quantitative analysis compares effects of different factors with each other, both absolutely (size) and relatively (comparing size effects per variable). And quantitative analysis contributes some, although limited, causality checks to the analysis.

Qualitative studies on social accountability and civil society emphasize the role of interlocution, and the process through which civic activism leads to states becoming more effective in delivering to their populations (Tembo, 2013). But such a process is difficult to measure.

This study will measure the result of social accountability through one of the four criteria identified by IDS for quantitative studies: standards for service delivery.

Like the IDS study, it will also measure demand for social accountability. This will be done with variables for civic activism and press freedom. Next, as a control variable in the analysis, we will use the third criterion mentioned by IDS: responsiveness in service delivery, which we measure through social budgets (for health care). The fourth and final process criterion that IDS mentions is enforceability. Also this criterion we will use as a control variable, because with ineffective enforcement of laws, rights and policies, the government does not deliver sufficiently on social accountability. With these last two criteria, we use another civic innovation concept, namely *institutions*. Social expenditures, through government budgets, are an institution: they embody a set of rules of redistribution. And enforceability requires the operation of the rule of law, which is a government institution concerned with effectiveness of laws, rights, and policy implementation. So, social budgets and rule of law are the institutions that we include in our analysis.

Using all four criteria of the IDS study, we exactly follow IDS's typology of the process of social accountability. Three of the four criteria will be used in our analysis as input variables (the *activism* concept of civic innovation: civic activism and press freedom; the *institutional* concept of civic innovation through social budgets and also through the rule of law) and one criterion will be used as output variable: standards for service delivery, which is the *values* concept of civic innovation.

### Civic activism

Civic activism is concerned with civic voice, with the monitoring and agenda setting roles of civil society vis-à-vis government. These roles of civil society have been referred to by Glasius (2010) as a mix of social capital, citizens active in public affairs, non-violent action, fostering public debate and counter hegemony. Fowler and Biekart (2008) therefore refer to these roles as the dynamic and agency dimensions of civil society, labeled as civic-driven change. Civic-driven change is in their view a combination of three dimensions: civic agency, collective action, and empowerment. This change, or at least this demand for change, by civil society, is the complement of the representative democratic checks and balances of governments.

The empirical literature is rather silent on the effectiveness of civic activism in holding governments accountable. An empirical study by Williamson (2009) has assessed the relative effectiveness of the informal institutions of civil society (pro-

social norms, trust, cooperation, demonstration, etc.) vis-à-vis the formal institutions of the state, such as the rule of law. She finds that “countries that have stronger informal institutions, regardless of the strength of formal institutions, achieve higher levels of economic development than those countries with lower informal institutional scores” (Williamson 2009: 377). A recent UNDP report on inequality notes about the role of civil society that “coordinated mobilization is indispensable for people who wish to pursue a common interest and (...) claim specific policies” (UNDP, 2013: 263).

A recent OECD overview study of social capital distinguishes four channels through which civic activism impacts upon wellbeing, through: (1) fostering trust and cooperative norms, (2) improving the performance of formal institutions, (3) having a direct impact on individual well-being, and (4) building networks and civic skills (Scrivens and Smith, 2013). The OECD review study does not include a quantitative analysis of how these channels are related and what their relative importance is. A recent quantitative study with ISS data on civic activism found that an increase in civic activism of 10% is associated with a statistically significant 4% poverty reduction (van Staveren and Webbink, 2012). The strong and statistically significant association of civic activism with poverty reduction indicates that the activities of civil society have an important effect on development outcomes.

#### Civic activism, social accountability and independent media

Empirical research on press freedom has demonstrated the importance of the free press for government accountability. In particular, studies by Pippa Norris (2006; 2010) have shown the importance of this production dimension of independent media. In her 2006 study, she distinguished between three roles of the media: watch-dog, civic forum, and agenda-setter. Interestingly, these roles are very similar to the roles recognized in the literature on civil society, as the key roles that civic activism plays in holding governments accountable. This suggests that civic activism and press freedom are complementary, and mutually related: they feed into each other. The results of the empirical analysis in Norris (2006) show that press freedom is positively associated with greater political stability, rule of law, government efficiency in the policy process, regulatory quality, and low corruption. However, the study did not analyze the impact of press freedom on service delivery. Moreover, the regressions were only cross-country (hence, for a single year), without time-lags, and do not use

controls for formal institutions and social expenditures. This leads to over-estimation of effects. For example, when the level of GDP per capita is ignored, regression results tend to over-estimate the effect of the explanatory variable, as if economic development does not matter. But we know from the literature that GDP does matter: more highly developed countries tend to have more press freedom. So, part of the effect measured by Norris may well be due to economic development rather than to press freedom alone.

Tran et al. (2011) found a positive association between the press freedom and human development. The sample size, however, is small, with only 65 countries in a hierarchical regression analysis. Interestingly, they found endogeneity effects: press freedom seems to both influence human development and is in turn influenced by human development.

Becker and Vlad (2011) summarize in a detailed overview of the effects of independent media on development the empirical literature and conclude that press freedom correlates negatively with corruption, as expected, and positively with various development outcomes.

Studies on independent media recognize that press freedom is not in itself a sufficient indicator of information use. For example, Price (2011a, p. 12) states that "even a media system that is diverse and pluralistic may not achieve the goals of 'voice'". Price also recognizes that none of the three available measures of independent media addresses 'voice'. They measure the *production* of information, not how civil society *makes use* of it. And as Norris made clear, one of the three roles of independent media is the creation of a civic forum - this is precisely the space, which civil society is likely to fill.

The literature review points out that both press freedom and civic activism support government accountability. But there are clearly only very few wide-ranging quantitative studies available, and none of them include both press freedom and civic activism. Hence, an adequate analysis of the role of civic activism in government accountability needs to fill the gaps in the literature in the following ways:

- include all relevant variables and make an informed choice about particular measures
- identify specific service delivery variables, as the standards of social accountability

- include all developing countries and preferably over a medium or long period of time

#### A framework for quantitative analysis

Drawing on the causal chain approach to social accountability by Anuradha Joshi (2014), we simplify the model of mutual influences between the three variables in that model of information, citizen action, and state response. We measure these three variables as:

- press freedom
- civic activism
- service delivery

Whereas the causal chain approach assumes causal relations between these three in two directions, we focus on the causal relationships from information (press freedom) to state response (service delivery) and from citizen action (civic activism) to state response (service delivery), whereas our model allows for mutual influences between press freedom and civic activism as well.

### **3. Variables and measurement**

This section identifies the relevant variables to measure government accountability, civic activism, the intermediate variable of independent media, as well as control variables. Next to this, it will explain the existing measures and discuss their strengths and weaknesses.

#### Social accountability

The government social accountability data are the outcome measures of public service delivery. They measure the extent to which people's wellbeing has improved - a social value. We have selected health care as a key wellbeing variable, with four variables. The health outcome variables that we use are: infant mortality, under five mortality, immunization DPT and immunization measles. The data are all from the World Development Indicators by the World Bank.

Infant mortality rate (IMR) is measured as deaths of children under one year per 1,000 live births. Under five mortality (U5MR) is similarly measured as deaths of

children under five year per 1,000 live births. The two immunization rates (ID and IM) are percentages of children between 12 and 23 months old.

### Civic activism

ISS has a unique database, Indices of Social Development<sup>1</sup>. The ISD database is explained in a recent article by Foa et. al (2013). The database contains six indices, including one on the use that civic actors make of the media: Civic Activism Index (CA). This measures citizen's use of the media (listening to radio and TV news, reading newspapers and using internet to learn about political developments) and support for and participation in civic activities such as in demonstrations and petitions, as well as the strength of civil society (based on Civicus ratings)<sup>2</sup>. The ISD measure of the strength of civic activism uses 33 indicators on the extent of engagement in civic activities such as signing petitions or joining peaceful demonstrations, studies of the organisation and effectiveness of civil society, access to sources of media information, levels of civic awareness and information on political matters and concerns, and the extent to which civil society organisations are connected to broader, international networks of civic activity.

We could also use the variable Voice and Accountability Index (VA) of the Worldwide Governance Indicators by the World Bank, although it is not a very suitable variable for the research question at hand. Because it includes press freedom and it focuses on political accountability. And it is constructed on the basis of expert opinions only: it lacks objective measures and attitudinal measures of the population. Voice and Accountability (VA) "captures perceptions of the extent to which a country's citizens are able to participate in selecting their government as well as freedom of expression, freedom of association, and a free media."

### Independent media

Empirical research into independent media uses either the Press Freedom Index put together by Freedom House, or the Press Freedom Index developed by journalists themselves through Reporters without Borders. A more recent index is the Media Sustainability Index by IREX. The IREX started in 2000 covering only European

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<sup>1</sup> [www.IndSocDev.org](http://www.IndSocDev.org)

<sup>2</sup> <http://www.indsocdev.org/civic-activism.html>

countries. It extended its measurement to the Middle East and North Africa in 2005 and to Africa in 2007, and covers 80 countries today. But not in Asia and Latin America. The Media Sustainability Index measures, like the two press freedom indices, media independence. But it covers it slightly more broadly<sup>3</sup>. It includes an indicator on whether the public media reflects the views across the political spectrum, are nonpartisan, and serve the public interest; and an indicator on whether a broad spectrum of social interests are reflected and represented in the media, including minority-language information sources. But the large majority of indicators overlap with or are identical to those in the two press freedom indices. And none of the three independent media indicators includes investigative journalism or other indicators of the depth of independent media.

Two studies, which have compared the two press freedom indices of Freedom House and Reporters without Borders contradict each other in their findings about their similarity. They both compared the indices indirectly, by comparing their explanatory power in regression analyses with democracy and related variables. Norris (2006) concludes that they work out quite similarly in econometric analyses, whereas Tran et al (2011) find the results in regression analyses to be very different. A recent and more thorough and direct analysis of the two measures of press freedom confirms Norris: the two measures are found to be quite similar, over time and even across differences in country choices. Using correlation coefficients on each of the indicators making up each press freedom index, Becker and Vlad (2011, p. 38) conclude that: "The Freedom House measure and the Reporters without Borders measure are highly correlated. At present there is little to distinguish them." The average correlation (measured as  $r$ ) between the two for the period 2002-2008 is 0.83. Hence, 70 per cent (measured as  $r^2$ ) of the variation in the one can be explained by the other. This is, statistically seen, quite high. Hence, it does not matter really which of the two press freedom measures is used in a quantitative study. We opt for the Freedom House variable because it is available for more countries. The Press Freedom Index (PF) developed by Freedom House measures media independence of print, broadcast, and internet media. It consists of 109 indicators in three areas<sup>4</sup>: legal environment (laws, regulations, guarantees, and independence of the judiciary

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<sup>3</sup> <http://www.irex.org/resource/media-sustainability-index-msi-methodology>

<sup>4</sup> <http://www.freedomhouse.org/report/freedom-press-2012/methodology#.U4MMHy80zeY>

bodies), political environment (political control such as censorship, news diversity, intimidation and violence against journalists), and economic environment (transparency and concentration of ownership of media sources, selective withholding of advertising or subsidies, and bribery).

It is important to note that The Press Freedom Index is measured negatively. PF of 0 means full press freedom and 1 means no press freedom at all. All other variables are measured positively. So, for example, a Civic Activism score of 0 means no civic activism and 1 a very high level of civic activism.

### Control variables

Control variables are expected, on the basis of the literature, to also have an influence on the service delivery outcome variables of health. The most important one is the level of economic development of a country, measured as GDP per capita (GDP). The richer a country, the more likely it is that the government will have the capacity for adequate service delivery. GDP per capita is measured in dollars, and varies from a few hundred per year in the poorest countries to several thousand dollars per year in middle income countries. In line with econometric practice, the income data has been normalized by taking the logarithm:  $\ln \text{GDP pc}^5$ .

The higher the share of government expenditures on health care, the more resources available for social service delivery. We therefore use the share of GDP spent by government on health care (percentages). The data for Expenditures on Health (EXPH) are provided by World Bank's World Development Indicators<sup>6</sup>.

With an adequate rule of law in place, a country is more likely to be able to deliver services effectively. Rule of Law "captures perceptions of the extent to which agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence"<sup>7</sup>. It is a comprehensive index of formal institutions

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<sup>5</sup> Income data are not normally distributed: many people earn low incomes, a relatively small or large middle class group earns around the modal income, whereas a very small group earns extremely high incomes. As a consequence, the average income of a country will be much higher than the modal income. This non-normal distribution of incomes implies that standard quantitative analysis will suffer from biases. In order to prevent such biases, the income distribution must be transformed to a normal distribution. Turning income values into natural logarithms will do that: this transformation will reduce the distribution at the high-end, so that extreme incomes will no longer bias the estimation results.

<sup>6</sup> <http://data.worldbank.org/data-catalog/world-development-indicators>

<sup>7</sup> <http://info.worldbank.org/governance/wgi/index.aspx#home>

representing the effectiveness of government to protect citizen's rights. The Rule of Law index (RL) is part of the Worldwide Governance Indicators of the World Bank. Rule of Law (RL) is measured in rank percentiles between 0 and 1, with 1 the highest level of rule of law.

Table 1 provides an overview of all the relevant variables, their measurement, and their sources, categorized over three variable categories: dependent variable, explanatory variable, and control variable.

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Table 1. Overview of variables

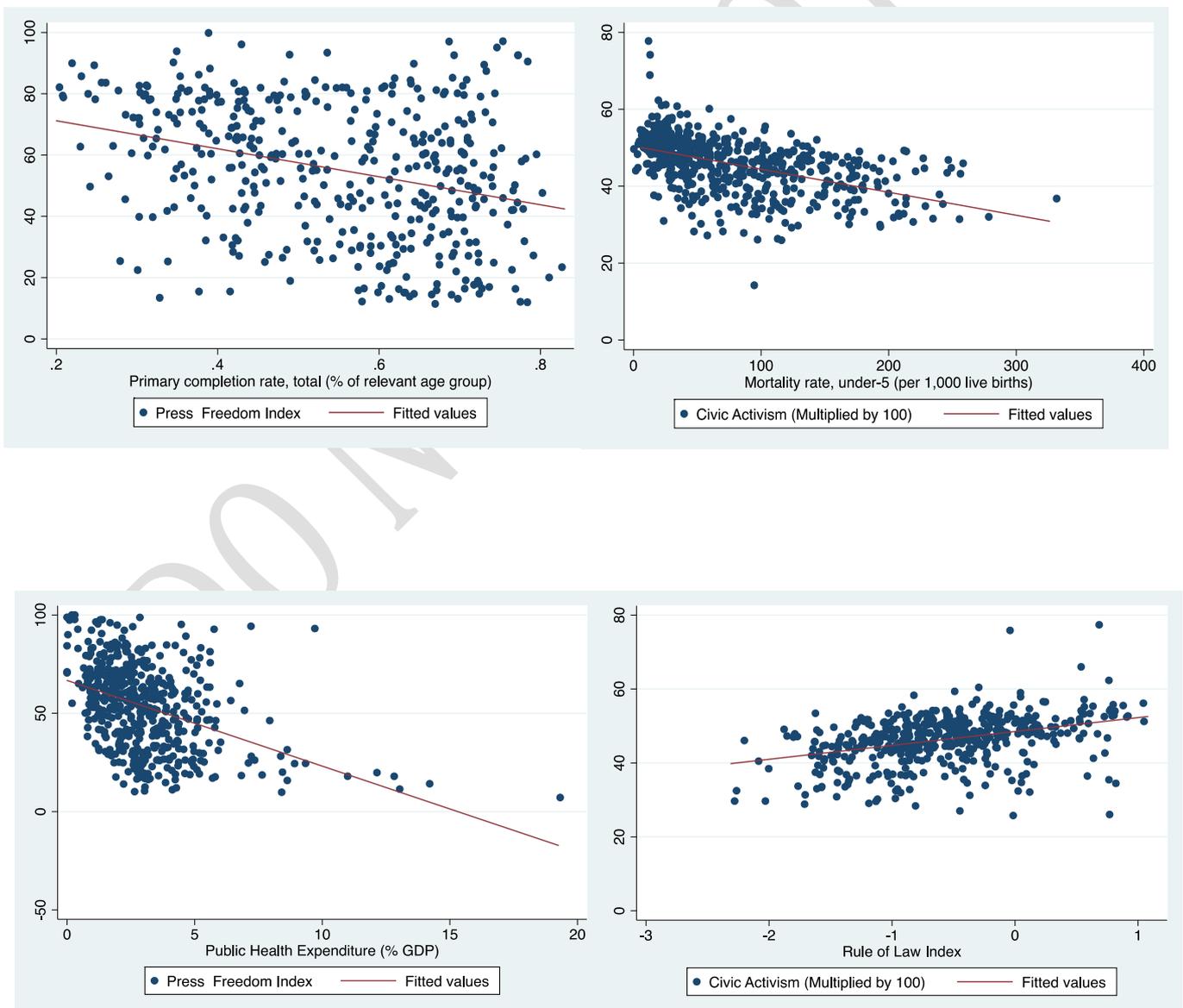
Type	Category	Name	Definition	Source
social accountability	dependent variable	IMR	number of deaths per 1,000 live born	World Development Indicators
	dependent variable	U5MR	number of deaths per 1,000 live born	World Development Indicators
	dependent variable	ID	percentage immunised of 12-23 years old DKTP	World Development Indicators
	dependent variable	IM	percentage immunised of 12-23 years old measles	World Development Indicators
civic use of media	explanatory variable	CA	index of civic activism as rank 0-100	Indices of Social Development
	explanatory variable	VA	index of voice and accountability as rank 0-100	Worldwide Governance Indicators
production of media	explanatory variable	PF	index of press freedom as rank 1-0	Freedom House
level of development	control variable	GDP	logarithm of GDP per capita	World Development Indicators
social spending	control variable	EXPH	percentage health expenditures of GDP	World Development Indicators
governance	control variable	RL	index of rule of law as rank 0-100	Worldwide Governance Indicators

#### 4. Insights from quantitative analysis

##### Bi-variate regression analysis

Before going into the multivariate regression analysis, let us start with the more intuitive statistical relationships with the help of scatterplots. The four diagrams below show the statistical relationship between two variables in table 1 plus the regression line of best fit.

Diagrams 1-4. Scatter plots between relevant variables



The first two scatter plots show on the vertical axis the two explanatory variables: press freedom (PF) in the first diagram and civic activism (CA) in the second diagram. The horizontal axes show two dependent variables, both social accountability variables: primary school completion rate (PCR) and under-5 mortality rate (U5MR). Hence, the two diagrams give a rough indication of how the explanatory variables are related to the dependent variables. Both show a negative relationship, and more or less the same size (the regression line has the same slope). Remember that PF is measured negatively: 0 means full press freedom and 1 means absence of press freedom. Hence, the first diagram indicates that the more press freedom, the higher primary completion rate. In other words, the more independent the media, the lower the school drop out. But does this mean that we can attribute higher completion rates to press freedom?

The second diagram indicates that the more civic activism, the lower child mortality. This seems a desirable result of an active civil society - civic activism seems to be able to force governments to deliver more effective child health care services. But are lower child mortality rates simply attributable to an active civil society?

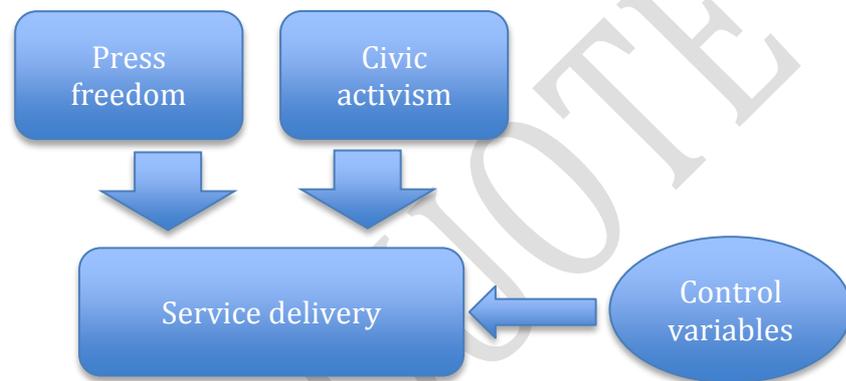
The third and fourth diagrams point out that the relationships of the first two scatter plots are not so straightforward. Diagram three shows that press freedom is also positively related (mind the negative measurement!) to health expenditures. Perhaps the positive effect of press freedom on the reduction in child mortality is not a direct effect at all, but runs through higher health care budgets. Diagram four suggests a similar indirect effect. Civic activism is positively related to rule of law in this scatter plot. So, perhaps civic activism has no direct effect on service delivery at all, but only on a more effective rule of law, which in turn contributed to a more effective service delivery.

Bi-variate correlations are a very crude method to measure statistical relationships. Because they do not control for the influence of other variables, which may be equally important or even more influential. That is why we need to do multivariate regression analysis. This allows for estimating the simultaneous influence of all relevant factors. Which factors are most relevant? Which factors become irrelevant or even have a reverse influence when other factors are taken into account? What is the size of the effects? And what is their probability of being estimated correctly (statistical significance)?

### Multi-variate regression analysis

A multi-variate regression analysis starts with a visual model (diagram 5). This shows the expected relationships between the various categories of variables. This is the model that we introduced at the end of the literature review.

Diagram 5. Model for determinants of social accountability



The multi-variate regression analysis consists of four estimations, for each health care service delivery variable one. And each estimation includes five independent variables: two explanatory (press freedom and civic activism) and three control variables (GDP, public expenditures on health, Rule of Law). The results are given in the following terms:

- a) size of the parameter, indicating how big the influence is of each individual independent variable on the dependent variable
- b) sign of the parameter, indicating whether the effect is positive or negative
- c) statistical significance of the parameter, indicating the probability that the parameter estimated is the true value (generally 99%, 95%, or 90%)
- d) strength of the model, expressed as R square, with values above 30% generally considered to be strong

The results allow a comparison between parameters, because the regression analysis returns parameter values for each variable. We will interpret here the results for a

model estimation, based on our panel regression analysis (with fixed effects for countries) as carried out in the underlying quantitative study (Macedo de Jesus and van Staveren, 2014a and 2014b). The sample included 5 years of data (1990, 1995, 2000, 2005, and 2010) and all developing countries (except those with missing data for certain variables, which makes the sample sized per estimated equation vary between  $n = 168$  and  $n = 457$  country-year cases). We also run the same regressions with time-lags for the independent variables, to test for time-consistency of the estimations. This is, next to the fixed-effects estimations, another test for causality: if the values of the independent variables of five years back still have substantive parameter sizes and are statistically significant, it is more likely that the regression results show the expected direction of causality.

Table 2 shows a summary of the results for the case that the value of an independent variable increases. What happens when there is 10% more civic activism (CA)? The table shows that in that case there are 8.9 less children dying under the age of one year old (IMR) on average for developing countries, and even 17.1 less children dying under the age of 5 (U5MR). Also, the immunization rates go up: 6% for DTP and 4% for measles (IM). But, the table shows that money has a bigger effect. 1% more economic growth (GDP) has a ten times bigger effect on under-5 mortality, for example. And 10% more health expenditures by the government (EXPH) reduces child mortality more than twice as much as compared to 10% more civic activism ....

But Rule of Law (RL) is less effective than any of the other variables. The signs of the parameters are positive for civic activism on all explanatory variables. Also, statistical significance is strong for civic activism for all four health outcome variables. But not for press freedom – that is why press freedom has only empty cells in the table.

The results imply that:

- 1) Civic activism (CA) has a positive influence on social accountability in the area of health outcomes.
- 2) Press freedom (PF) does not have a statistically significant effect on social accountability
- 3) Money has stronger effects on health outcomes than civic activism, both through income (GDP) and through public expenditures on health (EXPH).

Table 2. Results for statistically significant determinants of social accountability

<b>Model:</b>	<b>+ 10% CA</b>	<b>+10% PF</b>	<b>+1% GDP</b>	<b>+10% RL</b>	<b>+10% EXPH</b>
infant mortality (IMR)					
number of children	-8.9	-	-12.3	-1.5	-20.3
under-5 mortality (U5M)					
number of children	-17.1	-	-171	-3.0	-40.1
immunization DTP (IDTP)					
percent	+0.06	-	+0.07	-	+0.13
immunization measles (IM)					
percent	+0.04	-	+0.08	-	-

### Weaknesses

Finally, we like to draw the attention to the weaknesses of our analysis. First, the service delivery variables, as outcome variables, not only refer to government efforts but also include efforts of the private sector and communities to deliver better health outcomes. Second, for various variables, there is missing data for individual country-year combinations. We have been able to address this partially by using data for the years close to the selected years. This is justifiable, because also the CA index is constructed with data for the two years below and above the selected year. For example, where data was missing for a variable for 2005, but available for one of the years 2003, 2004, 2006, or 2007, we included the observations for the closest available year of these four alternative years for the 2005 data. Third, although we did causality checks, the results can never provide a hundred per cent reliability of the direction of causality. But, compared to the empirical literature discussed above, our estimations address the endogeneity issue more extensively, in three complementary ways. We did this through a Granger-causality test for the independent media variables, we used a fixed effects estimation, and we did a robustness check with time-lagged variables for independent media.

## 5. Conclusions

A comprehensive quantitative analysis of civic innovation can provide complementary insights to qualitative analyses due to the large scale level of the analysis revealing general patterns across countries. In particular, it points at size effects, the probability of these, their signs (positive or negative effects), and relative effect to other variables. It also uses key concepts of civic innovation, next to scale, which, in our analysis of civic activism and social accountability are activism, values, and institutions.

The overall conclusion from our analysis is that a quantitative analysis of civic innovation is possible and meaningful, but not entirely on its own. Its results are most meaningful in combination with qualitative analysis, either through the use of primary data analysis, or through a thorough literature review or a mixed-methods approach with a variety of qualitative research methods. Whereas civic innovation analysis can never be reduced to numbers, a quantitative analysis reveals general patterns, size effects, and some clues about causality. It is particularly the scale of quantitative analyses of civic innovation, which provides the complementarity to qualitative studies.

## Bibliography

- Becker, Lee, and Tudor Vlad, 'The Conceptualization and Operationalization of country-level measures of media freedom', in Price, Monroe, Susan Abbott, and Libby Morgan (eds.) *Measures of Press Freedom and Media Contributions to Development - evaluating the evaluators*. New York: Peter Lang, 2011, pp. 23-43.
- Coronel, Sheila, 'Corruption and the Watchdog Role of the News media', in Pippa Norris (ed.) *Public Sentinel – News Media and Governance Reform*. Washington D.C.: The World Bank, 2006, pp. 111-136.
- Foa, Roberto, Arjan de Haan, Irene van Staveren, and Ellen Webbink (2014) 'The Last Mile in Analyzing Wellbeing and Poverty Indices of Social Development', *Forum for Social Economics*, 43 (1), pp. 8-26.
- Fowler, Alan, and Kees Biekart (2011) *Civic Driven Change: a Narrative to Bring Politics back into Civil Society Discourse*. Working Paper no. 529. Institute of Social Studies: The Hague.
- Gaventa, John, and Rosemary McGee (2013) 'The Impact of Transparency and Accountability Initiatives', *Development Policy Review* 31 (S1), pp. S3-S28.
- Glasius, M. (2010) 'Dissecting Global Civil Society: Values, Actors, Organizational Forms', Working Paper 14. The Hague: Hivos.
- IDS (2006) *Making Accountability Count*. IDS Policy Briefing issue 33, November 2006.
- Joshi, Anuradha (2014) 'Reading the Local Context: a Causal Chain Approach to Social Accountability', *IDS Bulletin* 45 (5).
- Khemani, Stuti, 'Local Government Accountability for Health Service Delivery in Nigeria', *Journal of African Economies* 15 (2), 2005, pp. 285-312.
- Macedo de Jesus, Anderson, and Irene van Staveren (2014a) *Production and Use of Independent Media: Road to Government Accountability?* The Hague: Institute of Social Studies.
- Macedo de Jesus, Anderson, and Irene van Staveren (2014b) *Production and Use of Independent Media: Road to Government Accountability?* The Hague: Institute of Social Studies. Working Paper 2014-1 Indices of Social Development. URL: [http://www.indsocdev.org/resources/Working\\_Paper\\_2014-1\\_Production\\_and\\_Use\\_of\\_Independent\\_Media.pdf](http://www.indsocdev.org/resources/Working_Paper_2014-1_Production_and_Use_of_Independent_Media.pdf)
- Mejia Acosta, Andres (2010) *Democratic Accountability and Service Delivery – a*

- Desk Review. Brighton: Institute of Development Studies (IDS).
- Price, Monroe, 'Press Freedom Measures: an Introduction', in Price, Monroe, Susan Abbott, and Libby Morgan (eds.) *Measures of Press Freedom and Media Contributions to Development - evaluating the evaluators*. New York: Peter Lang, 2011a, pp. 1-19.
- Price, Monroe, Susan Abbott, and Libby Morgan (ed.s) *Measures of Press Freedom and Media Contributions to Development - evaluating the evaluators*. New York: Peter Lang, 2011b.
- Norris, Pippa, 'The Role of the Free Press in Promoting democratization, Good Governance, and Human Development'. Paper for UNESCO meeting on World Press Freedom Day. Colombo, 1-2 May 2006.
- Scrivens, Katherine, and Conal Smith, Four Interpretations of Social Capital: an agenda for measurement. OECD Statistics Working Papers, 2013/06. Paris: OECD.
- Shah, Anwar, Demanding to be Served: Holding Governments to Account for Improved Access. Policy Research Working paper 4643. 2008. Washington D.C.: The World Bank.
- Tembo, Fletcher (2013) Rethinking Social Accountability in Africa: Lessons from the Mwananchi Programme. London: ODI.
- Tran, Hai, Reaz Mahmood, Yong Du, and Andrei Khrapavitski, 'Linking Measures of Global Press Freedom to Development and Culture: Implications from a Comparative Analysis', *International Journal of Communication* 5, pp. 170-191.
- UNDP, *Humanity Divided: confronting inequality in developing countries*. New York: UNDP.
- Van Staveren, Irene, and Ellen Webbink, 'Civil Society, Aid and Development: a Cross-Country Analysis', IOB Study, Ministry of Foreign Affairs of the Netherlands, The Hague, June 2012.
- Williamson, Claudia (2009) 'Informal Institutions Rule: Institutional Arrangements and Economic Performance', *Public Choice* 139, pp. 371-387.