



Investigating the Roots of Open Data's Social Impact

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Abstract: *It is a challenging and urgent task to innovate democracy. Open government data and Information Communication Technologies offer promising tools to enhance participation in democratic procedures. To better understand this expected outcome, the Open Data Barometer provides a cross-national study measuring readiness, implementation, and impact of open data. The barometer reveals puzzling inconsistencies. Countries scoring high in readiness and implementation do not consistently demonstrate high scores of impact. Furthermore, impact is elusive in most countries. Investigating what preconditions allow societies to realize impact can help inform policy makers, technologists, and civil society leaders on best practices to implement open data tools and policy. This paper looks specifically at the social impact of open data, described as marginalized groups having greater access and participation in government decision making. This research design that implements most similar systems and fuzzy logic, will evaluate the relationship between civil society and open data's social impact in eight Latin American countries. Results indicate that societies rich in political capital experience greater social impact from open data.*

Keywords: open data, social impact, civil society, social capital, political capital, Latin America

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Scholars of democracy have presented convincing empirical evidence of a global decline in the quality of democracy (Moller & Skaaning, 2013; Puddington, 2011). The proliferation of minimalist democracies and autocratic regimes since 1988 demonstrates this decline (Moller & Skaaning, 2013). The democratic experience has been threatened by electoral misconduct, lack of transparency, and corruption (Puddington, 2011). Closed power spaces exist within decision-making bodies of democratic governments to which citizens have no access or influence. In response, citizens and technologists employ Information Communication Technologies (ICTs) in the open data movement¹ as tools for civil society leaders and public officials to expand spaces of power and facilitate government-society collaboration. This practice of transparency and collective deliberation enabled by policy and networked technology promises to create a more participatory practice of democracy.

Open data legislation gives legal framework to how documents and proceedings of government should be made public. Disclosure of such data to the public enables the possibility of transparency, accountability, and participatory governance. One expected outcome of OGD is its social impact. The Open Data Barometer describes social impact as increased inclusion of marginalized groups in society, particularly policy making and access to government services. For example, in Brazil, a campaign for

¹ The term open data in this paper is used synonymously with the term open government data movement.

rural, small-scale farmers utilized public data on agricultural trade and production to create awareness of the importance of small-scale producers within the national Brazilian economy and to advocate for legislation supporting small scale and indigenous farmers (Reporter Brasil, 2013).

In the first and only index of its kind to measure open data readiness, implementation, and impact in seventy-seven countries, the Open Data Barometer (ODB) revealed puzzling inconsistencies, one of which is that countries scoring relatively high in social impact do not consistently score high in open data readiness and implementation, suggesting unexamined preconditions that may support social impact. This paper will investigate what civil society attributes, particularly social capital and political capital, contribute to social impact of open data as reported in the initiatives of eight Latin American countries. Understanding what latent preconditions nurture a stronger social impact can inform civil society leaders and public officials on how to realize the desired impact of open data. The First Section describes the open data movement and the Open Data Barometer. The Second Section introduces the role and scholarly theory of civil society in civic engagement, underscoring the differences between social capital and political capital. Section Three describes the method and data sources. Section Four reports the findings and is followed by the conclusion.

1. Open Data

1.1 Open Data Movement

As of September of 2013, ninety-six countries offered citizens the right to government data. Freedom information legislation may vary greatly from country to country in terms of format of the data and processes for accessing the data (Janssen, 2012). Examples of government documents and proceedings include maps, campaign donations, government contracts, voting records, budget allocation, land ownership, census data, business directories, and transportation data (Ubaldi, 2013). Open data evangelists promise better political, social, and economic outcomes. The Sunlight Foundation, a non-profit organization based in Washington DC, works to realize the political and social impact of open data by building web based and smart phone applications for opening the closed space of politics. For example, individuals can navigate to the web site Influence Explorer and search by legislator, organization, or industry to find donors and recipients of campaign financing. This political search engine bolsters transparency and offers citizens additional tools to hold legislators accountable to public good over private interests. Government generated geospatial data sets offer great opportunity for realizing economic impact of open data. In 2010, the United Kingdom made public a data set of maps and addresses that is estimated to create an economic increase of at least 22 million (USD 2011) to the British economy by 2016 (Carpenter & Watts, 2013). This economic increase is due to increased efficiencies and opportunities to innovate in information services. The United Kingdom and the United States are, in fact, leaders of the global movement for open data and rank first and second respectively in the ODB index measuring open data readiness, implementation, and impact.

In addition to political and economic impact, citizens of the developing world place great hope in the prospect of open data creating social impact. Sixty-two developing countries have enacted RTI legislation (Vleugels, 2012). Nearly all RTI laws were enacted since 2000, and over twenty occurred in the past five years. In a recent call for action to the Zambian government, the executive director of Women and Law in Southern Africa, Matrine Chuulu, stated,

“[Access to information] legislation is an essential tool for development for any country and its practical value to communities would be empowering communities, particularly in rural areas with detailed information about various projects from conception of the ideas up to completion. The communities would thus be empowered to ensure transparency in the processing of projects, and accountability for public funds.” (Chuulu, 2013)

Here Chuulu advocates for open data as a way to empower marginalized rural communities by including their voice in and supervision of the national development agenda. Despite the certainty of

advocates like Chuulu that open data and its impact is essential, preliminary studies show the social impact of open data is quite elusive. Indeed, a key finding of the ODB global report reveals that the impact of open data is a challenge to achieve. The ODB measures overall impact in three key areas: political, entrepreneurial, and social. In forty-five percent of the sample, researchers gave a score of zero as the measured level of overall impact. Across the sample, average overall impact score was twelve out of a possible one hundred. Looking solely at social impact, fifty-seven percent of countries experienced no measurable social impact with a mean score of 11 out of a possible 100 (Open Data Barometer, 2013). This is not promising for our advocates like Matrine Chuulu.

There is a particularly strong deviation in impact across developing nations. For example, Brazil, Uganda, Kenya, and the Philippines score considerably higher than do Mexico, Thailand, India, Costa Rica, and Ghana in social impact. Additionally, it is puzzling to find that some countries score above average in social impact although they score below average in readiness and implementation of open data initiatives. This puzzling variation offers an opportunity to understand why some countries experience social impact of open data and others do not. While the Open Data Barometer offers a rich quantitative and qualitative evaluation of national capacity, capability, and subsequent outcome of open data, it does not fully research attributes of civil society that might contribute to open data outcomes. This investigation into open data examines how pre-existing practices of an active civil society contribute to social impact.

1.2 The Open Data Barometer

The World Wide Web Foundation and the Open Data Institute developed an index, the Open Data Barometer (ODB), to evaluate open data readiness, implementation, and impact. Data collection includes peer-reviewed expert surveys, a critical review of open data laws, data sets available by country, and socioeconomic and political secondary data.

The ODB readiness sub-index measures government, infrastructure, entrepreneurs, and civil society. Government plays an important role in providing laws, data, and incentives to encourage an open data culture. The Barometer's indicators for government readiness include expert surveys on the vision and priority of open data in the political agenda. As secondary data, the index includes an indicator of how easily government services are accessed online. Infrastructure readiness is captured primarily through a measure of Internet users per 100 people. Entrepreneurs are also important to the open data ecosystem. Innovative technologists build applications and products on top of open government data sets that not only improve outcomes for customers and government services, but also support growth of a knowledge-based economy (The Economist, 2010). The Open Data Barometer measures entrepreneurial readiness using expert surveys to indicate to what extent IT professionals engage with government officials as well as the in-country training available for individuals to use open data. As secondary data, the Barometer includes the World Economic Forum measure of the extent to which firms adopt new technology. If open data is to create political and social impact, civil society must also employ these data sets to encourage transparency and hold governments accountable. Expert survey questions measure this readiness by asking how civil society organizations are engaging with governments regarding open data as well as asking what opportunities government officials extend to engage civil society organizations (CSOs). The readiness sub-index also includes Freedom House rankings in political rights and civil liberties.

The second sub-index measures implementation of open data by investigating the availability and accessibility of government data sets. Researchers catalog data sets and evaluate whether or not data was up to date, free to access, openly licensed, easily located, machine readable, etc. Additionally, data surveyed was categorized by use into three clusters. The innovation cluster, used primarily by entrepreneurs, includes map data, transportation, crime statistics, and trade data. A social policy data cluster allows for planning and critiquing of social programs and includes health and education sector performance, environment statistics, census data, and land ownership data. Citizens can hold government and corporations accountable with the third data cluster, accountability, which includes data on legislation, election results, government budget and spending, and company register.

Measuring the impact of open data is arguably the most challenging task. Similar to the implementation sub-index, impact is divided into three categories: social, political, and economic. Researchers collected online, mainstream and academic publications about open data impact to create a proxy indicator for impact. Each publication received a score based primarily on the source, and peer-reviewed academic journal articles were considered greater evidence for impact. Each impact category received a score between a zero and ten. Ten indicated evidence of publications on open data impact that went through the most rigorous test of evaluation validity. If a researcher gave a score of over five, he or she was required to cite at least two examples. One issue with this proxy is that countries that have more active media could cause a measurement error of greater social media impact. No such correlation appears to exist in comparing social impact scores with number of major online news operations as reported in a database of online media outlets (*World News Guide*, 2014). A more concrete instrument that measures change in the marginalized population's involvement in accountability of public officials would be a better indicator. While this proxy measurement design is not perfect, it is the only existing effort of a cross-national study of open data social impact.

2. Open Data and Civil Society

2.1 Open Data Social Impact and the Role of Civil Society

Social impact through the use of open data is described as the increased voice of marginalized groups in public issues and access to government services pertaining to their well-being. The social policy and accountability data sets support transparency and accountability by placing evidence of government decision making in the public sphere. As citizens claim this data, they can practice vertical accountability by supporting or critiquing politicians' campaign promises and social programs. For example, Bitange Ndemo, a major advocate for open data practice in Kenya, wanted to tell a story of access to education and sanitation infrastructure. He demonstrated the power of open data by mapping distribution of government resources by state compared to poverty rates and placed this map online. His map revealed that wealthier constituencies received greater government investment. Maps like Ndemo's aid in advocating for transparency in budgeting and accountability in investing in resource-poor states. Kenyan legislators quickly saw to the removal of these maps from Internet sites (Majeed, 2012).

Open data sets support dialogue or collective deliberation with public officials. Political scientists find that the involvement of many diverse perspectives creates positive governance outcomes (Estlund, 2007; Landamore 2008, 2012). However, availability and accessibility of data does not immediately translate to the empowerment of marginalized populations. Machine-readable data sets do not offer inclusion or voice to the marginalized. As the Zambian lawyer Chuulu states, "it is a tool for empowerment." Civil society groups must be data literate and have access to appropriate data sets. Their motivation to use open data may not be matched by their technological skills or access. The Barometer includes a single indicator on civic political engagement, Freedom House's score of political freedom and civil liberties. A focus on data legislation, government data sets, and ICT infrastructure and training ignores potential important indicators of an engaged civil society's role in open data impact. The Barometer is perhaps missing measures that capture tendencies and motivations created by social capital and political capital which support increased inclusion of marginalized groups in policy making and accessing government services through open data.

2.2 How Civil Society Expresses Voice

There exist several versions, theories, and descriptions of civil society. Mary Kaldor (2003) looks specifically at civil society, at trust, and at giving voice to marginalized groups in the developing world in her article, "Civil Society and Accountability." This context relates most closely to marginalized populations expressing voice in the eight Latin American countries used in this comparative study. Kaldor suggests three contemporary theoretical approaches to civil society. The "activist" approach emerged in

the 1970s and 1980s in both Latin America and Eastern Europe as organized groups rejected authoritarian states. Latin American leaders were greatly influenced by Gramscian hegemonic theory and liberation theology in their efforts to use education to empower the impoverished. As Vaclav Havel (1985) explains, the aim was to open up the state and change the relationship between state and society, politics and real people. Under this school of thought, Jurgen Habermas (1962) describes civil society as spontaneously emerging associations between market and home that generate movements attuned to societal problems of the private sphere and that transmit these challenges to the public sphere.

Kaldor dubs the second theoretical approach the “neoliberal” version. In this version, civic organizations independent of the state and market help facilitate the functioning of the state and market. Scholars theorize that civic organizations enhance democratic outcomes (Putnam, 1993; de Tocqueville, 1935; Fukuyama, 1995). These theories are based on the notion that civic associations, through trust and repeated interaction, encourage good governance. According to Kaldor, civic organizations under the neoliberal version may support a limited state or replace the role of the state. The final theoretical approach to civil society is “post-modern” critique of the two prior versions. The post-modern approach claims activist and neoliberal scholars unjustly invent a social attribute that may not be modern or civil as part of Western discourse. Post-modern scholars argue that activist and neoliberal notions of civil society ignore ancient and sometimes rural traditions of organization, autonomous of the state (Zubaida, 2001).

Kaldor provides a definition of civil society that finds common ground among versions. She posits that civil society consistently includes “a rule governed society based on the consent of individuals.” She therefore offers the following definition of civil society: “organizations, groups, and movements who are engaged in [the] process of negotiation and debate about the character of the rules.” Most succinctly, it is “the process of expressing ‘voice’.” This study examines how presence of civil society’s ‘voice’ provides latent capacity for open data’s social impact. Additionally, Kaldor divides civil society into four types of actors: social movements, non-governmental organizations, social organizations, and national or religious organizations. This taxonomy of civil society will be used as a framework to measure and categorize civic ties and their relationship to open data’s social impact.

2.3 How Civil Society Organizations act as agents of open data social impact

Social movements engage in contentious politics. Evoking Sidney Tarrow’s description, individuals and organizations of social movements advocate for new or unaccepted claims, but these claims can be tamed or integrated into a political process (Tarrow, 1998). Right to information and open government data advocates who call for access and transparency to closed powers spaces of government classify as social movements (Access Info Europe & Open Knowledge Foundation, 2011). Citizens seeking transformation may use newly accessible government data to legitimize their voice in making claims of social or political justice. Countries with civil society actors who often engage in social movements may, therefore, be more likely to employ the tools of open data and to experience some degree of social impact from open data.

Non-governmental organizations (NGOs) are also considered civil society actors. These organizations perform specific roles and are described as working in solidarity with the poor and marginalized (Kaldor, 2003). NGOs most often provide services to beneficiaries. Their interaction with the state is two sided. Some international development aid agencies see NGOs as alternatives to ineffective or corrupt government. Many argue this challenges the legitimacy of developing country governments (McMichael, 2012). Additionally, governments may sub contract service provisions to these organizations, potentially making advocacy and civic engagement a conflict of interest. However, some NGOs provide expertise in specific issue areas and may take up advocacy campaigns by lobbying or mobilizing constituencies. Considering the various roles of NGOs, it is uncertain how a large presence of NGOs as civil society actors would contribute to or hinder the social impact of open data.

Kaldor names social organizations as a third actor in civil society. Social organizations resemble Putnam’s (1993) indicators for social capital and include professional organizations, community groups,

or any organization representing a particular section of society (i.e. women, farmers, labor, tribe). Social organizations differ from NGOs in that instead of members working for the poor and marginalized, members are in fact the poor and marginalized. These organizations advocate for mutual benefit. Pre-existing, active social organizations already giving voice to the marginalized could also provide fertile ground to open data. However, this tool of web-based portals and machine-readable data sets could also prove challenging to organizations which lack connectivity or the skill sets of data literacy.

National or religious organizations based on culture, kin, or religion form the last classification of actors in civil society. Kaldor asserts these hierarchical organizations are based exclusively on identity politics and may advocate against democracy and openness. Religious organizations may advocate for policies resulting in the repression of human development and rights of marginalized groups. Accordingly, these civil society actors may not contribute to social impact of open data, and could hinder efforts of inclusion and advocacy. Kaldor's classifications and descriptions of civil society demonstrate the ambiguity of civil society's role in accountability, further begging the question of how civil society actors play a role in creating social impact of open data.

2.4 Social capital versus political capital in democratic participation

In addition to civil society, political capital may also contribute to open data's social impact. Latin American scholars, Booth and Richard, expand upon Kaldor's observations in an empirical study of civil society and democratic participation in Central America. They offer further insight by separating social capital and political capital. While the focus is on countries in Central America, the comparative analysis of social capital and political capital sets a foundation for this study to uncover political features of society that allow for open data impact. Their investigation, "Civil Society, Social Capital and Democratization in Central America," goes beyond measures of civil society and includes political capital. Booth defines political capital as attitudes supportive of democratic norms and behavior that engage citizens with the state and each other in channeled ways, conveying interests, preferences, and demands to the regime. He measures civil society in two ways. Formal group activism includes unions, civic associations, cooperatives, and professional groups. And communal activism includes self-help groups at the local level, like schools and churches.

To test the Putnam hypothesis that civic ties improve governance by facilitating communication, decreasing incentives for opportunism, and developing taste for collective benefit, Booth and Richards measure social capital through political knowledge and interpersonal trust, indicated by participants in survey responses. They measure political capital by commitment to democratic norms and political participation as demonstrated through voting, contacting public officials, and campaigning. Statistical analysis reveals two main findings. Communal activism is positively associated with increased interpersonal trust and the political activity of contacting public officials, but negatively associated with democratic norms, campaigning, and political knowledge. Formal activism is positively correlated with democratic norms and with all political participation indicators. Again we find that civic associations do not always translate to increased engagement in democratic processes. This study on communal activism sets the stage for analyzing how social capital and political capital contribute to increased voice of marginalized groups in government through open data. By investigating the role civil society plays in promoting the social impact of open data, this paper further tests the claim that civil society, through attributes of social capital and political capital, makes democracy more robust by increasing political participation in the open data context.

3. Methods and Data

3.1 Method: Most Similar Systems

The method of Most Similar Systems or Mill's Method of Difference allows the comparison and contrast of cases with the same attributes but different outcomes. This study employs this method to identify social

capital or political capital attributes that are present when open data's social impact occurs and is absent when this outcome does not occur. All cases within the study are from the same region of Latin America and share historic transitions from authoritarian to democratic regimes and rank high or very high in the human development index. As this investigation includes a small number of cases, the method employs an appropriate mix of qualitative and quantitative analysis, including concepts of fuzzy logic and truth tables as well as regression analysis with the larger data set.

The set of eight comparative cases includes four countries scoring above average in social impact – Brazil, Argentina, Uruguay, and Ecuador – and four countries that scored zero social impact – Mexico, Chile, Costa Rica, and Colombia. Brazil, Argentina, Uruguay, and Ecuador are outliers in their demonstration of social impact. In fact, of the whole sample, only seventeen countries scored above zero. Of these countries, the average score was a two. Mexico, Chile, Costa Rica, and Colombia are four of the many countries that scored a zero on social impact. What is more puzzling is that these low-impact countries score well in readiness and implementation, which we might assume to be good predictors of impact. Using this sample of eight, the paper investigates how civil society's social capital and political capital is an explanatory precondition to open data impact.

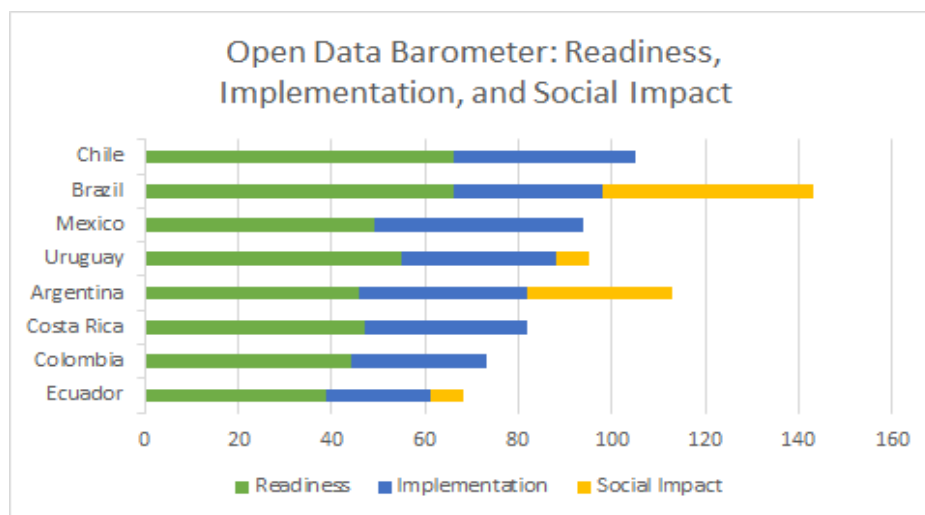


Figure 1: Latin American Cases and ODB Scores

3.2 The Data

In addition to the previously outlined ODB indicators of readiness, implementation, and impact, I will use the survey data from the Latin American Public Opinion Project (LAPOP), a project that measures democratic values and behaviors. The data is based on national probability surveys of voting age adults in each country. Additionally, Kaldor, Booth, and Richard's works are used as guides for how to categorize and measure evidence of social and political capital. Of the set of survey results, the following questions are used as indicators of social capital: "Do you attend meeting of religious organizations once a week or once or twice a month?" and "Do you attend meetings of professional organizations once a week or once or twice a month?" Additionally, the number of civil society organizations registered with the United Nation's Department of Economic and Social Affairs Civil Society Database indicate social capital. This indicator is normalized by country population and is calculated as the number of CSOs per 1 million inhabitants. The LAPOP survey provides indicators of political capital: self-reported voter turnout in the previous election, and includes the following two questions, "During election times, some people try to convince others to vote for a party or candidate. How often have you tried to persuade others to vote for a party or candidate?" and "Do you attend political party meeting once a week or once or twice a month?"

Table 1. ODB, Social Capital, and Political Capital Summary Statistics

	ODB	Social Capital			Political Capital		
Country	Social Impact Score	Attend Religious Organization	Attend Professional Organization	CSOs registered with UNDESA	Election Turnout	Attend Political Party Meeting	Political Persuasion
Brazil	31	13.02	3.04	6.86	88.7	4.38	12.7
Argentina	45	33.96	4.18	5.40	88.5	3.35	22.8
Ecuador	7	11.66	3.83	5.38	68.3	1.02	15.1
Uruguay	7	33.29	5.23	4.69	63.7	2.91	19.4
Chile	0	33.58	3.96	10.4	66.5	1.23	15.2
Colombia	0	23.13	8.58	10.77	88.9	3.41	17.9
Costa Rica	0	27.09	4.44	2.80	67.7	4.19	8.2
Mexico	0	10.46	4.37	10.6	89.9	3.53	15.9
<i>average</i>	11.3	23.3	4.7	7.1	77.8	3	15.9
<i>st dev</i>	17.2	10.3	1.6	3.1	12.1	1.3	4.4

4. Data Analysis and Findings

4.1. Linear Regression Models Analysis

Linear multivariable regression models test the relationship between ODB scores of readiness, implementation, and impact. Model 1 demonstrates the statistical relationship between the dependent variable of social impact and two independent variables of readiness and implementation in the full data set of 77 countries. Model 2 looks at these same variables for the 44 developing countries included in the ODB data set. Both models reveal that readiness and implementation do not adequately explain social impact, particularly in the developing country set of 43 countries as indicated by low coefficients, t-scores, and R squared values (see Table 2). With social capital scores as the dependent variable (y-axis) and readiness as the independent variable (x-axis) in Model 1 and implementation as the independent variable (x-axis) in Model 2, the two-way scatter plots demonstrate the weak and nearly flat line modeling the relationship between the ODB scores of social impact against readiness and implementation separately.

Table 2. Multivariable Linear Regression of Social Impact

Variable	Model 1 (all countries)	Model 2 (developing only)
Readiness	.17 (1.3)	.19 (1.76)
Implementation	.46* (3.07)	.008 (0.06)
R squared	0.48	0.14

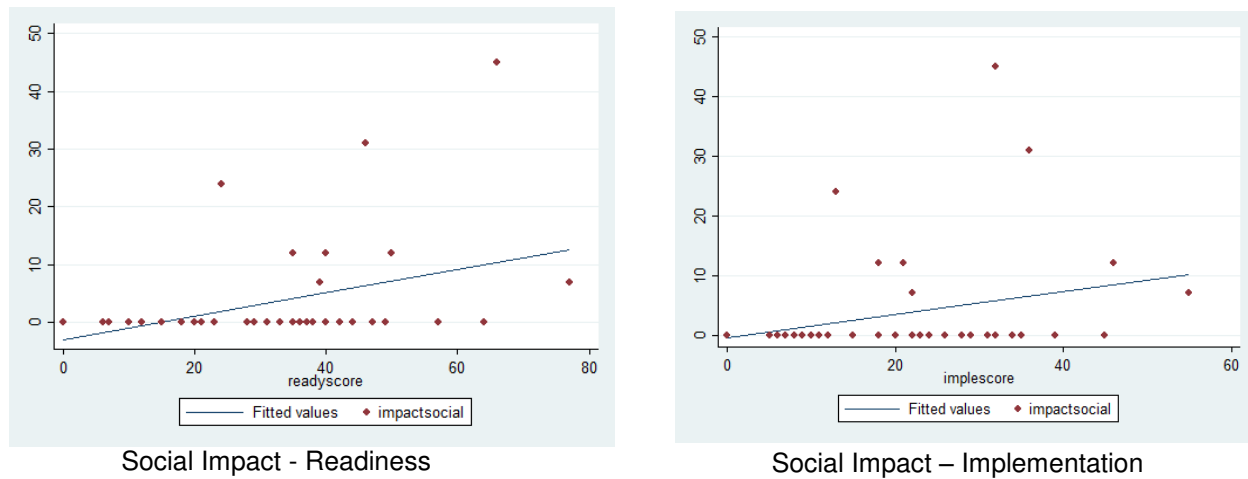


Figure 2. Two-Way Scatter Plots

4.2 Fuzzy Logic Analysis and Findings

Fuzzy logic and truth tables allow researchers to identify causal conditions with smaller sample size. This method allows the evaluation of each country’s degree of social capital and political capital to determine how these civil society attributes are associated with the presence or absence of open data’s social impact. Fuzzy logic calibration provides scores that indicate the degree to which an indicator of interest is present. Scores fall between 0 and 1, with a 1 indicating a high degree of presence and a 0 indicating no presence. This method of analysis will sort cases into high, average, or low presence of social capital and political capital. These classifications will be used to build cross-tabulation tables to evaluate strength and symmetry of correlation between the desired outcome of social impact and the preconditions of political capital and social capital.

Table 3. Fuzzy Logic Calibrated Scores

Country	ODB	Social Capital				Political Capital			
	Social Impact Score	Religious fz	Professional fz	CSO fz	overall	Turnout fz	Party Meet fz	Political Persuasion fz	overall
Brazil	0.95	0.99	0.23	0.28	average	0.96	0.74	0.89	high
Argentina	0.99	0.11	0.05	0.48	low	0.96	0.98	0.71	high
Ecuador	0.5	0.72	0.97	0.98	high	0.96	0.77	0.86	high
Uruguay	0.5	0.05	0.28	0.97	average	0.97	0.83	0.81	high
Chile	0.05	0.08	0.15	0.27	low	0.05	0.05	0.2	low
Colombia	0.05	0.98	0.56	0.2	average	0.01	0.47	0.47	average
Costa Rica	0.05	0.98	0.17	0.97	high	0.03	0.07	0.21	low
Mexico	0.05	0.89	0.3	0.07	average	0.04	0.97	0.02	low

*Social and Political Capital tendencies of low, average, and high are determined based on fuzzy logic calibrated scores in the columns marked “fz.” Fuzzy logic scores are based on standard deviations from mean scores within the subset.

Table 4. Cross Tabulation Social Capital and Social Impact

	Social Capital absent	Social Capital present
Social Impact present	Argentina	Brazil, Ecuador, Uruguay
Social Impact absent	Chile	Costa Rica, Colombia, Mexico

Table 5. Cross Tabulation Political Capital and Social Impact

	Political Capital absent	Political Capital present
Social Impact present		Brazil, Argentina, Ecuador, Uruguay
Social Impact absent	Chile, Colombia, Costa Rica, Mexico	

The cross tabulation of outcome and potential cause reveal two findings of interest. First, the relationship between social capital and social impact of open data is quite ambiguous. An equal number of countries that exhibit the presence of social capital score both high and low in social impact. For example, Argentina holds the highest score in social impact and scores low in social capital as measured by all three indicators: attendance of religious gatherings, attendance of professional organization meetings, and number of nongovernmental organizations in country. In contrast, the cross tabulation of political capital cause and social impact outcome shows much stronger correlation and symmetry. Countries fall neatly into quadrants labeled “political capital present-social impact present” and “political capital absent-social impact absent.”

Social capital’s weak relationship with social impact echoes Kaldor’s discussion of civil society’s roles in providing voice to marginalized populations. Kaldor is critical of religious organizations and non-profit organizations because of their lack of incentive and interest in engaging in potentially contentious politics that may challenge status quo. She does find that social organizations whose members are the poor and marginalized are much more likely to express voice through organized campaigning and advocating. Dissecting these indicators for social capital further into the classifications specified by Kaldor, it would appear that countries who perform best in social impact of open data possess a greater presence of civil society organizations (CSOs). This may suggest that of all the social capital associations, CSOs play a greater role in using open data as a mechanism for giving voice to marginalized populations than do religious or professional organizations. The previously described use of open data to advocate for legislation supporting indigenous, small-scale farmers was a campaign by a consortium of civil society

organizations including Green Peace and the Center for Indigenous Labor (*Republicados Ruralistas*, 2013).

The finding that political capital is a strong predictor of social impact of open data initiatives provides potentially important insight. This relationship suggests that a practice or norm of engaging with the state in channeled ways is another important factor in a country's "readiness" for open data. For example, in Argentina, a group of technologists created a political party, The Net Party, based on the open data initiative. Their efforts of participatory democracy, enabled through networked technologies, involve more than handsets and data sets. The party recognizes that while most of the city has internet access, many communities face barriers to participating in both political and technological systems. For this reason the The Net Party partners with civil society organizations to train marginalized community members in using technology to express voice (*Tech President*, 2014).

4.2 Conclusion

The social impact of open data initiatives has been largely elusive. With the promised outcome of increased inclusion of marginalized groups in a more participatory democracy, it is imperative to understand what societal preconditions support impact. The ODB's measurements of readiness and implementation focus primarily on the technological features and on access to open government data. The technological capacity and tools of open data are necessary, but they do not appear to provide sufficient preconditions for change in transparency and accountability. In this comparative study of eight Latin American countries where political capital is high, countries experience social impact of open data. This suggests that open data advocates should look towards public officials and political parties as important stakeholders and agents of change in the open data movement. Countries where citizens already engage with the political system through voting, attending political meetings, or participating in political discussions could be better poised to pick up the tools of open data to create social change.

Existing political structures could serve as valuable channels and intermediaries for open data's social impact. While open data scholars and practitioners may be wary of trusting political bodies with implementing open data, they would be wise to consider the innovative participatory budgeting practice from Porto Alegre, Brazil. A political party looking to gain support while challenging corruption championed this practice. ICTs offer political parties and public officials the connectivity to facilitate collective intelligence and collective deliberation in similarly innovative ways. Particularly in developing countries, data sets and marginalized communities should not be seen as adversarial, but as partners in creating a political agenda and an inclusive vision for development.

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About the Author

Amanda Meng studies networked technologies and participatory democracy. Her interest in the intersection of ICTs, development, and democracy began as a Peace Corps Volunteer in the Dominican Republic. While democracy is her current focus, she has participated in the field evaluation of a mobile phone water delivery notification service in India and mobile banking with rural populations in Ghana. Amanda also aided in the deployment of the TID social media tracking center in Ghana (2012) and Nigeria (2014), and has conducted post hoc data analysis of election discussion over social media in emerging African democracies. Recently she collaborated with the International Telecommunication Union to evaluate the United Nations' initiative to crowdsource the global youth's participation in penning the Millennium Development Goals Beyond 2015. Amanda also engages locally with civil society organizations and the city of Atlanta to use ICTs to enhance participation in decision making. For her dissertation, she plans to investigate the role of intermediaries in realizing the social impact of open data in the Dominican Republic.