Surveying State Capacity

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Main Findings:

- We propose a new, survey-based strategy for measuring state capacity in Latin America
- This strategy has several important advantages over existing methods, which rely on crude proxies or state-generated data
- Questions from the 2014 AmericasBarometer provide proof of concept, correlating with existing measures and generating plausible rankings
- We highlight some of the payoffs of this approach and point out directions for future research.

S tate capacity, or the ability of state institutions to effectively implement a basic set of core functions and effectively enforce laws, is a central component of politics.[1] Observers of Latin America often see references to "state failure" and "state crisis," but state capacity also underlies democratic citizenship, domestic security, and effective governance.[2] Thus, accurate assessment of state capacity is necessary for understanding many aspects of contemporary politics in the Americas. Yet as we discuss in this *Insights* report, scholars and analysts currently lack high-quality measures of this core concept, and are forced to rely on crude proxies that are often calculated from state-produced data of uncertain quality, and which can be insensitive to sub-national variation.

This *Insights* outlines a novel approach to measuring state capacity. We first describe the new survey-based strategy we develop, using questions from the 2014 wave of the AmericasBarometer. Second, we show a series of findings at a cross-national level that describe trends across countries and dimensions of state capacity. Third, we demonstrate one way that these data can provide insight into patterns of subnational variation. We close by making the case for the use of this approach in further research, suggesting how it advances on previous attempts to assess state capacity, and identifying some directions for a research agenda that builds on our initial examination.

Measurement Strategy and Country Rankings

In this investigation, we use answers to questions from the 2014 AmericasBarometer survey to assess three dimensions of state capacity at the national level. For each dimension, we provide a graph of country scores, ordered by ranking from least (on the left) effective to most (on the right) effective. The three distinct aspects of the state's capacity that we examine are: its *reach across territory*, its ability to impose *taxation*, and its effectiveness in *provision of property rights*. Our choice of these dimensions derives from an extensive review of the conceptual and methodological literature on state capacity.[3] Though the term "state capacity" is used in many ways by scholars, policymakers, and analysts, we define it as the state's ability to implement basic policies. Therefore we do not incorporate corruption, patronage, or other dimensions of stateness into our definition or into our operationalizations of state capacity.

Reach across territory: To capture the reach of state institutions, we use a question new to the AmericasBarometer survey that asks respondents to estimate (using a five point scale) how long it would take the police to arrive at their home if called to respond to an emergency (answers include: (1) Less than 10 minutes, (2) Between 10 and 30 minutes, (3) More than 30 minutes and up to an hour, (4) More than an hour and up to three hours, (5) More than three hours) (INFRAX).[4]

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[1] This definition is based on Michael Mann's concept of 'infrastructural power' (1984) and draws on the conceptual discussions in Soifer & vom Hau (2008) and Soifer (2012).

[2] The academic scholarship on how state capacity affects these core elements of the political context is vast. For an important initial statement see O'Donnell (1993), and for a previous discussion of this issue in the context of the AmericasBarometer see Luna & Toro (2014).

[3] See among others Soifer (2012), Hanson & Sigman (2013), and Luna & Toro (2014).

[4] INFRAX: "Suppose someone enters your home to burglarize it and you call the police. How long do you think it would take the police to arrive at your house on a typical day around noon? (1) Less than 10 minutes, (2) Between 10 and 30 minutes, (3) More than 30 minutes and up to an hour, (4) More than an hour and up to three hours, (5) More than three hours." Alternatives read do not include "There are no police/they would never arrive" though as discussed below this was a common response in several countries. At the time this report was written, data was available from 25 of the 28 countries included in the

Figure 1. Reach across Territory (INFRAX)
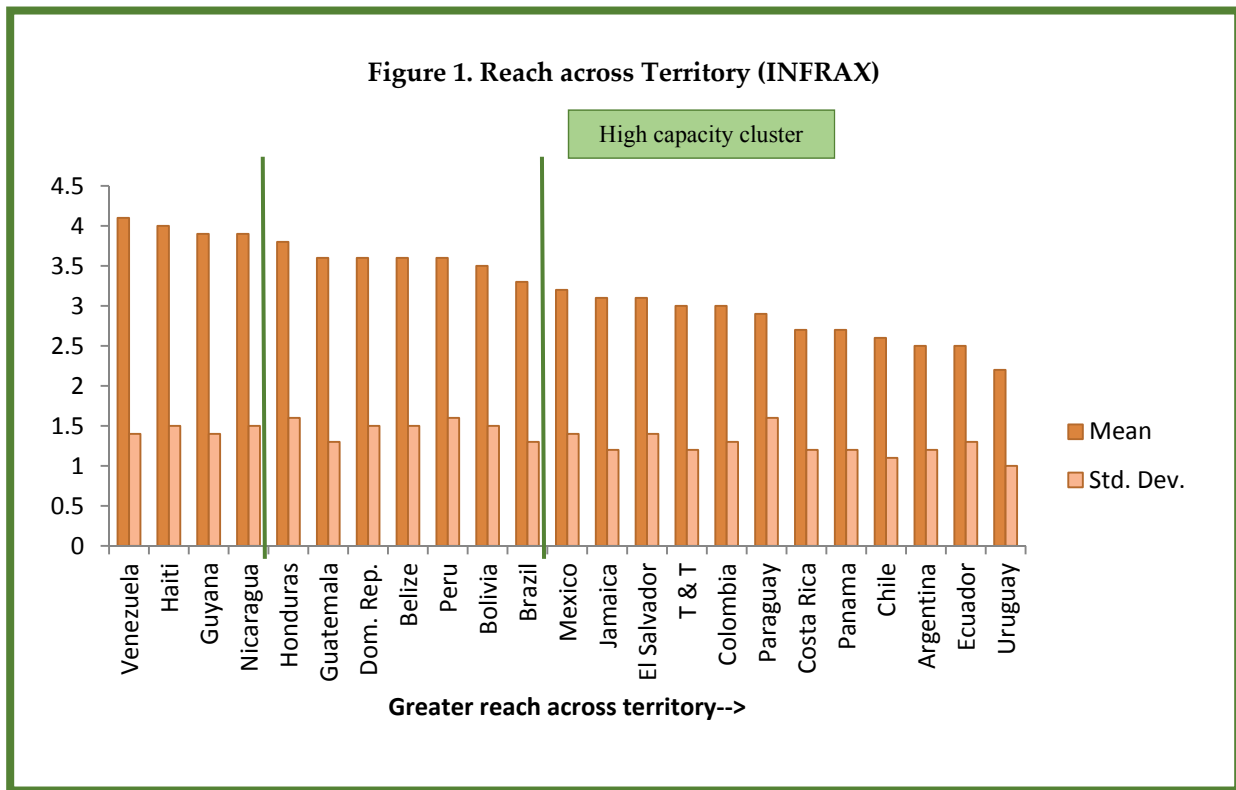
That responses are correlated very weakly (.09) with LAPOP's items on crime victimization confirms that this question taps something distinct from the state's provision of security.[5] On the other hand, individual responses are correlated at 0.53 with another question asked in eight countries that assesses the response time of fire departments (INFRA2).[6] This suggests that responses to INFRAX adequately tap the overall reach of state institutions over territory.

All but one of the cases cluster into three groups of countries sharing statistically similar mean levels of police response.[7] The highest ranked group includes all countries from Uruguay to Mexico in Figure 1 (12 countries).[8] The second group extends from Brazil to Honduras (seven countries). Finally, police response in Guyana, Nicaragua, and Haiti cannot be statistically differentiated. Venezuela, where some 44% of respondents answer either that police would take over three hours to appear, or do not exist, is an outlier.[9]

AmericasBarometer; all except Barbados, the Bahamas, and Suriname.

[5] Measures of the local crime rate are calculated from responses to VICBAR1 and VICBAR7, which were asked in 23 of the countries.

[6] INFRA2: "Suppose now that your house catches fire. How long do you think it would take the firefighters to arrive at your house on a typical day around noon?"

[7] Here and elsewhere in this note we refer to "clusters" when identifying cases among which significant differences of means are not observed in a Oneway ANOVA procedure that relies on Bonferroni pairwise comparison tests.

[8] Although data from the United States and Canada was available on this dimension of stateness, the other dimensions were not captured in those countries. We therefore limit our focus to Latin American and Caribbean cases exclusively. Notably, the country-level scores for the United States and Canada top the regional rankings on state reach and diverge significantly from all other cases, with most respondents expecting that the police will appear in under 30 minutes.

[9] In figures 1-3 we also display the standard deviations obtained for every indicator and country. In general, our cases display relatively homogeneous levels of variance. The only exception to this trend is our property rights indicator for which standard deviations decrease as state capacity increases. The levels of variance we observe in these three figures can be explained in a variety of ways. Observed variance could be produced either at the individual level and/or by the nesting of individuals within territorial/sub-national units among which state capacity may vary widely. We explore the latter possibility below,

Taxation: To capture the state's ability to impose taxes, we focus on sales taxes, which rank at an intermediate level in terms of ease of collection (Soifer 2012). We use another new question, COER1, which asks respondents to assess (on a four point scale) the likelihood they get a receipt for a purchase in a neighborhood store.[10] This question was asked in ten countries. At the level of the individual respondent, this indicator is correlated with the property rights dimension (described below) only at .12, confirming that it captures a distinct aspect of stateness.

Country means are shown in Figure 2. Of the ten countries where our taxation question was asked, the clear outlier is Chile, where 58% of respondents report always getting receipts for transactions in neighborhood stores, and another 28% report sometimes getting them. Chile scores significantly higher than every other country in the sample, followed by Uruguay and Belize that cannot be significantly differentiated, and then by

Figure 2. Taxation (COER1)
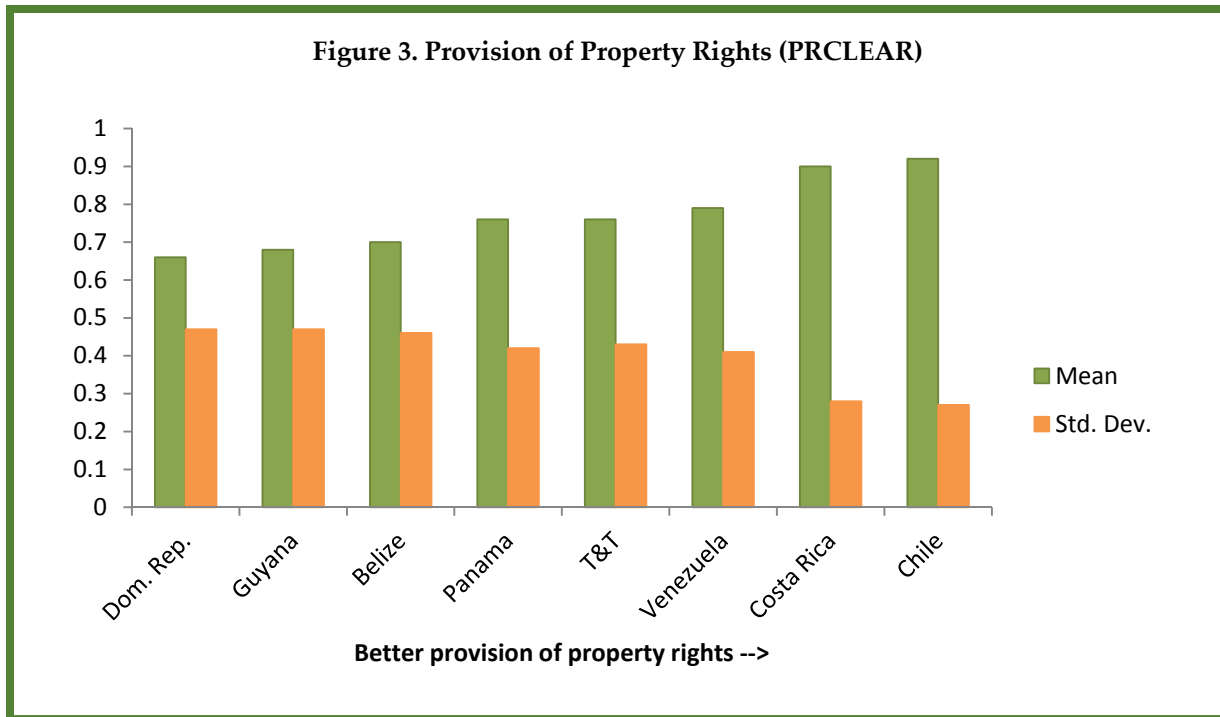
More extractive capacity-->
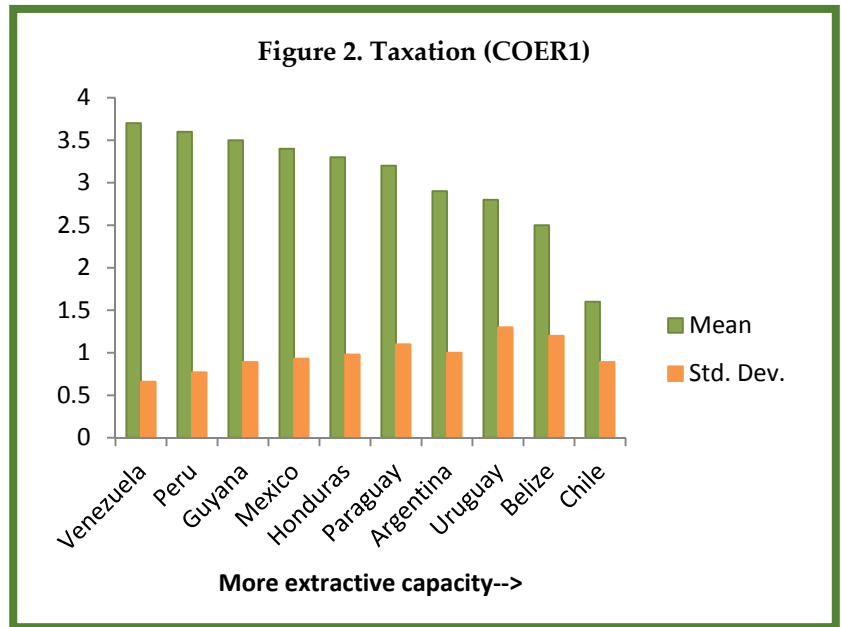
Argentina and Paraguay, which are each significantly different from all other countries in the sample. The remaining countries share statistically similar mean levels of taxation with at least one other case; these five of our ten cases hang together at the low end of the rankings.

Table 1. Correlations between our Dimensions and Existing Indicators			
	INFRAX	**COER1**	**PRCLEAR**
BTI stateness	-0.7 n=21	-0.8 n=8	0.8 n=6
Property rights payments/GDP per capita (WDI)[1]	-0.2 n=7	-0.5 n=4	0.5 n=7
Tax ratio (WDI)	-0.1 n=6	-0.6 n=6	-1 n=2
Net Primary school enrollment (WDI)	-0.3 n=19	-0.3 n=9	0.4 n=8
Improved water source access in rural areas (WDI)	-0.5 n=22	-0.4 n=9	0.0 n=7

where we argue that sub-national variance might carry significant weight in explaining the levels of within-country heterogeneity we observe in Figures 1-3. We intend to explore the sources of variation at the individual level in future research.

[10] COER question wording: "When you shop in a local store/shop in your neighborhood, even if you do not ask for it, would you receive a receipt/cash register receipt/invoice?"

Figure 3. Provision of Property Rights (PRCLEAR)

Better provision of property rights -->

Legend: Mean (green), Std. Dev. (orange)

Provision of property rights: We assess the state's enforcement of property rights using an indicator created from three questions (PR1, PR2, and PR3), which were asked in seven countries. The first, PR1, asks respondents whether they own their home; the second, PR2, asks whether those who do own have a title on that home; and the third, PR3, asks those who rent whether or not they have a rental contract.[11] Combining the affirmative answers to PR2 and PR3, we generate a measure of formal property rights in the housing sector. Because 4.2% of respondents overall (and over 15% of respondents in Panama) responded to PR2 by stating that their titles were "in process," we need to decide how to incorporate this option into our measure. In an abundance of caution, we develop three distinct measures: 1) PRSTRICT groups titles in process with untitled property;

2) PRLAX treats those responses as evidence that property rights are present, with the logic that titles in process reflect salient, if inefficient, property rights administration; and 3) PRCLEAR takes the simplest approach and drops "in process" responses.[12]

Figure 3, shows country scores for PRCLEAR. Chile and Costa Rica have similarly high scores. Over 90% of respondents in both cases have formalized property rights, based on the PRCLEAR measure. Venezuela, Trinidad & Tobago, and Panama cluster together in the middle of the rankings. The remaining three countries at the bottom of the rankings (Guyana, the Dominican Republic, and Belize) display similarly low levels of formalized property rights, with fewer than 70% of respondents in each country indicating that their housing situation is formalized.

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[11] PR1: "Is the home in which you reside rented, owned, or borrowed or shared?" PR2: "Does this home have a property title so that it is in your name, or is the title in the name of a bank or another institution?" PR3: "Do you have a rental contract?"

[12] The correlations between the country level scores for these three measures are above 0.9, and the coding rules do not affect the descriptive inferences we draw from the data.

External Validity

Though more systematic comparisons with existing measures are required, it is promising that our national-level findings match conventional wisdom about stateness in the Americas. It gives us some confidence that our measures capture the differences in state capacity across countries, and thus have a certain degree of validity. More confidence in the validity of these new measures derives from the fact that correlations with existing measures of state capacity appear as expected, as seen in Table 1. First, Table 1 shows that all three of our dimensions are well correlated with the stateness dimension of the Bertelsmann Transitions Index (BTI), suggesting that they all tap an underlying common variable. Second, commonly used indicators of state capacity drawn from the World Development Indicators (WDI) line up well with each of our dimensions.[13] The WDI measure of property rights payments (as a share of GDP per capita) is well correlated and correctly signed with our property rights dimension, but more weakly correlated with the other dimensions. The tax ratio correlates quite strongly with our measure of tax enforcement. And both primary school enrollment and rural water access are correlated as expected with the INFRAX variable that assesses the reach of state institutions (negatively, because higher values mean less state capacity on this measure). It should be noted, however, that the correlations we report are computed on the basis of an extremely low "n" (that is, a low number of observations at the country level) and should thus be taken as preliminary, but nevertheless suggestive, evidence for the validity of our measures.

The Uneven Reach of the State

Yet much of the interesting variance in stateness is not assessed by the national-level measures discussed thus far. It lies at the *sub-national level*, since states' performance of their core functions varies sharply across society and territory (O'Donnell 1993; Huntington & Wibbels 2014). This variation is not well captured in existing measures of state capacity, which take the country as the unit of analysis, use single indicators of stateness, and ignore sub-national variation. As a result, they do not provide a systematic way to assess whether the state is more effective in particular provinces or municipalities, and whether distinct dimensions of stateness share similar patterns of territorial variation.

Our survey-based strategy for assessing state capacity is unique. It provides the possibility of capturing subnational variation in many aspects of state capacity without relying on data generated by states or crude proxies, and without being limited to particular units of analysis because of data availability. Thus the payoffs from this approach lie in applying the strategy developed in this *Insights* to the sub-national context and examining sub-national variation in state capacity in the Americas. Here, we provide a preliminary exploration of these issues that highlights some of the findings that can be observed from very simple subnational analyses.

To do so, we stratify responses to each question by the size of the locality (as coded in the TAMAÑO variable on each questionnaire) where the respondent lives.[14] Figures 4 through

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[13] The World Development Indicators data was accessed online at http://data.worldbank.org/data-catalog/world-development-indicators

[14] We drop the responses for the national capital and large metropolitan areas for the purposes of this discussion. We do so for several reasons. First and most directly, they are not relevant to our focus on reach over territory. Second, national capitals and large metropolitan areas are not comparable across countries: some are mega-cities and others (Belmopan, for example) are quite small. Third, those national capitals and large metropolitan areas that are large display significant variation in state capacity within the capital city, making mean scores for the city as a

Table 2. Significant Differences across Tamano by Country and Dimension

Country	INFRAX % sig diff	PRCLEAR % sig diff	COER1 % sig diff
Argentina	**100**	n/a	**66**
Belize	66	**0**	66
Bolivia	**50**	n/a	n/a
Brazil	**33**	n/a	n/a
Chile	**33**	33	**50**
Colombia	**66**	n/a	n/a
Costa Rica	33	66	n/a
Dom. Rep.	**0**	50	n/a
Ecuador	**0**	n/a	n/a
El Salvador	66	n/a	n/a
Guatemala	100	n/a	n/a
Guyana	100	**0**	100
Haiti	66	n/a	n/a
Honduras	**17**	n/a	**33**
Jamaica	**0**	n/a	n/a
Mexico	**0**	n/a	33
Nicaragua	**0**	n/a	n/a
Panama	100	**100**	n/a
Paraguay	**66**	n/a	**0**
Peru	**0**	n/a	66
Trin. & Tob.	**100**	**100**	n/a
Uruguay	**0**	n/a	**66**
Venezuela	**66**	100	**33**

Table shows the percentage of all pairwise comparisons between means by tamaño that are significantly different at .05 level. Bolded cells indicate country-dimensions for which variation across tamaño is non-monotonic or monotonic but decreasing with population size. Due to the reasons more fully elaborated in fn.14, we drop the responses for the national capital and for large metropolitan areas for the purposes of the analysis reported in this table.

6, provided in the appendix to this report, show mean scores by *tamaño* (town size) for each dimension of state capacity by country, and thus reveal the extent to which the state makes its presence felt across the national territory.

A first observation from these data, which holds true across all three dimensions, is that state capacity is not always monotonically associated with locality size; in some cases it can be stronger in smaller towns and rural areas than in urban centers. One possible explanation for this surprising pattern is the effect of provincial *cabeceras* (regional/departmental capitals), many of which are quite small, but which might see relatively higher levels of state capacity because they are a seat of regional government.

whole less informative. We also drop all strata with fewer than 150 responses, leaving between 2 and 4 strata for each country on each dimension of state capacity.

A second observation comes from pairwise comparisons across *tamaño* within each country. We note in Table 2 the number of pairs for which significant differences exist as a share of all pairwise comparisons. As the number of pairs with significant differences increases, the state's reach can be said to be less even. Our data show dramatic variation. Examining the INFRAX (state reach) dimension, we see that Uruguay and Argentina, which have similar mean values and standard deviations at the national level as seen in Figure 1, look very different when one examines the size of the town. In Uruguay, the size of the locality has no significant effect on police response time across any pairwise comparison of values of *tamaño*, while in Argentina, each locality size has a statistically distinct level of police response. Intriguingly, police response time is higher in medium-sized cities than in rural areas, and higher still in large cities; this is the opposite of what one might expect to find if one believed that state capacity was associated with urbanization and that pockets of state weakness were primarily a characteristic of remote rural areas. A similar distinction characterizes Mexico and Bolivia, which have very similar national-level scores. While Mexico's police are homogeneously slow as locality size varies, Bolivian residents report faster response times in medium and small cities than in large cities or rural areas.

Similar diversity in patterns of uneven state reach can be observed on the other dimensions of state capacity as well. On property rights (PRCLEAR), for example, the case of Belize sees no significant differences as *tamaño* varies, while Panama, Trinidad & Tobago, and Venezuela see significant differences across every possible pairwise comparison. Thus, while Figure 3 shows that these countries have relatively similar levels of property rights provision at the national level, they differ quite sharply in the distribution of that provision over territory.

Belize displays relatively homogeneous but low levels of property rights provision, while Panama and Venezuela see higher formalization of property rights in more populated areas. The case of Trinidad & Tobago is particularly interesting: the data show that property rights are actually stronger in rural areas than in small cities. This territorial unevenness of state reach, which characterizes all three dimensions of state capacity, is not visible in national-level comparisons and can only be revealed with a data collection strategy sensitive to subnational variation.

Conclusion

The 2014 round of the AmericasBarometer introduced a series of questions specifically designed to tap different dimensions of state capacity. In this *Insights* report we rely on that series to develop a new measure of state capacity. We close by discussing how this strategy improves on existing methods, identifying some limitations inherent to our approach, and sketching some of the next steps in this research agenda, which has the potential to shed important light on this crucial aspect of politics in the Americas.

Our strategy relies on a multi-dimensional conception of state capacity that separately assesses three analytically distinct components of stateness. In so doing, it improves on existing measures in several important ways. First, many existing measures reduce state capacity to a single dimension – for example, much scholarship (Kurtz 2013; Slater 2010) uses the tax ratio to assess state strength. Yet because the multiple facets of state capacity do not always co-vary closely, there are important reasons to assess state capacity with a multi-dimensional measure (Hanson & Sigman 2013). Second,

> *[I]n some cases [state capacity] can be stronger in smaller towns and rural areas than in urban centers.*

many existing measures rely on indirect indicators far removed from the quantity of interest. These include outcomes like literacy (Soifer 2015) or infant mortality (Lee 2015), proxies of service provision like luminosity (Huntington & Wibbels 2014), and crude indicators like GDP per capita (Fearon & Laitin 2003). By contrast, our strategy more directly measures state capacity by assessing the state's *outputs* (the reach of its police, its imposition of sales taxes, and its provision of formal property rights). Third, existing measures are built from state-generated data, the quality of which is correlated with state capacity and affected by agency incentives; thus cross-national comparisons can suffer from heteroskedasticity and systematic measurement error (Herrera & Kapur 2007). Datasets from sources like the World Bank do not alleviate this problem, since those are compiled from records kept by state agencies (Jerven 2013). Our strategy avoids the problems that can arise from reliance on state-generated data by drawing on concrete questions about individuals' experiences with the state. Finally, we should highlight that our measure is based on individuals' reports of their concrete experiences with distinct aspects of the state, rather than their perceptions of state capacity. In designing our measure, then, we avoid the problems of perception-based measures of state capacity like the Transparency International Index and those like the Bertelsmann Transformation Index compiled from expert evaluations.[15]

To be sure, as most public opinion research, our questions reflect people's evaluations of a given phenomenon, not the phenomenon itself. Yet, in this case we are confident that the measures we propose are highly correlated with actual state capacity. Our confidence is based on at least four reasons: a) our measures are based on citizens' evaluations of different dimensions of state capacity, enabling a multidimensional assessment of state capacity that should be more reliable than a one-dimensional approach; b) our measures do not directly ask about state capacity itself (thus avoiding eventual social desirability biases and contamination due to contingent factors such as government approval/popularity, satisfaction with the economy, etc.); c) both the relative stability of standard deviations across mean-levels for each of our indicators, as well as the systematic sub-national level variance we glance at in the Appendix graphs suggest that citizens' evaluations are inter-subjective (i.e. they relate to something "external" to the respondent); and d) our measures display external validity when compared to other available indicators of state capacity that are not based on evaluations.

Of course, this measurement strategy is not without limitations. Its validity depends on high-quality national public opinion samples. Moreover, the analysis of sub-national levels of state capacity requires a sample structure that provides representative results for relevant sub-national units. Both of these limitations make this new strategy costly, especially if one attempts to simultaneously collect data to assess both cross-national and sub-national variation. Additionally, further refinement of question wording and design (e.g. potentially integrating list experiments and other kinds of survey experiments in future measures) might improve on this first effort and increase the reliability of the measure. We might also explore the possibility of creating a single index of state capacity out of the three indicators discussed here. In so doing, the relative merits and drawbacks of alternative aggregation strategies should be assessed.

Yet as the discussion above suggested, the most important payoffs of this strategy lie in its unique ability to capture subnational variation. We have briefly illustrated these payoffs using variation across locality by population size. Because it would require large sample sizes at the local level (so specific localities are "self-represented" in the sample), the

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[15] Nor are our measures tainted by attitudes about politics: the highest correlation at the individual level between any of our indicators and sociotropic evaluations of the economy, presidential approval, or ideological leanings is 0.11.

AmericasBarometer's sample structure does not generate sufficient responses in each locality to compare across individual communities. Yet patterns of sub-national variance could be analyzed by aggregating municipal clusters of various types as in Luna and Toro (2013). Besides analyzing territorial variance, we could also focus on the socioeconomic correlates of different levels of observed state capacity. A third set of analyses could examine the co-variation among different dimensions of stateness across territory and society within the countries of the Americas. These are all tasks that we intend to take as we move forward with this agenda. These careful assessments of sub-national variance will also lay the groundwork for solving a sizable problem for scholars and analysts of the state: building a national-level indicator of state capacity that is sensitive to different levels and shapes of sub-national variation. This *Insights* report, then, sets the stage for the concerted analysis of stateness in the Americas that is needed to understand this core dimension of politics in the region.

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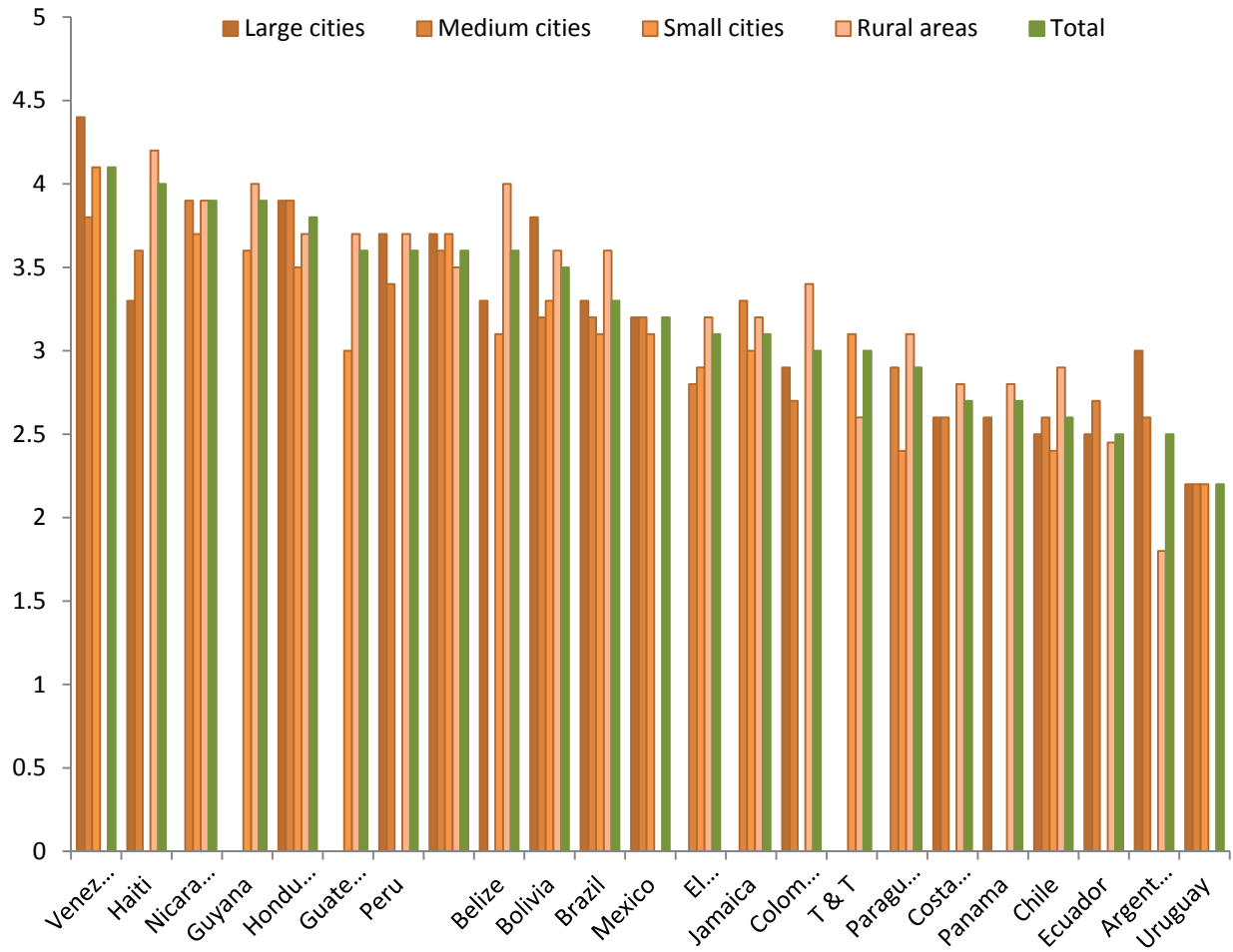*Studies in Comparative International Development* vol.43 #3-4 pp.219-230.

Appendix

Taxation by Size of Locality

***Estimations for each case include location sizes for which at least 150 cases are available
in each national sample**
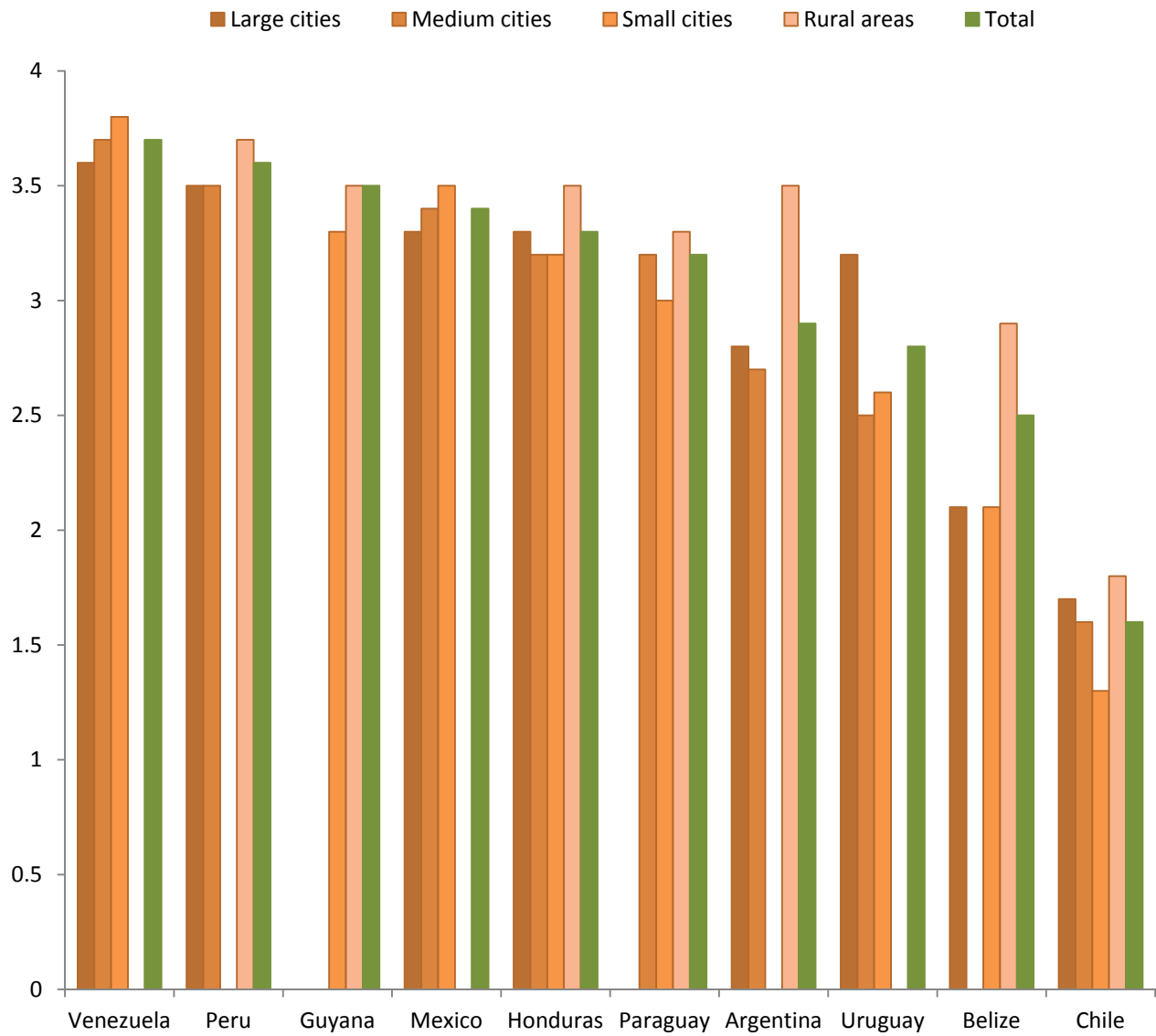
Reach across territory by Size of Locality

*Estimations for each case include location sizes for which at least 150 cases are available in each national sample

Provision of Property Rights by Size of Locality

*Estimations for each case include location sizes for which at least 150 cases are available in each national sample