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ENHANCED PRINDEX APPLICATION IN COLOMBIA

ASSESSMENT OF ALTERNATIVE SURVEY INSTRUMENTS FOR MEASURING PERCEIVED TENURE SECURITY FOR LAND AND PROPERTY RIGHTS – BRIEF

The research was designed and executed under the United States Agency for International Development’s (USAID’s) Integrated Land and Resource Governance (ILRG) activity. Data collection was carried out from May through July 2021.

Secure and transferable property rights for land and housing are a key driver of economic development, environmental sustainability, and social stability, and are an important focus of public policy. To better protect property rights and develop effective policies and programs in this area (e.g., the USAID Land for Prosperity Activity [LFP] in Colombia), policymakers and practitioners require a clear picture of the current level of tenure security¹ across countries, sub-national jurisdictions, and groups of people, and they need to be able to track changes across time. An increasingly popular measure of tenure security is individuals’ perceptions of tenure security (PTS) – a subjective assessment of the risk of losing property

¹ This study is based on the Prindex methodology (<https://www.prindex.net>). In Prindex, property right refers to a bundle of rights to access, use, possess/control, and benefit from housing and land. Different tenure types, such as leasehold/use rights or ownership/allodial rights, consist of different bundles of rights. Prindex methodology allows measurement of perceived tenure security for tenure types and for rights which are formal or informal, individual or group, and customary or statutory in nature. This broad definition of property rights is more commonly referred to as land tenure, and tenure security correspondingly is a core quality of property rights having to do with their enforceability in practice.

rights. The main benefit of PTS over other measures² of tenure security, such as possession of formal/government-issued documents confirming property rights, is related to its comparability across tenure forms (including informal) and legal systems. However, as has been noted in survey design literature and program implementation practice, differences in how to measure PTS may lead to inconsistencies in assessment and thus in programmatic and policy recommendations.

This study draws on new data collected in Colombia of individuals' PTS, based on the Prindex methodology, to learn more about the formulation of measurement scales³ for this increasingly used metric. It is motivated by the expanding set of studies of tenure security around the world using different measurement scales and a corresponding need to understand the impact of these differences for comparability and reliability of the results used in policy discourse. This study also contributes to learning about tenure security in some of the most conflict-affected areas of Colombia. The data from Colombia was collected using two different measurement scales and allows analysis of the impact of these approaches. It provides corresponding recommendations for this type of research.

With the goal of reducing inconsistencies across and improving the use of PTS measures to inform policies, program designs and results monitoring, this study compares two widely used alternative PTS response scales:

1. A **4-point symmetrical scale** (*very unlikely, unlikely, somewhat likely, very likely*; a scale with an equal number of positive and negative categories) used by Prindex in 140 countries; and
2. A **5-point asymmetrical scale** (*not at all likely, slightly likely, moderately likely, very likely, extremely likely*; a scale with an unequal number of positive and negative categories) proposed by the Food and Agriculture Organization of the United Nations (FAO), World Bank, and the United Nations Human Settlement Programme (UN-Habitat) in their recommendations on data collection for the Sustainable Development Goal (SDG) indicators.

The new dataset produced for this study is custom designed to generate an “experiment” that compares these two scales as well as several alternative measures of PTS in a homogeneous population in rural Colombia. Both measurement scales are attempting to capture a respondent's real, unobservable level of tenure security, the degree to which they truly feel secure or insecure about their property rights. This is referred to as their “true perception of tenure security” (TPTS). Yet numerous studies suggest that there is often a disconnect between a respondent's internal assessment of their level of tenure security and how they report their perception of security on a given measurement scale. This disconnect affects the quality of the data. Thus, variation in responses between two respondents could reflect variations in the underlying level of TPTS, systematic measurement error associated with a particular survey instrument, or random error. In order to assess the data quality (measured as reliability and validity) of the two scales, the study uses a regression analysis (specifically a method called path analysis) to develop a proxy measure, or predicted value, of TPTS, based on eleven alternative questions related to PTS asked in the survey. The correlation between the predicted value of TPTS and the values given on the two measurement scales is used as an estimate of data quality for each instrument. The stronger the correlation, the higher the data quality.

According to this comparison, the 4-point and 5-point scales both display advantages. The 4-point scale is easy to interpret and translate into other languages, given the equal number of positive and negative categories of tenure security. This may allow for easier comparison across countries. The 5-point scale

² The term “measure” is used to refer to a specific representation of the general concept of tenure security using data and a specific methodology of constructing such a representation out of available data (e.g., defining what represents secure or insecure tenure based on respondent's answers).

³ The term “measurement scale” refers to the way survey response options are characterized, an element of survey question design, to collect data on tenure security to be used to construct measures of tenure security.

allows for more nuanced measures of tenure security and may be better able to pick up small shifts in security over time. As a result, it may be better suited for impact evaluations that are trying to accurately capture small changes as the result of program interventions. Yet neither scale is perfect. The linguistic precision of the terms used in the response options (especially when translating from English to locally spoken languages), the respondents' understanding of the response options, and how the mid-point response option in the 5-point measurement scale is interpreted may lead to misrepresentation of the actual level of tenure security.

Given the advantages and disadvantages detected in both measurement scales, the study concludes that converting results from either of the compared scales into a binary variable (secure tenure vs. insecure tenure) yields more reliable results than either of the two unadjusted alternatives for cross-country comparison. The study identifies a need for some adjustments which can be made to both of the scales to improve the accuracy of such conversion. This analysis suggests that somewhat more adjustment is needed to the 5-point asymmetrical scale currently used for collecting SDG official data than for the 4-point symmetrical scale used currently by Prindex. A focus on improving the scales and a shift to reporting on binary converted results would allow aggregation of data across sources, expanding the size of comparable datasets available to improve our understanding of PTS.

More specifically, the key conclusions of the experiment using ILRG-collected data in Colombia include:

- **Number of categories:** There is no one correct way to classify “true” (predicted) PTS. In fact, different sub-populations (e.g., municipalities, holders of different forms of tenure) can be optimally classified into four, five, or six categories. The optimal number of categories for a particular data set depends on the proportions of the relevant sub-populations in the data, which is not known to a researcher prior to data collection. For consistency and comparability across countries and institutional contexts, either 4- or 5-point scales can be selected as a standard and consistently applied. In cases when comparability is less important, the practicality of scale alternatives in a particular context should be considered on a case-by-case basis.
- **Labelling and data quality:** The shorter 4-point scale assessed in this study may be easier to interpret and implement across different languages and cultural environments (e.g., in relation to preserving the relative order of categories, their interpretation as positive or negative, and a relative distance among the categories in terms of the level of tenure security):
 - The asymmetrical nature of the 5-point scale assessed in this study and, more generally, the use of a larger number of categories, requires application of more complex language in the response options, to describe the nuanced differences in tenure security across the larger number of categories. The analysis suggests that more complex language can be more difficult for respondents to interpret in comparable ways.

For example, a comparison of the asymmetrical 5-point scale with an alternative symmetrical 5-point scale (two negative categories, two positive categories, and a neutral middle category; used for data collection for the LFP impact evaluation baseline conducted by the National Opinion Research Center at the University of Chicago [NORC]) covering the same municipalities demonstrates a very different distribution of responses across the 5-point response categories.

- In contrast, the 4-point scale is better able to overcome the above difficulties as a shorter scale can rely on simpler language to describe the categories, which is reflected in the lower percentage of misclassified observations.

This advantage is demonstrated in the comparison of the observed versus predicted values of PTS for each scale. About 89 percent of observations of PTS measured with the 4-point

scale matched the categories of predicted PTS. In contrast, the 5-point scale classified only 34 percent of observations correctly across the five categories of predicted PTS.

- **Matching the target population:** As noted, the 5-point scale uses language of higher complexity to express nuances in meaning among a larger number of categories, which may not match the levels of language typically used by the survey respondents. For example, some feedback from survey enumerators was that the labels were “too academic,” which is confirmed by the linguistic analysis conducted in this study. A shorter scale requires less complex language and provides a better match across languages and linguistic skill levels. Survey designers should consider the educational level of the target population when deciding between various measurement scales, alongside robust pilot testing of survey instruments.
- **Middle point interpretation:** The 5-point scale is more vulnerable to errors in converting the data on PTS into a comparable binary measure (secure/insecure). In particular, the presence of a middle point in the asymmetrical 5-point scale creates a risk of misclassification, as the data analyst’s allocation of the middle category as “secure” or “insecure” may not match the respondent’s “true” perception of tenure security. The 4-point symmetrical scale minimizes this risk. The respondent must make an explicit choice between the secure and insecure categories without any assumptions by the data analyst. This conclusion is specific to PTS measures that ask about the likelihood of losing property rights, as there is no natural “middle” category to explain tenure security.
- **Comparability:** Reclassification of data into binary outcomes (secure/insecure) reduces misclassification error that can exist among the more granular categories and improves comparability between PTS measures based on 4-point and 5-point scales. However, the comparability of the binary outcomes created through reclassification is conditional on the correct allocation of the middle points on the 5-point scale into either the secure or insecure category. One has to assume that all or some specific proportion of the respondents who selected the middle point should be treated as secure. This may be higher or lower than the true level of tenure security in one environment (biased). However, the true level of tenure security among such respondents may be different in another environment (inconsistent).

This study also provides a snapshot of findings about PTS itself (versus methodological findings on the alternative measurement scales) for the municipalities where data was collected for this experiment. It provides for comparison to findings on PTS from monitoring data also collected in 2021 for massive formalization pilots under LFP, as well as a 2018 Prindex national poll in Colombia (Table I below).⁴



A rural area in Tolú Viejo, one of the municipalities where ILRG collected data

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⁴ The results found in the LFP pilot monitoring dataset are found in Barthel, K., Childress, M., Magen, E., Nizalov, D., Gaviria, A., & Varela, D. (2021). *Prindex baseline data and final analysis report*. Bogota: USAID Land for Prosperity Activity; the 2018 Prindex national poll results are found in Feyertag, J., Childress, M., Flynn, R., Langdown, I., Locke, A. & Nizalov, D. (2020). *Prindex comparative report: A global assessment of perceived tenure security from 140 countries*, <https://www.prindex.net/reports/prindex-comparative-report-july-2020/>

TABLE I. PERCENTAGE OF ADULTS THAT PERCEIVE THEIR TENURE AS INSECURE BY GENDER, GEOGRAPHY, AND TENURE TYPE

Sample	Overall +	Gender		Geography		Tenure Type				Type of Threat		Lost rights in the past
		Male	Female	Urban	Rural	Own	Rent	Family	Other	Internal to Family	External Actors	
LFP comparison (ILRG)	32%	33%	33%	35%	30%	16%	55%	35%	52%	10%	29%	38%
LFP pilot monitoring	33%	31%	34%	32%	34%	23%	58%	30%	53%	13%	23%	33%
Prindex national poll	24%	24%	23%	23%	23%	10%	31%	24%	31%	5%	15%	9%

Prindex measures percent of the adult population that feels secure or insecure in their property rights for the main housing property they reside in and its attached land

Per Table I, the datasets show almost identical levels of tenure insecurity at 32 percent of respondents in the experiment’s dataset and 33 percent of respondents in the LFP pilot dataset. Although the ILRG and LFP-funded surveys were developed for different purposes and carried out in two similar but distinct sets of rural municipalities in Colombia, the key results are strongly similar in both surveys. The comparison tends to reinforce the validity of the results of the experiment, as the results from the LFP pilot data (non-experimental, 4-point symmetric scale only) record similar basic parameters in the key variables of interest.

The levels of insecurity observed in the ILRG and LFP datasets are eight and nine percent higher than the 2018 national survey average of 24 percent, a difference likely due to the higher non-response rate in the national poll (the reduction in non-response in the ILRG and LFP datasets is likely due to improved interviewer training). Table I also indicates that the differences in PTS between the national level data and the ILRG and LFP data, representative of the municipalities selected, are similar across gender and urban versus rural areas. Owners and renters in the LFP and ILRG datasets, however, reported proportionately more perceived tenure insecurity than in the national survey, likely because the municipalities are in areas that were highly affected by Colombia’s civil war and consistent with the higher percentage of respondents that reported having lost property in the past.

Perceptions of tenure security are also relevant for people’s access to land-based resources (e.g., pastures, water) and infrastructure (e.g., roads), and in this study we added questions about these topics. The results highlight this as another area to learn more about. For example, 14 percent of the respondents in the ILRG dataset report feeling that it is likely they may lose their access to water resources in the next five years. This could be an important topic for learning in relation to climate change adaptation and sustainable food systems and food security.

While this study is based on data from a particular context – Colombian municipalities affected by recent violent conflicts – and the versions of the 4- and 5-point scales used were translated only in one language, Spanish, the main conclusions of the experiment (above) shed light on how differences in measurement scales can affect our ability to consistently and comparably measure PTS as needed for evidence-based policy and program adaptations. At the same time, additional research is needed to refine this learning both contextually and methodologically.

To conclude, three practical implications of this study for researchers and policymakers are:

- I. A binary measure of tenure security should be constructed for comparison across countries (of comparable forms of tenure and types of property), regardless of the design of original scale used for the data collection (OECD, 2013). Particular attention is needed to ensure clarity and

consistency in constructing the binary measure, as the original question/measurement scale used affects the quality of the binary outcome. The data collection tool itself should use a measurement scale with more response options (e.g., 4- or 5-point scales, depending on context). The reclassification into a binary measure should occur after data has been collected.

2. On the other hand, the gain in comparability comes at a cost of losing some nuance and information on the true variation in the levels of tenure security. Such information may be particularly useful when measurement needs to be more sensitive to changes in PTS that are relatively small in magnitude or affect only a part of the distribution (e.g., people were already secure, but have become even more confident in their tenure security over time).
 - A shorter (4-point) symmetrical scale demonstrates a higher robustness to misclassification and errors in translation and is easier for implementation and conversion into a binary scale. Therefore, it is recommended for assessment of PTS across countries and institutional environments.
 - The 5-point scale may be more practical in cases where the measurement needs to be more sensitive to small changes in PTS (e.g., in impact evaluations). However, the design of labels for a 5-point scale needs more consideration. A scale with a larger number of positive (secure) categories than negative is likely to demonstrate better data quality results.
3. Additional studies are necessary to check the robustness of these recommendations to other languages and institutional contexts. Consistency in the global assessment of tenure security will be facilitated by the development and testing of standard labels for tenure security scales in multiple languages with a clear guidance for categorization into secure or insecure tenure.⁵

SUGGESTED CITATION

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⁵ Publication of Prindex instruments used in 140 countries in local languages could be a starting point in this process since a large investment has already been made into the initial set of translations.