

Higher Education Capacity Diagnostics for Guiding Policy and Practice: A Case Study from Panama

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Introduction

Over the past twenty years, many sectors have used capacity diagnostics for mapping and analyzing the skills needed for national development at individual, organizational and institutional levels. These diagnostics, also sometimes referred to as “needs assessments” or “gap analyses,” are systematic investigations carried out prior to or during an ongoing program, project or productive activity as a means to gaining insight on discrepancies between current and desired conditions with a view to improving performance, designing new processes, and/or correcting deficiencies. The level of development pursued through these analyses may be individual (directed at strengthening people’s particular skills and competencies), organizational (directed at management for improved efficiency and effectiveness), or institutional (directed at the legal and political systems governing actions nationally, regionally and globally)—or any combination of the three levels (Learning Network on Capacity Development 2017).

Originally linked with private sector competence (Porter 1985; Hamel and Heene 1994), international organizations such as the Organization for Economic Cooperation and Development (OECD), World Bank and United Nations (UN) have embraced the capacity concept as well and produced their own tools to assess and develop national capacities. These diagnostics have been utilized across a range of fields and institutions in various technical and functional areas. They also establish benchmarks and baseline references for follow up monitoring and evaluation (OECD 2006, UNDP 2008, World Bank 2009). Ironically, though, little of this experience has been applied to higher education.

This article presents a model for adapting capacity diagnostics to assess higher education for (1) documentation of existing resources in specific institutions or disciplines, and (2) quantification of labor market perceptions of current assets and gaps,

with a view to facilitating planning for and development of required curricular, research and personnel capacities. The model is illustrated with a case study from the Republic of Panama where the National Secretariat for Science, Technology and Innovation (SENACYT) conducted a study with Tulane University to assess the country’s higher education and research in the social sciences. Findings from the SENACYT-Tulane project suggest significant discrepancies between the present academic offer and the skills and knowledge required by the productive sector; they also highlight institutional and policy adjustments that would strengthen the university system overall and preparation in the social sciences at different levels.

This article further explores the potential for this higher education diagnostic to serve as a tool for academia supply-labor market demand gap analysis elsewhere, which has far-reaching implications for countries and states in terms of competitiveness at national and global levels—particularly for developing regions. As higher education becomes increasingly important for emerging economies’ progress and competitiveness, the possibilities for applying this model worldwide are considerable.

Capacity: Definition and Diagnostics

As a first step toward national or local capacity development in any area, organizations increasingly employ capacity assessment diagnostics. While there are many definitions of “capacity,” it broadly refers to the ability of individuals, organizations, governments and societies to manage their productive activity and set and achieve specific objectives over time. Capacity development (or capacity building), as a result, refers to the process by which the requisite skills and abilities for meeting these objectives are created or strengthened (OECD 2006, UNDP 2008, World Bank 2009). Capacity assessments are diagnostic tools that map existing skills in a country, sector or area alongside

needs for skills required by public and private sectors. The assessment then serves as a reference for identifying gaps, taking decisions to strengthen competencies, and conducting follow-up monitoring and evaluation. This process may be driven by external or internal reviews, depending on the contextual situation. Capacity objectives may be linked with outside bilateral or multilateral relationships and funding, they may also be concerned solely with national efforts and performance targets, or they may represent some combination of the two.

Recent decades have produced extensive publication on the topic in both business and development circles (Porter 1985; Hamel and Heene 1998; Grindle and Hilderbrand 1997; UNDP 2008). Application of these diagnostics to public health (WHO 2006), tropical forestry (Junkin 2008), non-governmental organizational management (VPP 2001), international cooperation (JICA 2008), and local governance (UNDP 2010)—among other examples—demonstrates their versatility and usefulness for both development and competitiveness. In all instances, the first step to building and strengthening capacity requires identifying which assets and abilities already exist at institutional, organizational and individual levels for achieving designated objectives and which need to be developed (UNDP 2008).

Application of capacity diagnostics to the education sector and to higher education, in particular, makes sense for a number of reasons—especially for developing countries and especially in Latin America. Higher education is the vehicle through which countries form skilled labor, build capacity for knowledge generation and innovation, and raise individual productivity and earnings. As such, it is also the basis for achieving higher levels of national prosperity and greater social equity (Ferreya, Avitabile, Botero Alvarez, Haimovich Paz and Urzua 2017). For regions like Latin America with a history of deep and widespread inequality, it offers a channel for boosting both equal opportunity and global competitiveness.

The World Economic Forum's Global Competitiveness Index (GCI) also bears this out. Higher education and training is one of the GCI's 12 essential pillars for ranking countries and the base on which many of the other pillars rest. For nearly all developing nations this pillar is one of the weakest, and "inadequately educated workforce" is among the top most problematic factors for doing business cited (Schwab 2017). Latin America is no exception. Even the Latin countries with the highest of the region's GCI rankings—Chile, Costa Rica, Panama and Mexico—rate relatively low in the "higher education and

training" pillar and even lower in the two associated pillars of "innovation" and "business sophistication." This seems a sure indication that the region's higher education is not producing the level of capacity required in the labor market and the Global Competitiveness Report 2017-2018 notes that improvements in technology, innovation and human capital will be critical for developing new sources for inclusive and broad-based growth in the region (Schwab 2017). The World Bank concurs stating that although the quantity of post-secondary programming has increased dramatically in recent years across the region, the quality of the programs is a growing concern as is the equity of these systems in which not all students can access high-quality options (Ferreya et al 2017). Better knowledge on higher education options in the form of capacity assessments and diagnostics can assist with the iterative efforts required to align supply and demand of learning for productivity and better standards of living in all countries of Latin America—and beyond.

The Panama Case

Background

Panama is a small country right in the middle of Latin America, and it is very symbolic of many regional trends—in some ways, to the extreme. Its strategic geographic positioning has helped it to outpace the rest of the region in economic growth, yet it remains one of the least academically viable. Recent decades have shown increased higher education access and enrollment, but quality is still a major issue, as is alignment with the productive sector. The vast majority of the post-secondary programming is confined to the social sciences.

Academic activity in the social sciences in Panama is concentrated mainly in the University of Panama (UP) and Catholic University of Santa Maria la Antigua (USMA), the country's two oldest and most established universities. The 2009 opening of FLACSO-Panama, the local office for the Latin American School of Social Sciences (FLACSO, for its acronym in Spanish), the region's primary social science institution (FLACSO 2016), served to consolidate and support UP and USMA efforts by bringing academics together, providing publishing opportunities and systematizing knowledge production. Also around this time Panama launched for the first time a national strategic plan to develop science, technology and innovation. Recent versions of the National Strategic Plan for Science Technology and Innovation (PENCIYT 2010-2014 and PENCIYT 2015-2019) include added emphasis on social sciences and development objectives, which the government supports

with funding through earmarked SENACYT programming.

These combined endeavors have promoted social science research and publication in Panama, but the country still lacks data in critical areas. While the PENCYT documents emphasize the need to strengthen higher education and research in the social sciences, Panama has never had a complete inventory of existing social sciences-oriented university programs and research institutes. Neither has it compiled data on the kinds of competencies and skills required by labor market entities hiring social science graduates. Both of these are fundamental benchmarks for guiding government and private sector decision-making.

The diagnostic project described here began in 2014 as a joint initiative of SENACYT and Tulane University in the United States, to address PENCYT social science objectives through a “Capacity Assessment of Higher Education and Research in the Social Sciences in the Republic of Panama.” SENACYT provided the funding for the project and Tulane provided the principal investigator, research design and institutional experience from past research in developing countries.

Research Design and Methods

The project objectives were to document (1) the resources and capacities currently available in Panama for higher education and research related to the social sciences; (2) the needs for knowledge related to the social sciences in the public and private sectors of the labor market; and (3) the gaps between existing and required capacities, mainly to inform policymaking and institutional decision making. The existing resources and capacities studied were conceptualized in terms of numbers and types of qualified professionals; national academic offer and corresponding university degrees; registered research programs and institutes; and national publications, among other factors. Needs in the labor market were assessed through interviews and surveys that sought to identify and evaluate skills and competencies related to university study in the social sciences. The research used a mixed methods approach.

Qualitative inputs were based on analysis of documents and secondary data, along with information collected from key informant interviews. In all cases, the UNESCO definition of social sciences referenced by PENCYT 2010-2014 was used. This definition includes disciplines that relate to people, their culture and their environment, specifically the following areas: administrative sciences, behavioral sciences, political sciences, communications, law, economics, education and sociology. The sample frame for the academic and

research institutions included in the interviews was limited to the list of institutions approved by the Ministry of Education of the Republic of Panama (MEDUCA 2011). The document and secondary data analysis compiled and reviewed existing information on the status of the social sciences in Panama. Online data on degree programs, research, publications, labor market participation, and academic activities related to the social sciences (conferences, workshops and other scholastic events) was analyzed from the universities and research centers currently offering social science programs and degrees; the National Statistics Office, SENACYT and other government institutions; and international organizations in Panama. The information generated contributed to an inventory published within the course of the project. The key informant interviews used a purposive sample of 20 actors representing universities, research centers, private sector companies, and governmental and non-governmental entities. The data collected was used to better articulate perceptions of major issues related to national social science development and provide inputs for the survey questionnaire used for the labor market study.

Quantitative inputs were based on the labor market survey data from over 500 participants and a universal population of approximately 3,000 institutions. The survey was directed toward users (or employers), of capacities and knowledge related to the social sciences (public and private organizations requiring skills in administrative sciences, behavioral sciences, political sciences, communications, law, education and sociology, for example). The survey used mainly closed questions and a stratified random sampling methodology. Its objective was to measure labor market perceptions concerning types of existing and desired degrees; areas of over- and under-representation; levels of satisfaction with graduates’ technical, analytical and interpersonal capacities; and research needs. A team of Tulane and local university professors designed the survey and managed training and oversight for its implementation. An international market research company based in Panama conducted the survey and processed the data in SPSS (Statistical Package for the Social Sciences). Levels of analysis included descriptive statistical reviews to detect norms and tendencies related to strengths, weaknesses and identified priorities. Correlations were also run to determine perceptions within and among different participant groups (academic institutions, governmental and private sector entities; national and international organizations; and small, medium and large scale entities, for example).

Initially, the project envisioned partnering with a local university for data collection and processing. All major local universities with active social sciences programs were approached, but none felt they had the available capacity to participate—even though project funding was available for compensating local university contributions. Reasons for this included limited faculty experience with the research methods utilized; lack of faculty and student time for research; and inadequate institutional incentives. Additionally, attempts were made to recruit other local non-governmental and academic institutions (FLACSO-Panama among them) for participation but, again, none felt they had the necessary human resources, for many of the same reasons stated above. This dearth of local investigative capacity presented a stumbling block for the project and is, itself, indicative of certain capacity gaps illuminated by this project.

Products and Results

Final products of this SENACYT-Tulane research included the following:

1. A national inventory (with digital files) of (i) the academic offer—higher education programs (undergraduate and graduate) and degrees, by institution, in the range of disciplines that comprise the social sciences in universities approved by the Ministry of Education; (ii) research centers operating in areas of the social sciences and their areas of concentration; (iii) the number of social science professors and researchers associated with universities and research centers, (iv) an estimate of the number of students studying in social science disciplines; and (v) relevant national publications.
2. A quantitative database from the survey data on productive sector perceptions regarding existing and required capacities in the areas of the social sciences.
3. A final report, *The Social Sciences in Panama: Academic Supply versus Labor Market Demand*, detailing the findings of the research and recommendations on priorities and areas of concentration for developing national capacity.
4. Presentations at various national, regional and international conferences.
5. Dissemination of results through newspaper articles and academic journal publications (in English and Spanish).

Major findings show a growing academic supply of social science degree programs in the private universities—almost double the number offered in the public universities. This tendency is indicative of the

rate of private university expansion, in general, especially in non-technical areas and at the Master's level. Private higher education is concentrated in the areas of business, law and education, all requiring minimal overhead and infrastructure. Public university social science degrees are also heavily concentrated in the same three areas but offer programs in a range of other fields, too, such as anthropology, sociology, public policy and psychology. Still, little is available anywhere for archaeology, criminology, demographics, environmental studies, public administration and international relations. Of the total university social science degrees registered (public and private), over 75 percent correspond to business, law and education. Findings also documented over 50 registered social science research centers in Panama, though few of these are truly active with consistent production of research, publications and academic events. The general importance of the social sciences was confirmed by the fact that 72 percent of all university graduates complete degrees in one or another of the associated disciplines. Similar statistics describe the proportion of professors available in the social sciences compared with other fields.

Findings from the survey covered a range of topics. The productive sector confirmed the over-concentration of degrees and graduates in business, law and education, but also acknowledged those to be the largest areas of demand for higher education credentials. There was a noted call for more graduate instruction, particularly for PhDs. Labor market satisfaction with technical, analytical and interpersonal skills and capacities was low, on average. Using a scale of 1-6 with 1 corresponding to the lowest level of satisfaction and 6 the highest, most skills of recent social sciences graduates scored between 3 and 4, or between 50 and 70 percent. Areas perceived to be strongest for graduate preparation included administrative management, basic computing, and teamwork. Areas perceived to be weakest included English ability, written communications, strategic planning and critical analysis. Most entities interviewed provided compensatory internal training for employees and all indicated an urgent need for universities to incorporate more practical instruction in their curriculum. Interestingly, less than a quarter of those interviewed reported using external research products for decision-making, perhaps an indication of the low level of research orientation in the country overall. Starting salaries for 70 percent of recent social sciences graduates were at or below \$1,000 per month, roughly 50 percent above minimum wage.

Recommendations based on these results focused on the need for improved data and databases on university professors and graduates along with their professional activity, and social science research conducted in the country. They also highlighted the need for improved university instruction in research methodologies and funding of social science research. Additionally, more and better platforms, mechanisms and opportunities for university-productive sector dialogue on professional capacities required were shown to be critical for developing national competitiveness.

Potential Adaptations

The potential for application of this capacity diagnostic research in Panamanian academia is considerable, for improved data collection and dissemination as well as for academic curricula tailored to productive sector needs. Potential adaptation for other countries and markets is also significant. In today's knowledge economy, assessment of higher education and research capacity as a means to developing strategies for productive long-term national development is crucial. Countries failing to do this will be left behind and their university graduates will find themselves unemployed or under-employed, losing prime positions to those with superior education from elsewhere (World Bank 2000). This relationship between higher education, productivity, competitiveness and inclusive growth is particularly important for the Latin American region in this moment, as recent reports have indicated (Ferreira et al 2017; Schwab 2017). How higher learning is adapted to better train and position national and regional human capital will dictate much of what happens for the region's growth and development.

The research methodology presented here offers a relatively simple and customizable approach for embarking on this activity for almost any academic discipline in any country. It can be applied to uncover capacity gaps within individual academic disciplines or higher education institutes; to delve into levels of labor market satisfaction with distinct technical, analytical and interpersonal skill sets; and to determine the types of research needed for different sectors and industries. This diagnostic offers a flexible metric to guide both policy-making at national and organizational levels and practice in universities and research centers.

Limitations and obstacles associated with this type of research, as was found in Panama, include a general lack of university research teams. This is a concern in many developing countries, particularly smaller ones,

where the traditional emphasis has been on teaching as opposed to research. Without more university professors trained in sophisticated research methodologies, it will be difficult to change this orientation and boost local research capacity. This academic context also minimizes the reach of research culture, which in turn affects allocation of funding for investigative efforts and local universities' production, along with productive sector utilization of research produced.

Not all academic research is expensive or methodologically complex. This case study and design illustrate how simple document and secondary data analysis and survey research can be employed economically to produce useful data for guiding policy and practice. This is vital for smaller countries in Latin America and other developing regions that may not have human or financial resources available for high-cost, large-scale research. The hope with this project is that it can be used as a reference for bettering the higher education and research offer in Panama and inspire similar research in other developing countries of the region and the world. Only by raising the quality of higher learning and improving its application to productivity can developing countries hope to boost their competitiveness and elevate the standard of living for more of their citizens (UNESCO 2014). All efforts directed to this end must begin with adequate assessments of existing and required capacities.

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