Who wants to know?

The Political Economy of Statistical Capacity in Latin America

Eduardo Dargent, Gabriela Lotta,
José Antonio Mejía, and Gilberto Moncada

IDB

Who wants to know?

The Political Economy of Statistical Capacity in Latin America

Eduardo Dargent
Gabriela Lotta
José Antonio Mejía
Gilberto Moncada

IDB

Cataloging-in-Publication data provided by the Inter-American Development Bank

Felipe Herrera Library
Who wants to know?: the political economy of statistical capacity in Latin America / Eduardo Dargent, Gabriela Lotta, José Antonio Mejía and Gilberto Moncada.

p. cm.
Includes bibliographic references.

978-1-59782-319-7 (Paperback)
978-1-59782-320-3 (PDF)

1. Statistics-Government policy-Latin America. 2. Economics-Latin America-Statistical methods. 3. Latin America-Statistical services-Planning. I. Dargent, Eduardo, 1974- II. Lotta, Gabriela Spanghero. III. Mejía, José Antonio. IV. Moncada, Gilberto. V. Inter-American Development Bank. Innovation in Citizen Services Division.
HA37.L35 A58 2018 eng.ed.
IDB-BK-186

JEL Codes: D73, H11, H77, H83, N46, P48
Keywords: modernization, National Statistics Office, policy based on evidence, political economy, public administration, statistical capacity
Publication Code: IDB-MG-581

Inter-American Development Bank
1300 New York Avenue, N.W.
Washington, D.C. 20577
www.iadb.org

The Institutions for Development Sector was responsible for the production of this publication.

External vendors:
Production Editor: Sarah Schineller (A&S Information Specialists, LLC)
Translator: Richard Torington
Design: Word Express, Inc.

Table of Contents

About the Authors

Eduardo Dargent is a lecturer at the Department of Social Sciences at the Pontifical Catholic University of Peru and director of the master's degree course in political science at the same university. He is an attorney, and he holds a master's degree in political philosophy from York University, United Kingdom, and a PhD in political science from the University of Texas at Austin. His main research areas are the politics of public policies, political economy, the State in Latin America and political parties. In 2015, he authored *Technocracy and Democracy: The Experts Running Government* (New York: CUP). He is currently working on a project about small-scale mining in Bolivia, Colombia, and Peru in the context of a resource boom and another project about regulation of transgenic crops in the Andean region.

Gabriela Lotta is a lecturer in public policy (bachelor's and master's degree programs) at the Federal University of the ABC (UFABC), Brazil. She has a PhD in political science (University of Sao Paulo) and a master's degree in Public Administration (Fundación Getulio Vargas). She is a coordinator of the Core of Studies of Bureaucracy of the UFABC, a lecturer at the National School of Public Administration, and coordinator of the State and Public Policies area for the Brazilian Political Science Association. Her main areas of research include bureaucracy, government management, and analysis of public policies and organizations. She has worked as a consultant in Brazilian government institutions, research institutions, and international institutions such as the United Nations Development Program and the Inter-American Development Bank.

José Antonio Mejía is currently a senior specialist in Modernization of the State at the Inter-American Development Bank. His interests include the strengthening of statistical capacities, public safety information, and gender violence. He holds master's degrees in public policy from Georgetown University and in economics from the George Washington University. Between 2008 and 2012, he was the vice-president of the first governing board of the National Institute for Statistics and Geography (INEGI) in Mexico. Prior to this, he worked for 13 years at the Inter-American Development Bank, where he coordinated the MECOVI program.

Gilberto Moncada is an economist specializing in the technical and institutional development of national statistical systems, with broad experience in Latin America. He was general manager at Cuánto S.A., a Peruvian consulting firm, and a consultant at the Inter-American Development Bank, where he coordinated the MECOVI program. He was also head of Peru's National Institute for Statistics and Information (INEI), regional statistician for Latin America for the United Nations Food and Agriculture Organization, and a consultant at the World Bank. More recently, he worked as a senior specialist in Modernization of the State at the Inter-American Development Bank. He holds a master's degree in economics from Georgetown University/ILADES, Santiago, Chile.

Preface

This book is part of an initiative undertaken in 2015 by the Innovation in Citizen Services Division (IFD/ICS) of the Inter-American Development Bank (IDB) to explore the political economy of statistical capacity in Latin America and the Caribbean. Its purpose is to evaluate the institutional and technical factors that affect the strengthening and operation of national statistical systems, specifically, national statistical offices. This research seeks to answer the following questions: Why do some countries have greater statistical capacity than others? What are the determining political economy factors that condition the increase of statistical capacity in the region's countries? What is the benefit of having good statistics and what is the cost of bad statistics?

This research initiative is related to the efforts of Latin American and Caribbean countries to promote results-based public policies backed by reliable data and empirical evidence. It is an element of the Bank's agenda to strengthen national statistics to improve the quality and the impact of public policies. Information is power. *"Scientia potentia est"*: knowledge is power, said Thomas Hobbes in *Leviathan* (1688). This is increasingly the case in today's hyper-connected societies and in the new digital economy, both of which are based on the exploitation of data, that has become an intangible good.

Specifically, this study seeks to increase knowledge about the production and use of public data by the region's governments to promote the effectiveness, efficiency, and transparency of public policies, in the dynamic context of the "data revolution." This initiative has developed a conceptual framework to contextualize the importance of statistical institution building as part of the public policy formulation and evaluation process, and more broadly of building the institutional capacity of the State. It proposes methodological frameworks and indicators of statistical capacity to analyze the effects of political economy factors on statistical institutionality. It applies the resulting conceptual proposals, in the form of case studies, to 10 countries of the region.

This line of research responds to the IDB's conviction that official statistics and high-quality data facilitate development through informed decision making. It therefore becomes necessary to understand the

factors that affect them. Statistics enable evidence-based public management and lead to better public policies and management results; they promote transparency and open governments in the context of higher demand for open data, and facilitate monitoring of the goals laid out in the 2030 Agenda for Sustainable Development. "In God we trust, all others must bring data," suggested William Edwards Deming, the famous American statistician who understood the importance of data management and the value of good statistics. To this end, the Bank seeks to boost statistical capacity in the region by strengthening statistical institutions, and through greater production of basic high-quality statistics, by promoting widespread dissemination and use of statistics and leveraging technological innovations in the sector.

It is hoped that the results generated by this knowledge initiative increase the understanding of the causes of the variation in the production and use of statistical information in the countries of the region, and how governments produce statistics, why they use them to a greater or a lesser degree, and how they could produce and disseminate them better in the future. In this way, this study is designed to stimulate debate about the challenges that arise when attempting to put into practice the design of evidence-based policies in the region's countries and to guide the Bank's actions to support the strengthening of statistical institutions.

I would especially like to thank the coordinators of this initiative, José Antonio Mejía and Gilberto Moncada, as well as the authors and collaborators on this volume for their valuable contributions: Juan Carlos Feres, Philip Keefer, Marcelo Leiras, Javier León, Jorge Enrique Muñoz, Janine Perfit, Ben Roseth, María Inés Vásquez, and Karla Yee Amezaga. I would also like to thank the authors of the case studies that were major inputs for this book: Máximo Aguilera, Martín Alessandro, Luis Beccaria, Eduardo Dargent, Luis Carlos Jemio, Mauricio León, Gabriela Lotta, and Diego Silva.

Carlos Santiso
Chief of the Innovation in Citizen Services Division
Institutions for Development Sector

Prologue

There is consensus that statistics are essential for the design and monitoring of public policies. In many Latin American and Caribbean countries, however, statistical institutions remain weak. This institutional weakness is manifested in national statistical offices (NSO) with scant human, technological, and financial resources, limited autonomy, and technical weakness, which makes them unable to produce statistics using common criteria in an integrated fashion.

The incentives to strengthen statistical capacities are not always aligned within governments, given that there are trade-offs that affect the development of policies aimed at strengthening a country's statistical capacity. For example, although governments need data for better-informed decision making, the same data can be used as a tool to demand accountability from governments and to limit their discretionality. In other cases, rather than an overt intention to avoid accountability and maintain statistical systems in a state of weakness, what is noticeable is a lack of government willingness, since statistics are not a priority and there is a desire to avoid conflicts with other state agencies (e.g., central banks) that might oppose statistical system reform.

Since there are also countries in the region with NSOs that are recognized for their professionalism and autonomy, this book examines why some States manage to develop high-quality statistical systems and in others these systems remain weak. What factors explain the disparity in statistical capacity observed throughout the region? What are the most significant political economy factors that affect the strengthening or the weakening of NSOs?

To answer these questions, this book develops a conceptual framework that applies the study of the capacity of the State to the institutions responsible for statistical production in each country, particularly the NSOs, and proposes an analysis of certain political economy factors that influence the development of a country's national statistical capacity. Among these factors are the existence of technical areas of the State that rely on statistics to carry out their functions; external demands for data faced by countries and the international support received by NSOs; the role played by the countries' presidents; the effect of economic and

political crises; and demands for high-quality statistics by civil society and businesses.

In applying this conceptual framework in 10 countries, in the form of case studies, the book offers a series of recommendations to help strengthen national statistical capacity. The main recommendation is that a clear and transparent data dissemination policy should be developed. This would help develop a critical mass of users, both within and outside of the government, who are willing to complain if the flow of information is interrupted or modified. The case studies demonstrate the importance of establishing a legal framework that promotes the NSO's technical and management autonomy, but its application depends on there being users ready and willing to demand it.

The Inter-American Development Bank is a supporter of national statistical systems, particularly NSOs, and in its work it seeks to contribute to the strengthening of statistical capacity in Latin American and Caribbean countries. It is hoped that the results and recommendations of this study will encourage countries to take action to develop statistical capacity.

Santiago Levy
Vice President for Sectors and Knowledge
Inter-American Development Bank

CHAPTER 1

Introduction

In the global context, the need for relevant statistical data has featured prominently on the development agenda. It was a central part of the Second International Roundtable on Managing for Development Results, held in Marrakesh (2004), and of the High-Level Forum on Aid Effectiveness, held in Busan (2011), and it played a significant role in the drafting of the Millenium Development Goals (MDGs). In the framework of the post-2015 development agenda, the matter has once more taken center stage, but now with emphasis on the need to boost countries' statistical capacity. This includes the ability to produce information (relevant, timely, and high-quality), the use made of those data, and the alignment between the supply of and the demand for statistics.

A country's statistical capacity is closely related to the possibility of evidence-based policy decision making and results-based public management. There is broad consensus that the availability of better official statistics, their transparency, and their appropriate use lead to more appropriate public policies, which in turn yield better results. Nonetheless, decision making in the public sector often relies on criteria very different from those related to evidence-based policy making, such as the power and influence of sector and private interests, corruption, political ideology, arbitrariness, and anecdotal decision making. Evidence-based policymaking is the best decision-making method that is fully compatible with a democratic political process characterized by transparency and accountability. According to Head (2010), progress toward evidence-based management requires three preconditions: (i) skilled personnel trained in data analysis and public policy evaluation, (ii) political incentives for the use of evidence in policymaking, and (iii) high-quality information in the relevant areas of analysis. For its part,

public results-based management is a model that incorporates the use of evidence in the context of the integrated management cycle, in which statistical systems underpin the monitoring and evaluation pillar.

To achieve high-quality statistics, there must also be a competent national statistical office (NSO).[1] According to the United Nations, a statistical system is robust only when it has a technically and financially independent lead agency capable of: (i) producing censuses and sample surveys regularly, (ii) issuing certificates of quality for all statistical processes carried out in the system, (iii) coordinating and regulating all production of a country's official statistics, (iv) planning and executing a medium- and long-term production scheme that addresses the needs of users within the country and in the international community, (v) broadly disseminating the information in a timely fashion, (iv) conducting regular self-evaluations, and (vii) proposing action plans for improving the service provided to citizens (United Nations, 2003).

Although there is broad consensus among specialists in the Latin American region, development agencies, and state technical personnel on the importance of statistics for public policy design, there is wide disparity in statistical capacity in the region, since in some cases there is high capacity while in many others the NSOs are weak. This is observed when the national statistical system (NSS)[2] and its NSO lack human, technological, and financial resources, have limited autonomy, and are technically weak. Under these conditions, statistics cannot be produced using common criteria and in an integrated fashion.

It is therefore noteworthy that incentives for strengthening statistical capacity are not always aligned within governments or, in other words, there are trade-offs affecting the development of statistics policies. For example, governments need data for better informed decision making, but these same data can be used as a tool for citizens to demand accountability from governments for their decisions and thereby limit their discretionality. Consequently, the best and most transparent statistics policies can sometimes run counter to the government's interests, creating incentives to ensure that these offices remain

[1] In the study, the generic name of NSO refers to national statistical institutes, national statistical offices, and general directorates of statistics and censuses in the region.

[2] The national statistical system (NSS) is defined as a combination of the principles, foundations, structures, resources, and organizations responsible for a country's statistics.

weak. In other cases, rather than an active interest in keeping statistical capacity low, there is simply a general lack of interest in the matter, so that none of the actors push reform onto the national agenda. Governments may have other priorities or may consider that reforming the statistical system would be costly, would take a long time, and would not bring tangible political benefits. Or, as will be seen in the case studies, governments may find their reformist tendencies limited by government bodies that oppose strengthening the NSO so as not to lose their control over existing statistics. By contrast, there are also cases in which NSOs have been significantly strengthened and their legitimacy has grown. Clearly, awareness and acknowledgement of the importance of statistical capacity for achieving better and more transparent public policies has not led to uniform strengthening of NSOs throughout the region. In various countries, the NSOs remain weak and with limited resources, while in others these institutions have been strengthened.

This study aims to understand this regional variation and explore why some States developed strong statistical offices with high standards of quality, whereas in others, such offices have remained weak, with a range of intermediate results. What factors explain the heterogeneity noticed in the region? What explains the fact that, in some cases, countries prioritize strengthening their NSOs? What are the most significant political economy factors determining positive or negative NSO development? What roles have NSO bureaucrats and managers played in their own institutional development?

This publication attempts to answer these questions using 10 country case studies (Argentina, Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, and Peru) in which a new theoretical and methodological framework, created to appraise statistical capacity from a qualitative, integrated, and comparative perspective, was applied. One essential and necessary aspect of this analysis was to describe the current statistical capacity of the studied countries as precisely as possible, as this measurement enables the contrast between the cases to be evaluated systematically. This provides more substance to the qualitative evaluation carried out in each one. Developing and applying an integrated measurement of all the dimensions of statistical capacity has been a challenge faced by every study that has focused on exploring such capacity. The existing methodologies offer partial measurements of statistical capacity, whether from the production and performance perspective, or based on the availability of resources and

skills needed to implement and sustain statistical activities. In these pages, the qualitative case studies were built on the basis of an indicator developed by the Inter-American Development Bank (IDB), the National Statistical Capacity Index (*Índice de Capacidad Estadística Nacional*, or ICEN), which evaluates various dimensions of this capacity.

Presently, there are no comparative studies of the factors that determine countries' technical and institutional statistical capacity. This publication establishes the basis to fill this void through systematic analysis of the results of applying the methodological framework in 10 countries. It reveals a series of determining factors that explain the observed trajectories and proposes some hypotheses that might be further elaborated in future research and compared with similar processes in other developing countries. Although information about the national statistical systems is considered in all the case studies, their central focus is on the NSOs, as these are the central bodies of statistical production and coordination whose autonomy and capacity largely determine the quality of a country's statistics.

This study seeks to integrate two bodies of academic literature: that which looks at state capacity and that which focuses on the importance of statistics for public policy. As will be seen in Chapter 2, there is a large body of literature about the elements that determine the capacity of the State both to explain the heterogeneity observed among developing countries (inter-country comparisons) and to explore these different levels of capacity within the States themselves. In Latin America, both topics have received attention in recent years. A series of studies have sought to explain how countries with similar levels of bureaucracy in the colonial era developed very diverse capacities in the nineteenth and early twentieth centuries (Kurtz, 2012; Saylor, 2014; Soifer, 2016). Studies have also sought to explain the existence of islands of efficiency and professional agencies in countries that in other areas are affected by corruption, administrative weakness, and clientelism.[3] As will be examined in detail below, the latest studies usually point to diverse political economy factors to explain the development of state capacity in public agencies, among others: the level of political competency, international influences and pressures, pressure exerted by economically powerful actors, social demands, or a partnership with civil society actors.

[3] See, among others: Bersch, Praca and Taylor (2014); Boylan (1998); Dargent (2015); Evans (1992, 1995); Geddes (1990); and Graham et al. (1999).

Regarding the second series of studies, as mentioned at the beginning of the section, there are also a number of studies on the importance of statistics and the fact that some countries have capable and autonomous NSOs. However, there is scant specialized literature on the way in which those elements of political economy examined in the first series of studies of state capacity interact to influence or determine a country's statistical capacity.

This paper seeks to establish this relationship and to show how the literature on the development of capacity in government agencies and its emphasis on political economy can help to understand the processes observed in the case studies. It also uses these case studies to put forward new findings. The background to this paper includes a series of theoretical studies carries out by the IDB in 2015 and 2016, aimed at encouraging dialogue, stressing the importance of statistical capacity for good public policymaking, and possible reform strategies to increase such capacity. The first one was a project that developed a conceptual framework for statistical capacity and its importance (Taylor, 2016), and a study that proposed a way to measure this interaction (Alessandro, 2017). These studies proposed a series of hypotheses regarding various factors of political economy that might either enhance or affect statistical capacity, evaluated according to the NSO's resources, its autonomy, and its coordination capacity. The 10 case studies analyzed in this book were based on these documents.

This book's chief aim, then, is to make a comparative analysis of the case studies to systematize the knowledge of the way in which different elements of political economy affect countries' statistical capacity. It emphasizes those elements that can explain the differences in the capacity levels between countries, and the progress (or reversal) made over time in any given country. Therefore, the work focuses on aspects that help to understand how statistical capacity in the selected countries has evolved, highlighting the common features and differences that explain their varying degrees of statistical development.

In addition to pointing out a series of common historical processes that, in general, have increased statistical capacity in the region in recent years, the paper identifies the main political economy factors that explain the existence, or otherwise, of changes that strengthen statistical organizations.

Several of the hypotheses contained in the preliminary studies are confirmed and examined in more detail, the relevance of others is

discounted, and new ones are proposed. The study identifies three types of common historical processes that have affected statistical capacity in the region in recent decades: changes in the State, the demand for transparency, and financial difficulties. Five political economy factors can be highlighted: (i) the existence of technical areas of the State that require statistics to carry out their functions; (ii) external demands made on countries and the international support received by NSOs; (iii) the role of presidents and their political projects; (iv) the effect of economic and political crises, and (v) the existence of civil society actors and private sector firms that demand high-quality statistics. A further contribution is to complement these more deterministic factors with information from the cases that highlights the importance of the strategic actions of managers and bureaucrats for building such capacity.

Bearing in mind these objectives, this paper is structured as follows: Chapter 2, based on previous studies by Taylor (2016) and Alessandro (2017), presents a theoretical framework for the political economy of statistical capacity, detailing the hypotheses that informed the study. Chapter 3 examines the methodology for measuring statistical capacity, the ICEN, and its results in the 10 countries analyzed. Chapter 4 synthesizes the 10 studies, highlighting the lessons of each with respect to the political economy factors and processes that determine the development (or otherwise) of statistical capacity. Chapter 5, the nucleus of the study, analyzes the political economy and other factors that explain the countries' trajectories since the 1960s with regard to their statistical capacity. The analysis is conducted on three levels: (i) historical processes common in Latin America that have generally and positively affected the development of statistical capacity in recent decades; (ii) political economy factors; and (iii) the importance of bureaucratic agencies in developing this capacity. Each of these processes and factors can be seen to intervene in building capacities in terms of NSO resources, their degree of autonomy, and their ability to coordinate the statistical system. Finally, Chapter 6 presents conclusions and recommendations.

Although various lessons can be drawn from the study, one contribution thought to be highly significant, both from a theoretical and a practical perspective, is the considerable importance of the demand for high-quality statistics as a positive determining factor of NSO capacity building. This demand can come from other government agencies that require statistics to carry out their functions, subnational governments whose resources are distributed based on censuses or measurements

of poverty, enterprises that use information for decision making, civil society organizations (CSOs), or the press. These actors demand high-quality statistics, and if NSOs can establish a fluid relationship with them through transparency and access-to-information policies, they can become allies. Likewise, such actors enhance the NSO's legitimacy and help erect a barrier against governments that attempt to limit their statistical capacity. The study even finds that some NSOs reinforce these links strategically as a way to build institutional capacity—a strategy that might be reproduced by other reformers interested in strengthening NSOs in the developing world. Thus, one of the study's most important lessons is to show that the dimension of demand for statistics is a key determining factor of statistical capacity in the region.

CHAPTER 2

The Theoretical Framework of Statistical Capacity

The study of state capacity has increased in recent years in political science and public policy. In Latin America, the literature on state capacity has gone beyond focusing on macro themes, generally linked to explaining how and why the region's countries developed differing levels of state capacity in the nineteenth and early twentieth centuries (Kurtz, 2013; Saylor, 2014; Soifer, 2015) to focus on the causes of different levels of state capacity within the States themselves.

This literature, especially when linked to public policy and development, has explained the ways that state capacity affects government operations and the quality of public policies. In a similar vein, a series of IDB studies on the politics of public policies explores the relationship between enhanced state capacity and policy quality and offers lessons learned from the reform processes that have attempted to strengthen and professionalize the State (e.g., Chuaire, Scartascini and Tomassi, 2014; Scartascini, Stein and Tomassi, 2008; Stein and Tomassi, 2006). Likewise, there is copious technical and empirical literature on comparative politics and public policies that studies the determining factors for developing state capacities, such as strengthening bureaucracy, management instruments, and planning capacity, among others (Scott, 2005; Head, 2010).

These studies point to various political economy factors as key to explaining, in general, the wide disparity in capacity levels in the region's countries, with special emphasis on understanding those cases in which developing this capacity has been positive. Among these factors are: political competence (Geddes, 1994; Ríos Figueroa, 2007); the executive branch's interest in carrying out certain reforms (Geddes, 1990);

international pressure (Dargent, 2014; Schrank, 2009, 2013); influence of, and demand from, interest groups and from civil society (Augusto et al., 2017; Brinks and Botero, 2014; Evans, 1995; Evans, Huber and Stephens, 2017; Kaufman and Nelson, 2004); pressure exerted by economic actors (Boylan, 1998; Silva, 1993); the impact of crises (Kaplan, 2013), and others. As will be seen in the analysis section, this bibliography turns out to be significant when exploring the determining factors of increased statistical capacity in the case studies. The findings agree with these works and confirm the importance of several of these factors.

Some of this literature finds a direct relationship between the development of high-quality statistical systems and the development of better state capacities (Taylor, 2016). Therefore, these studies propose that strengthening statistical capacity is not only a result of having a more professional State; rather, it is an important and necessary strategy for strengthening the State. As several authors have suggested, governments can benefit in different ways from strengthening statistical capacity (Goodstadt, 2006; Krätke and Byiers, 2014; Taylor, 2016). First, statistical systems can provide the data necessary for policy-making, making justifiable choices and, therefore, making better use of public resources. These systems can therefore make high-quality information available for improving the administration's performance, as well as enhancing the credibility of certain policies. Likewise, they can be a way to monitor the actions of the bureaucracy. The production of reliable statistics also enables the government to evaluate the economy and make better economic decisions by supporting certain sectors or verifying the impact of the measures adopted by them.

At the same time, as Taylor (2016) points out, statistics-producing organizations help society, the market, and political parties by providing the information they need to operate, allowing more assertive decision making even with respect to the actions of the State. Finally, statistical production can strengthen democracy itself, providing relevant information to accurately and transparently evaluate the performance of politicians and the impact of policies.

Producing statistics that can reinforce state capacities depends on the quality, reliability, and regularity of the information. Therefore, the work of organizations that produce statistics must be based on elements such as timeliness, efficiency, modernity, professionalism, and independence (Taylor, 2016). For this to happen, Taylor suggests, it is important for NSOs to comply with international rules and observe

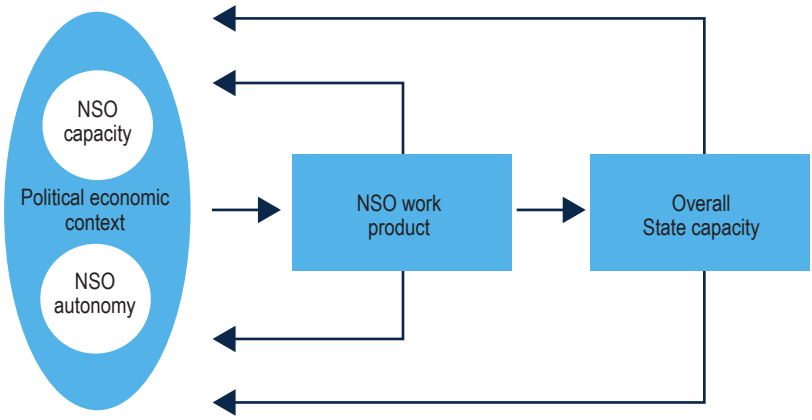
statistical production standards, ensuring rigor and appropriate methodologies to achieve unassailable credibility.

Therefore, developing state capacities presupposes, among other things, investing in the production of relevant and reliable statistics that inform the decision-making process, whether for actors from the bureaucracy, politics, society, or the market. This means that there must be the capacity to provide relevant data to whoever demands it. This, in turn, presupposes building statistical capacity. At the same time, the investment needed to create a statistical system with high technical capacities, autonomy, and resources also assumes a minimum level of state capacities and a minimum long-term investment in statistical production and maintenance, to ensure its permanence.

Taylor (2016) states that building an NSO that yields effective benefits for general state capacities is a long-term process, dependent on and influenced by the State's own capacity and autonomy and, at the same time, by the wider political and economic context. The level of state capacity of a country is undoubtedly a determining factor of its level of statistical capacity, but this is not the full picture. Diagram 2.1 represents this process of interdependence and mutual influence between building state capacities and statistical capacity.

The concept of statistical capacity as understood in these studies, and adopted here, is based on the concept of state capacity. This includes a range of administrative or bureaucratic attributes, such as the

Diagram 2.1: Conceptual Map of the Impact of the NSO on Overall State Capacity



Source: Taylor (2016).

existence of a professional bureaucracy, independence from political interference, and the capacity for coordination among different actors. Beccaria (2017: 3) defines statistical capacity as "the existence of a permanent structure or system that has the resources necessary for the sustained generation of relevant and high quality statistical data, and for disseminating them in an appropriate and timely fashion." Statistical capacity covers different aspects, and its basic elements are the following: "(i) that the statistical office has sufficient budgetary, human, and technological resources to carry out its work; and (ii) that the sector's institutional framework protects technical independence and encourages coordination between the different entities that produce official statistics" (Alessandro, 2017). The presence or the lack of coordinating capacity should be analyzed case by case, insofar as this depends on an institutional framework that stimulates it and enables the design of methodologies and joint forms of action. In a similar vein, Taylor (2016) describes the following three dimensions of statistical capacity:

- The statistical sector's capacity to offer the products of its work efficiently and effectively
- The autonomy of the institutions, or the degree to which the statistical system "is capable of producing this information and making it public without interference from the authorities and politicians"
- The available human and budgetary resources, which are sufficient to produce essential and regular statistics for decision making

Likewise, based on the analysis of three preliminary case studies (Colombia, Dominican Republic, and Mexico), Alessandro (2017) proposes three dimensions for evaluating the political economy of statistical capacity: autonomy, coordination, and resources. These are similar to, or include, the dimensions described by Taylor, although in this case, to autonomy and resources, the capacity to exercise effective coordination of the diverse components of the statistical system is added. The index of statistical capacity developed for this study evaluates these dimensions.

From the above review, it becomes obvious that States must invest in statistical capacity building as an element that makes their own capacity viable. It also becomes clear that statistical capacity refers not only to what NSOs are capable of doing, but also to how they do it in terms of autonomy and coordinating capacity. To fully carry out their task, NSOs

must be able to limit the political or socioeconomic pressures on their work, as well as having the effective authority to direct the different components of the State that collaborate with them.

Despite evidence of the importance of professional statistical systems and the existence of a broad consensus among experts and political elites regarding that importance, the existing studies of statistical capacity in Latin America show that there is still a considerable distance between these ideal models and reality. Although some countries have made much progress in building their statistical capacity, others still lag behind. In a region whose societies share many similarities, these differences suggest that this disparity is explained by the states' own constitutions and their investment and intervention in statistical capacity, and does not depend solely on causes such as the country's level of development or bureaucratic quality.

What factors and processes might explain the different levels of statistical capacity in the region? Taylor (2016) argues that there are two reasons, or two political-economic tensions, that cause different levels of investment in statistical capacity and lead to such heterogeneity. The first is the more general difficulty of state capacity building and is tied to the weakness of many States in the region. States without investment capacity, for example, or with less consolidated or stable bureaucracies, will find it harder to invest in and build their statistical capacity. As previously indicated, statistical capacity is undoubtedly related to the country's level of general state capacity, and it is hardly surprising that weak States also have weak NSOs. It is to be expected that a country's state capacity is a potential determining factor of statistical capacity. Although this relationship is an important part of the explanation, it will be shown below that it is not sufficient to explain all the variation in capacity encountered.

The second reason is the lack of political will on the part of some leaders to demand more transparent information and data that could be used to monitor government achievements or the lack thereof. This second tension refers to accountability: "Whereas statistical data can help to improve the precision and the reliability of decision making in the public and private sectors, the data can also expose the shortcomings of government policies and give rise to calls for change" (Taylor, 2016). The lack of political will described by Taylor can also be ascribed to a simple lack of interest, due to the fact that the development of statistical capacity is not considered a priority, rather than a wish to conceal

information or avoid transparency. This is a common reason in Latin America, where disclosures are frequently far down on the list of governments' real priorities. The preoccupation with other aspects leads governments to direct resources into other reforms or to address emergencies, leaving other essential matters to the side. In other words, the issue fails to gain importance on government agendas: although States have the capacity to do more, they do not necessarily fear the effect of a more transparent system, but they fail to make it a priority in what Slater and Kim (2014) have described as "standoff states," a common behavior in developing countries where the State only acts when it needs to or is pressured into doing so.

This dual tension has led to extremely unequal progress with regard to the statistical capacity of different countries. Whether due to the costs it implies, to avoid accountability, or simple failure to prioritize it, politicians often pay little attention to reforming and strengthening the statistical sector.

What factors influence the building of statistical capacity? Alessandro (2017: xi) proposes that the analysis of the development of statistical capacity must be carried out based on an analysis of the political economy, which would help to identify "in every case the existing space for strengthening such capacities, and also to suggest options that could fill that space."

The central idea of an analysis from the political economy perspective is that it seeks to explain how, based on the interaction between actors with different interests and operating under different rules and institutions, agreements are reached that lead to the current institutional framework. It is therefore important to examine the institutions, and comprehend how they condition the actions of both individuals and organizations, leading to certain balances. "Therefore, the interactions between actors, and of these with the institutional framework (insofar as the institutions are reinforced or modified by the conduct of the actors), are key for understanding these kinds of phenomena" (Alessandro, 2017: 9).

The analyses of political economy begin with a more historical and structural look at the political and policy context. Thus, it is possible that there is path dependence in some political situations or decisions. The next task of an analysis of this type is to identify the existing institutional framework, with institutions defined as the formal and informal rules that create incentives or sanctions for certain behaviors and, therefore,

constrain the actors (North, 1990). Some take into account not only institutions specific to the statistical sector, but also a country's more general institutions, such as, for example, the political system. Therefore, any analysis of the political economy should include: more general institutions of the State (pertaining to the political regime, the system of government, the electoral system, the executive and legislative branches, the relationship between the central State and subnational governments, etc.); statistical sector institutions (rules and regulations that define the actors, their responsibilities, and their jurisdictions), and informal rules that govern behavior (Alessandro, 2017).

Based on the related literature and on the preliminary analysis of three cases (Colombia, Dominican Republic, and Mexico), Alessandro presents a series of hypotheses centered on the interaction between state actors and society and the way these elements of political economy can affect statistical capacity. As will be seen below, these hypotheses were the basis for evaluating statistical capacity in the case studies. The hypotheses proposed by Alessandro (2017) suggest the way in which statistical capacity is influenced by the following five elements: the institutions and actors of the political system, the general characteristics of the public sector, the bureaucratic policy of the statistical sector, participation by external actors, and the characteristics of individual actors.

With respect to the actors, not only state actors (politicians and bureaucrats) should be considered; those from society, academia, the market, international agencies, and the press should be included. As previously explained, these actors are crucial for statistical capacity, since they demand high-quality statistics, which limits the possibility of reversing any gains in quality and transparency.

With regard to state actors, they will not always agree with respect to choosing the best policies or the need to strengthen certain offices responsible for these functions. Alessandro (2017) observes that: "In that context, it is likely that each actor's preference does not refer to a single position within the administration but rather that it varies according to the institutional position (where you stand depends on where you sit)." The so-called "pulling and hauling" between the individuals that comprise these organizations leads to the decisions that the public sector adopts: "What a government does in any given instance can be understood as the result of a process of negotiation between actors arranged hierarchically in the government" (Allison and Halperin, 1972: 43). In the statistical sector, these dynamics involve the various entities responsible

for producing and disseminating official statistics. Competition for jurisdiction over the production and/or coordination of such statistics is linked to the way in which power, budgetary resources, professional reputation, and control of sensitive information about other actors, among other aspects, are distributed among them. It is also important to understand the resources available to the actors, their importance, and their relationships.

The hypotheses put forward by Alessandro (2017) served as a basis for the analysis of the cases studies. The analytical section will present the results arising from them, including new political economy factors, which will be added to those developed initially. Likewise, a series of historical processes common in the region emerge from the case studies, which will also be relevant in explaining the generally progressive increase in statistical capacity in Latin America. Finally, the cases offer a wealth of information in an aspect that is more difficult to theorize about, but which is fundamental for understanding the trends: the importance of the bureaucratic agency's taking advantage of opportunities for strengthening NSO capacity or failing to do so. In general, the study proposes that, given their characteristics, NSOs have greater potential than other areas of the State to develop capacity, and reformers should take these opportunities to exploit these advantages.

However, before presenting the cases and addressing this explanation, the type of heterogeneity existing in the statistical capacity of the region's countries must be established more precisely, and it must be shown that such disparity does not depend solely on the state capacity of the sample countries. The following section presents the ICEN measurement of the case studies, which will enable a comparative analysis to be made based on more precise and objective information.

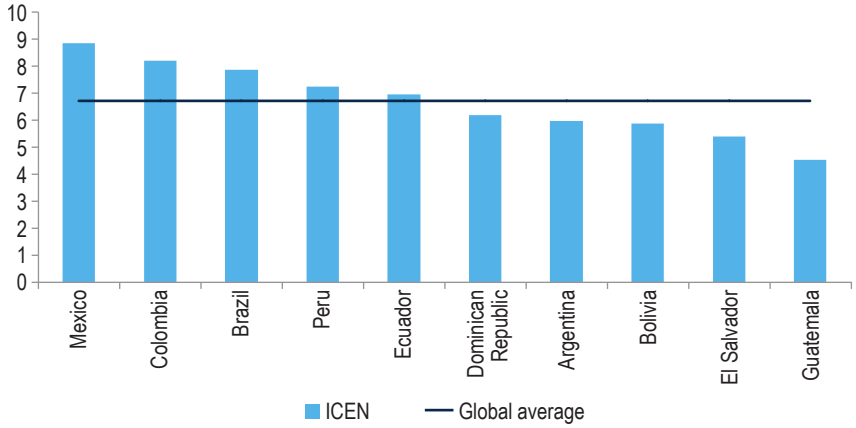
CHAPTER 3

The National Statistical Capacity Indicator

The National Statistical Capacity Index (Índice de Capacidad Estadística Nacional, or ICEN), developed by the IDB, is a tool designed to measure quantitatively the capacity of statistical systems in Latin American countries. Beccaria (2017: v) defines statistical capacity as "the existence of a permanent structure or system that has the necessary resources to generate relevant and high-quality statistical data over time, and to disseminate them in an appropriate and timely manner." The ICEN was developed based on this definition. The measurement is composed of four main dimensions: resources, rules and institutional practices, methodologies, and dissemination. The first refers to financial (budget), human (employees and salaries), technological (software) and physical (equipment, infrastructure) resources that the NSO can mobilize to produce information. These resources are crucial since in sufficient quantities they provide these offices with operational capacity. Second, rules and institutional practices regulate the existence and organization of the NSO and of the system as a whole, as well as its role as system planner and coordinator. The methodologies, which comprise the third dimension, are the techniques by which information is gathered and processed following validated international standards, quality controls, and methods that generate coherent and comparable information for longitudinal and transversal analysis. Finally, the data dissemination dimension consists of the methodologies used to make the information accessible to different users in a transparent and timely fashion while respecting data confidentiality.

To measure the ICEN, questionnaires were administered to different actors in the 10 countries. One questionnaire was answered exclusively by civil servants at the NSO, whereas others were given to civil servants

Figure 3.1: The National Statistical Capacity Indicator, Selected Countries, 2015–2016



Source: Authors' elaboration.

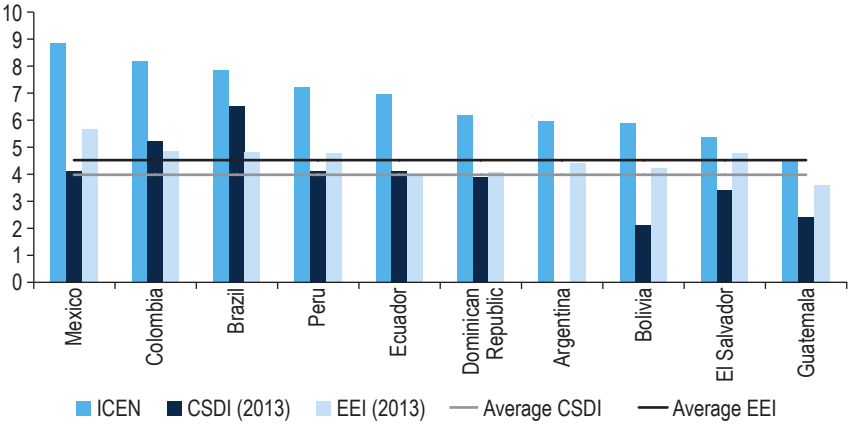
of the national statistical system (NSS), academics, journalists, and private sector users. The information provided by these two types of actors, producers, and users enabled a more integrated measurement of the capacity of the NSS to be made. The resulting score is expressed as a range from 1 to 10, where 1 indicates a low level of capacity and 10 a very high level.[1]

From the results of the measurement, carried out in 2015 and 2016, the following country ranking was obtained (see Figure 3.1): Mexico, Colombia, and Brazil achieve the highest scores and occupy the three top places, with higher-than-average scores (6.69). Peru, Ecuador, and the Dominican Republic occupy more intermediate positions very close to the average score. For their part, Argentina, Bolivia, El Salvador, and Guatemala rank lowest, with scores below the average of the 10 countries.

According to these results, the following interesting observations can be made. First, in general and as expected, the ICEN of the countries corresponds to the general levels of state capacity observed in them. In fact, for all 10 cases, there is a significant, positive, and strong correlation between the ICEN and the Civil Service Development Index (CSDI),

[1] The technical details of the ICEN can be found in Annex 1 of this work and in Beccaria (2017).

Figure 3.2: Statistical Capacity, Civil Service Development, and Government Effectiveness, by Country



Source: Authors' elaboration.

implemented by the IDB, which measures state bureaucratic capacity. The same thing happens when the ICEN is compared to the Expenditure Effectiveness Index (EEI). This corroborates that countries that achieve high scores in the first two indices also show high levels of statistical capacity (see Figure 3.2).

However, statistical capacity in some countries is noticeably greater than the level that might be predicted by their state capacity. These differences are insignificant in the cases of Brazil, El Salvador, and Guatemala, while the greatest gap between statistical and state capacity is seen in Colombia, Peru, Ecuador, and Mexico. This would seem to indicate that NSOs have their own potential to develop capacity to become "islands of efficiency," or entities with levels of technical capacity and autonomy above the general state average (ministries of economy, central banks, or ministries of foreign affairs) (Evans, 1992; Centeno, 2009; Bersch, Praça and Taylor, 2013). In fact, as will be seen in the analysis section, these institutions share with NSOs the international linkages that are an important source of strengthening, but above all depend on demands for information by specialized organizations, which impacts positively on the development of their own capacity. In general, therefore, NSOs in many cases constitute possible exceptions of strength in environments that are, on average, weaker and, what is more important for this study, observing how these institutions use their state position to

gain advantages helps to identify possible statistical capacity-building strategies in cases where reform processes are undertaken.

An additional aspect to consider is that the situation prior to measurement may have affected the position of at least two countries. In Colombia, the measurement was made after a series of changes and reforms were carried out to improve statistical capacity, which may have increased the scores of interviewees by inspiring an optimistic view of the future. Similarly, although Argentina's NSO was obviously weakened in previous years, the scores obtained appear to penalize an institution that, taking a longer-term view, has always achieved higher capacity levels and greater international acknowledgement than those ascribed to it by the people interviewed, but which had only recently overcome a difficult period.

To summarize, this section has briefly described the tool used to measure countries' statistical capacity (the ICEN), its components, and the way it is applied. It has presented the country rankings obtained. Notably, as expected, this ranking is associated with general levels of capacity of each State, while at the same time in some cases the level of statistical capacity is shown to be higher than might be expected in that environment. As will be seen below, it is proposed that, given their conditions and environments, NSOs often (and, moreover, can) develop greater capacity than the average of their state environments. In the following section, the case studies are briefly described to highlight the most significant aspect of the analysis carried out. Subsequently, in the main section of the work, there is a comparative analysis of the factors that explain the high or low levels of statistical capacity in the countries studied.

CHAPTER 4

Synthesis of the Case Studies

This chapter presents the analytical summaries of the case studies carried out in 2015 and 2016 according to the methodology developed by Alessandro (2017). In each study, the year in which it was conducted and its author are noted. The syntheses are based on the executive summaries prepared by the authors responsible for the research in each country and are complemented with information from the cases whenever pertinent for the analysis that will be presented in the following section.[1] Although a brief synthesis of the historical background of these cases is included, priority is given to the analysis of the processes and factors that—according to the authors of each study—have either negatively or positively affected statistical capacity in each country. In the following section, these factors and their relevance are examined.

Argentina – INDEC: The Costs of Interference by the Executive in Statistical Capacity[2]

In Argentina, the National Statistical and Census Institute (Instituto Nacional de Estadística y Censos, or INDEC) is the statistical office in charge of coordinating the NSS. INDEC was set up in 1968 during a de facto government that established the general framework of an NSS. The Argentine case is *sui generis* in the Latin America and the Caribbean (LAC) region, since the country went from having a stable and solid NSS in the 1990s and early 2000s to a rapid weakening of statistical capacity

1 The country reports contain the most complete information from each case.
2 This section is based on the work of Diego Silva (2016).

over the last decade, a product of the intervention by the executive branch. Thanks to this intervention, INDEC now has scant and fragile human, technological, and physical resources, and an institutional framework too feeble to guarantee the strengthening of the NSS. Presently, efforts are underway to restore the organization to its previous technical levels.

There have been several milestones on the way to statistical capacity building in Argentina, each of which can be understood by different dynamics. The creation of INDEC by Law 17622 in 1968 was the result of a maturation process in national statistical capacity. It marked a milestone in the consolidation of a NSS in years when the international environment encouraged this type of effort. The law emerged within the context of a de facto government and following an initiative by the executive branch. In statistical terms, it was an institution ahead of its time, which maintained technical discipline and considerable inscrutability throughout the 1970s. These early years also show technical autonomy. The statistical law enshrined regulatory centralization and executive decentralization, which would become the main element in INDEC's relationship with the provincial statistical offices.

In 1983, with the return of democracy, the national statistical system was further strengthened, with an increase in the institution's transparency. In the INDEC of the 1980s, there were highly skilled civil servants, but there was a technological lag and limited coordination capacity. During this period, the institutions of democracy began to interact with INDEC and change the characteristic secrecy of de facto governments. Moreover, relationships were strengthened with information users in the State, with international agencies, and with the academic world.

The 1990s were marked by improvements in the production and dissemination of short-term statistics, which the country's new political economic context demanded. The process of liberalizing the economy and privatizing public assets signaled a greater role for the private sector. Therefore, a range of short-term indicators were developed that had not been developed in previous decades (industry, construction, trade, services, among others). INDEC was forced to respond to these demands and to capture these new phenomena in the economy by professionalizing its civil servants and through institutional specialization and technological improvements. New users, from the private sector and specialized journalism, for example, began to make use of the short-term information. In line with the context of public management

reforms, there were changes in the way staff were recruited, changing from a permanent to a temporary staff basis. This led to job insecurity and disrupted the system for recruiting skilled personnel.

The period from 2006 to December 2015 marked an accelerated weakening of statistical capacity due to the process known as "intervention." The pressure exerted by the executive branch to ensure that the production and publication of results went hand in hand with the government's political discourse and narrative meant that INDEC came under pressure. Given the country's institutional fragility, it was possible to set in motion a process that undermined INDEC's statistical capacity by modifying the way the institute operated. For political purposes, permanent career civil servants with technical backgrounds were replaced in the institutional structure by professionals who were ideologically aligned with the government (from senior management teams down to lower management), and the concept of "militant statistics" was put forward as statistics produced in line with a political purpose. These changes caused a crisis in national statistical production. The data provided by INDEC were no longer credible, and the media began to discount the reliability of information from this source. Popularization meant that INDEC was quoted more frequently but was taken less seriously in the national debate. The traditional technical-scientific structure was affected, the pyramid of civil servants responsible for statistical production was inverted, and the roles were changed. Sectors of the opposition in the legislature tried to publicize the problem using different strategies, but they were unable to turn the situation around, given the government's majority in Congress.

The national government that took office in December 2015 declared the NSS and INDEC to be in an administrative emergency (Decree 55/2016, January 8, 2016). In this framework, a new direction for INDEC began in December 2015. It is hoped that statistical capacity can recover in a short time, since the necessary conditions, including political support at the highest level, are in place.[3] The new leadership of INDEC set out to restore the most deteriorated statistics by reversing the previous process, that is, by strengthening once more the technical-scientific

[3] The Argentine Government, which took office in December 2015, established 100 priorities grouped into eight objectives, among which was priority 83, referring to the restoration of public statistics as part of the objective of modernizing the Argentine government (see: http://www.casarosada.gob.ar/objetivosdegobierno/).

capacities that the institute had lost. The return of professionals with the necessary knowledge and capacities has been fundamental for strengthening statistical capacity in a very short time.

The Argentinian case suggests some essential conclusions that, as will be shown, are also applicable to other countries in the region. First, the significance of certain historical processes for the development of statistical capacity in general is clear. A government that sought to respond to the challenges of development in the 1960s, from which greater transparency was demanded with the return to democracy, and that must address a series of public policy demands linked to market development or decentralization policies, provides several reference points in the development of statistical capacity.

Moreover, this indicates how the more general and historical trends of a country's political system and its public sector influence the specific practices of the statistical sector. The intervention of INDEC, and its subsequent reconstruction, can only be understood as part of general political economy trends either to strengthen or to weaken Argentina's public sector. These changes are closely related to the attitude of the executive branch toward the state apparatus. The undermining of INDEC is an example of a pattern of administrative weakening common in that country.

Likewise, with regard to the political economy factors, the case illustrates how negative it can be for an institution when powerful presidents see statistics as a means to strengthen their own position and set certain policies in motion. In this case, the political opposition to presidents with strong majorities was not a strong enough barrier to limit politicization. The opposition was unable to exercise control over an institution that fell under the executive branch. Likewise, the crucial role of skilled technical staff has been clearly demonstrated: the lack of skilled technical staff with links to the institute weakens not only the institutional capacities for statistical production but also the defense of statistics as a public good. The return of skilled technical personnel was one of the key factors in rebuilding INDEC throughout 2016.

Furthermore, the role of the media is worth highlighting. The media are, first and foremost, specialized users for strengthening statistical capacity; they are also critics of statistical weakening processes, and, finally, they are a sounding board for the problems caused by this weakening. Exerting this type of pressure on an autonomous and high-quality NSO helps shed light on instances when its statistical quality is compromised.

BOX 4.1: INTERNATIONAL VISIBILITY

The case of Argentina reveals how intervention by the executive branch in INDEC was initially motivated by domestic politics: to influence the consumer price index with a view to showing positive figures during an election year. However, what might have remained merely an internal matter acquired global dimensions, which were shown, among other ways, when in 2012 the prestigious journal *The Economist* announced that it would no longer publish Argentina's official inflation figures because they could not be considered credible. The International Monetary Fund (IMF) passed a motion of censure on the country in February 2013, underlining the importance and magnitude of the problem of the credibility of official data produced by INDEC. The IMF's motion of censure was withdrawn in November 2016, and *The Economist* resumed publishing INDEC inflation figures in May 2017.

This case also illustrates how the need to strengthen credibility with international actors (agencies and/or investors) can be an important lever for improving the operation of the statistical system. As shown in more detail in Box 4.1, international criticism of the quality of the statistics produced made it clear that the problem was not slight or a mere exaggeration by the political opposition or the press.

Finally, another interesting aspect that this case revealed is the role played by crises in building statistical capacity. A crisis, such as INDEC's level of deterioration, can be viewed as a window of opportunity for introducing reforms that, under other conditions, might remain in the background. Presently, statistical production in Argentina has become politicized, and the political and social attention it receives has increased.

Bolivia – INE: The Millennium Development Goals and Decentralization as Catalysts for Statistical Capacity[4]

Statistical capacity in Bolivia has undergone significant development over the last 30 years. Building these capacity has been an ongoing process, with highs and lows, of improving and strengthening the capacities of the institutions that comprise Bolivia's NSS. It has also been marked by certain milestones that represented important changes in the way the system operated and in the authority and jurisdictions of the institutions

[4] This section is based on the work of Luis Carlos Jemio (2016).

within it. As will be seen in the analysis that follows, in many cases the development of statistical capacity has been linked to the demand for information by public policymakers, arising from the need to design and evaluate these policies and their effects. Therefore, policies linked to both decentralization and poverty alleviation programs, some of which were promoted and financed by international donors, have helped strengthen Bolivia's NSS.

In 1976, the second population and housing census was conducted, 26 years after the first one. In that same year, the National System of Statistical Information Act (Ley del Sistema Nacional de Información Estadística, or SNIE), DL 14100 November 5, was enacted. This rule established the National Statistical Institute (Instituto Nacional de Estadística, or INE) as the "executive and technical organ of the system; as a decentralized entity with administrative and management autonomy, which reports to the Ministry of Planning and Coordination (Ministerio de Planeamiento y Coordinación)". INE is responsible for directing, planning, executing, monitoring, and coordinating the NSS's statistical activities, as well as promoting the use of administrative records in both public and private offices.

The economic crisis that erupted toward the end of the 1970s and the first half of the 1980s highlighted the weakness in the area of fiscal statistics. At the time the crisis hit, fiscal statistics covered only the operations of the central government, and there was no information available about the operations of the prefectures and municipalities. This made it impossible to obtain a precise measurement of the magnitude of operations in the consolidated non-financial public sector. The operational data from the departmental and municipal prefectures were dispersed and in a non-standardized format, which made them impossible to aggregate and consolidate.

Starting in 1988, INE was responsible for preparing the national accounts, previously the responsibility of the Central Bank of Bolivia (Supreme Decree No. 21855, January 14, 1988). The main reason that led to this change was the authorities' perception at that time that the central bank should concentrate exclusively on maintaining the country's monetary stability and controlling inflation. During the first half of the 1980s, the Bolivian economy suffered a severe crisis, characterized by extremely high fiscal deficits, hyperinflation, and continuous declines in gross domestic product (GDP).

Until 1992, national population and housing censuses were not conducted on a regular basis. The 1992 census in Bolivia was conducted 16

years after the previous census was taken. Many factors explain this delay, including extreme political instability at the end of the 1970s and beginning of the 1980s, the economic crisis of the first half of the 1980s, and the government's lack of resources throughout most of the decade. The 1992 National Population and Housing Census (Censo Nacional de Población y Vivienda, or CNPV) was financed almost entirely by international aid. Conducting the CNPV was one of INE's chief activities and, as will be seen below, one of the causes of its institutional strengthening.

Starting with the 1992 CNPV, censuses have been conducted every 10 years, following international recommendations by the United Nations. One of the explanations for this change is undoubtedly the recognition by government authorities, international finance institutions, and civil society of the importance of having demographic information available for development planning purposes.

However, what is more interesting for this analysis, and another factor leading to the CNPV's being conducted on a more regular basis, is the process of administrative decentralization that has been progressively implemented in Bolivia starting in the 1990s. A series of arrangements that govern the way rents are allocated to subnational governments and that are related to political representation require precise statistical information on the population in the departments. For these purposes, more frequent and professional censuses must be taken.

Therefore, the Popular Participation Law (Ley de Participación Popular) (Law No. 1551, April 20, 1994) and the Administrative Decentralization Law (Ley de Descentralización Administrativa) (Law No. 1654, July 28, 1995) were approved, which transferred greater authority and responsibilities for investment and public management to departmental (governorships) and municipal governments. To ensure compliance by the municipalities with this new and enhanced authority, Law No. 1551 (Article 20) established various changes that strengthen municipalities and support the demand for statistical data to be made available from the population census so that financial transfers can be made to them. Thus, it became mandatory for INE to conduct the national population census every 10 years and for the data to be linked to government and municipal operations.

Hence, a series of central themes of subnational politics and of national representation take the population data of the CNPV as a reference and generate a very high demand for updated and precise population information at the political-regional level. INE is responsible

for executing this task, which implies a major influx of financial resources, as well as logistical and technological materials for the institution.

During these years, the System of National Accounts (Sistema de Cuentas Nacionales, or SCN) was also strengthened. The National Accounts is an accounts register for the entire economy, and its preparation brings together information provided by all sectors of the economy, including statistics and prices from the productive, export, and import sectors, the balance of payments, public sector statistics, household surveys (including employment and household budgets surveys), population and housing censuses, an agricultural census, a census of economic establishments, monetary and financial statistics, and others. In this way, the institution responsible for compiling the national accounts naturally acquires a central and leading role in the NSS.

A further aspect that explains INE's gradual strengthening is the development, over the last 30 years, of poverty alleviation programs that demand the production of statistical information, many of them promoted and supported by international assistance. As an emergency measure to mitigate the effects of the adjustment program implemented in 1985, the Social Emergency Fund (Fondo Social de Emergencia, or FSE) was created. Starting in the 1990s, once macroeconomic stability had been consolidated, efforts were made to draft an anti-poverty strategy, reallocating the budget toward social sectors and implementing social programs. For this purpose, the Social Investment Fund (Fondo de Inversión Social, or FIS) was set up, based on the FSE, the National Development Fund (Fondo Nacional de Desarrollo Social, or FNDR), and the Farmer Development Fund (Fondo de Desarrollo Campesino, or FDC) (Antelo, 2000).

In the 1990s, Bolivia benefited from the foreign debt relief program implemented as part of the Heavily Indebted Poor Countries (HIPC) program, which was conditioned by the drafting of, and compliance with, the so-called Bolivian Poverty Reduction Strategy (BPRS, 2001). The debt relief resources obtained by signing on to this program were to be used to implement the BPRS. International finance institutions and international aid agencies, both multilateral and bilateral, played a leading role in defining certain policies and demanding and requiring the information needed to monitor compliance with the goals set by the BPRS. This relates to the fact that debt relief by these agencies was conditional on achieving the poverty reduction targets set in the BPRS. The greater public policy emphasis on the social area, and on poverty alleviation in particular, generated greater demand for detailed and relevant

social sector data. This information had to cover the various areas of the social sector: health, education, housing, nutrition, basic services, and others. Moreover, it had to include regional coverage throughout Bolivia, with representation at the departmental and municipal levels. The information would come from three main sources: (i) household surveys, (ii) population censuses, and (iii) administrative records kept by public and private institutions.

International aid has also accompanied this statistical capacity-building process. Thus, for example, in the period 1999–2002, the Regional Program for Improvement of the Surveys and Measurement of the Living Conditions in Latin America and the Caribbean (MECOVI) was developed with the support of multilateral organizations such as the IDB, the World Bank, and the Economic Commission for Latin America and the Caribbean (ECLAC), with the aim of obtaining information about living conditions in Bolivian households, which was necessary for public policymaking.

More recently, new demands from state institutions that require information also helped strengthen the NSS. For example, starting in 2006, the government began implementing the National Development Plan (Plan Nacional de Desarrollo, or PND) entitled Living Well: Dignity, Democracy, Production, Sovereignty (*Bolivia Digna, Soberana, Productiva y Democrática para Vivir Bien)* for the period 2006–11, approved by Supreme Decree No. 29272 of September 12, 2007. To support implementation of the PND, the government created the Plurinational State Integrated Planning System (Sistema de Planificación Integral del Estado Plurinacional, or SPIEP) to monitor, control, and evaluate the country's development plans through a "network of development planning information" (SPIEP Reference Framework, 2009). In 2009, with a view to aligning the production of statistical information with PND objectives, INE drafted its Institutional Strategic Plan (Plan Estratégico Institucional, or PEI) (PEI 2010–14), which is consistent with the objectives and philosophy of the PND and the SPIEP. Other public sector entities, such as the Social and Economic Policy Analysis Unit (Unidad de Análisis de Políticas Sociales y Económicas, or UDAPE), the Productive Analysis Unit (Unidad de Análisis Productivo, or UDAPRO) and the Social Research Center (Centro de Investigaciones Sociales, or CIS), also sought information for economic policy design and analysis.

Despite these developments, INE still has difficulty satisfying the demand for information from the government and civil society, suffering

especially from the lack of adequate resources for carrying out all its functions. INE obtains a significant increase in its budget in years when it carries out a CNPV. However, the census operation is so large that it requires the institution's almost exclusive dedication to conduct it. This has a negative effect on production of the other statistics that INE usually generates.

An additional potential problem for INE is political interference in its activities, beginning with interference by some political authorities in the staff recruitment and dismissal processes. A further possible drawback is direct interference in the decision whether to publish certain statistical data. To address this question, the solution put forward by some of those interviewed is for complete institutionalization of INE, by approving a law specifically for the NSS, in which this condition is explicitly recognized, the allocation of the resources needed for efficient operation is guaranteed, and a primarily technical management team is selected to regulate the institution's activities.

As Box 4.2 reveals, the biggest lesson learned from the Bolivian case is observing the way in which reform processes, such as decentralization, or international processes, which demand greater technical quality from the Bolivian government, created a demand for high-quality data that

BOX 4.2: PRESSURE BY USERS

The study carried out in Bolivia reveals how an internal process, decentralization, and an external process, the MDGs, put pressure on the Bolivian executive branch and forced it to strengthen INE by creating greater demand for data. Thus, an institution with limited capacities had to be able to respond to demands from regional political actors, donors, and international organizations. This constant demand for information meant that INE acquired statistical capacity. This is borne out by the fact that, starting in 1992, population censuses were carried out every 10 years, consistent with international recommendations.

The importance that the results of the population censuses have acquired for subnational governments was seen in the conflict between the central government and the opposition subnational governments over the results of the 2012 census, when the executive branch presented preliminary results before INE could finish reviewing the consistency of the data. Months later, these results were corrected in the official report. The departments affected complained, while the overall sensation caused by the process was one of improvisation and of INE's limited autonomy.

Note: see the links http://www.la-razon.com/nacional/Info-demandas-departamentos-censo_LRZIMA20130814_0026_11.jpg; http://hemeroteca.correodelsur.com/2013/08/01/25.php.

led the State to strengthen its NSO. However, as the case also shows, although this office still has problems with autonomy and resources, the fact that this capacity has increased in the face of political and international demands shows that it is possible to build a professional NSO when there are incentives to support its strengthening, and real demand related to its activities.

Brazil – IBGE: Building Legitimacy both Inside and Outside of the State[5]

The Brazilian Geographical and Statistical Institute (Instituto Brasileño de Geografía y Estadística, or IBGE) is Brazil's national statistical organization responsible for coordinating the production and dissemination of national official statistics. The IBGE has been in existence for 80 years. Since its creation, it has built a highly skilled professional body, enjoys considerable credibility and reliability, and has legitimacy and relevance for the market, society, and the government. The building of statistical capacity at the IBGE can be divided into three distinct periods that occurred in parallel with the development of the Brazilian State itself.

The first period, which took place between 1930 and 1970, is considered the foundational framework of the institutional bases of national statistics, because the founding principles and elements that were the inspiration for the subsequent periods were proposed at that time. In parallel with the construction of the Weberian Brazilian State, the IBGE assumed a central role consisting of providing relevant information that allowed Brazil to get to know itself, taking on a central role in government decision making and a coordinating role with respect to the national system. At that time, an organizational framework was founded based on the respectability of the great names that offered their support, and on the considerable importance accorded the institution by the president of the Republic. This was also a significant period for building the institution both in terms of staff recruitment and creating organizational units that were valid throughout the country, which would guarantee the presence and importance of the IBGE over time. During this period, the National School of Statistical Sciences was established, which would be a training school for professionals for statistical

[5] This section is based on the work of Gabriela Lotta (2017).

institutes and as a publisher of national research and methodologies, and would provide the basis for guaranteeing the credibility and quality of the IBGE's activities.

The following period, from the 1970s to the end of the 1980s, saw an essential consolidation of statistical methodologies. This period was crucial for building national statistical capacity, meaning the consolidation of existing statistics and the proposal of new ones. This was a time of renewal of the statistical system. Geography and statistics were integrated and new research was undertaken, including in industry and trade. Economic statistics became crucial for national decision making, and the IBGE became the central actor in this process. There is also deep institutional development in terms of improving work processes and building a solid framework of statistics as the basis for national planning.

The third period got underway in the 1990s, when democracy returned to Brazil and a new federal constitution was established based on the pillars of a social welfare state. At this point, the IBGE underwent significant changes in terms of statistical capacity, as statistical production began to be thought of as an essential element for strengthening both democracy and the new welfare state. On the one hand, there was a notable improvement in processes due to computerization of the organization and the methodologies while, on the other, the organization became more open to national and international actors. Rapprochement with the press, academia and multilateral organizations was one of the characteristics of this period. Investment was made in technical capacities with the recruitment of high-level civil servants. Institutional development and organizational planning systems were also upgraded. Capacities were built with respect to the relationship with the press and information transparency. There were also methodological developments, and new themes were incorporated. The fundamental point of this process is the consolidation of "rooted autonomy" (Evans, 1992), according to which the organization exercises its autonomy based on broad credibility and enjoys well-established relationships with governmental, market, civil society, and international actors.

Analysis of the IBGE institution-building process reveals that the development of its capacities is based on elements that draw on both tradition (which build a legacy guaranteeing stability and permanence) and renewal (which bring transformations by ensuring relevance and adaptation to contextual changes). Therefore, to explain its capacities, it is essential to understand how traditions have been maintained

and departments have been created and, at the same time, how transformations are made by promoting the development of institutional and statistical capacities.

The institution has successfully undergone organizational learning processes. These are linked to participation in international networks, the circulation of bureaucracy through different spaces that enable methodologies to be renewed, and the existence of respected agents who act as catalysts by proposing changes while respecting the organization's traditions and whose proposals are listened to (for example, former IBGE presidents and managers who helped promote significant transformations in the institution, based on a technical background and on strong external networks, and by seeking internal allies for such changes).

Part of the development of the IBGE's statistical capacity can be explained by the institution's ability to adapt to new contexts, accompanying the growth in importance of national statistics and its changes, which has given it institutional preeminence over time. The IBGE's history shows that there have been important institutional turning points that enabled the institution to embrace new research agendas and undertake essential changes that guaranteed its relevance and credibility. In other words, the IBGE has been able, over time, to incorporate new demands and reconceptualize its role in national statistics production by understanding the nature of Brazil's economic, social, and political transformations and, in light of them, how the institution should be led.

A second key element in developing statistical capacity is related to building institutional credibility and legitimacy. Among the factors that have made this achievement possible is the support, from the outset, of nationally important actors that has bolstered the institutional image. A further contributing factor is the recruitment of highly skilled and stable technical personnel who are loyal to the institution. There is likewise constant investment in methodological improvement and transparency, with the adoption of international statistical principles. Finally, this credibility and legitimacy are also based on a high degree of integration in international networks and on the support of other institutions that, in turn, reinforce IBGE values.

Statistical capacity building also goes through a process of developing a particular form of autonomy. Although since its origin the IBGE has always shown strong autonomy, understood as a degree of isolation from social and political interests, this process has been transformed over time, leading to the constitution of a kind of "embedded autonomy."

This concept describes institutions in which there is an "apparently contradictory combination of Weberian bureaucratic isolation and intense immersion in the surrounding social structure" (Evans, 1992).

In the IBGE's case, the typical factors of an autonomous organization, such as technical excellence, relative distance from the conflicts of power (simply by being in another city, a long way from the federal capital), and the drafting of rules for managerial appointments, are combined with factors typical of an embedded organization, such as partnerships with extra-governmental actors, participation in international networks, and the close relationship with actors from academia, the press, the market, and others. These two characteristics enable the organization to simultaneously maintain its autonomy while not distancing itself or breaking links with social actors, but rather drawing strength from them to maintain its independence from the political sphere. Over time, the IBGE was able to achieve embedded autonomy, developing strong external links that enabled it to build, outside the government, strong support to guarantee its independence from politics. Investment in the relationship with external actors, alongside efforts to form a knowledgeable public (such as academics and the press), have strengthened the institution and its national importance.

The idea of embedded autonomy is even more evident in what has occurred in the institution since 2003. Since that year, three of its four presidents have been career IBGE civil servants. This shows an acknowledgement of technical specialization, and therefore of the methodological autonomy of the institution's career civil service. Moreover, these appointments help create the notion of having "one of our own" at the helm, which confers legitimacy on the leadership and facilitates internal dialogue in the institution.

Furthermore, whereas over the decades the IBGE has been noticeably reinforced, the same cannot be said of Brazil's NSS, which—in contrast—has grown even weaker over time in terms of coordination and organization. There are two explanations for this process. The first has its origin in Brazilian political economy, which is explained by the coordination problems characteristic of Brazilian federalism, by coalition presidentialism, by excessive segmentation, and by high thematic diversity—all characteristics that hamper the capacity for integration among institutions.

The second explanation is based on the history of the IBGE's institutional development: insofar as this institution was structured as a

national statistics-producing organization, in the highly centralized context of the Brazilian government, it did so by creating an evolving autonomy among other actors, especially from the state institutes and certain sector agencies. Therefore, the IBGE's protagonism, its strength, and its predominance led to a weakening of other actors and undermined the capacity to organize and coordinate the joint production of statistics in most thematic areas.

Although there are some successful areas and experiences in terms of NSS integration (such as, for example, national accounts), there is still some significant margin for strengthening. Effective NSS integration and coordination are considered to be among the greatest challenges facing the IBGE at this moment: to be an effective organizer and coordinator of national statistical production, to create integrated systems, to use administrative records, and to strengthen local statistics-producing institutions by dissemination of IBGE methodologies.

As general lessons on the political economy of statistical capacity, the Brazilian case reveals some very interesting factors and processes. First, it helps to understand how the statistics sector develops in parallel with the needs of the State, society, and the market, and how statistical institutions support the broadest social transformations. The capacity to tackle new demands and adapt to these transformations (and to learn from them) is an essential part of explaining the development of statistical capacity.

Second, it reveals how the relationship with non-state actors becomes crucial for understanding the operation of statistical institutions and the development of their capacities. In the Brazilian case, this is made clear by the relationships that were forged, over time, with international statistical institutions, with actors from the market, the press, and academia. These relationships can give the NSO credibility, legitimacy, and relevance. Above all, they are capable of building contexts of political protection in which organizations are protected not only because they are shielded, but by being "well connected" with important social and economic actors. Establishing important social connections over time is an essential element in explaining the development and characteristics of statistical capacity.

Third, developing the NSO's institutional capacities does not necessarily affect the development of NSS capacities: in this case, the exact opposite occurred. In contexts of high institutional complexity, with many different and competing actors, strengthening the NSS

BOX 4.3: LOCATION AND GEOGRAPHY

A single institution that combines responsibility for producing statistical and geographical information is seldom seen anywhere in the world. Two of the exceptions are in Latin America: the Brazilian Geographical and Statistical Institute (IBGE) and Mexico's National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, or INEGI). This characteristic enables them to link, from the very outset, the statistical information produced with a given geographical point.

These two institutions have a further element common: their headquarters are located in a city other than the country's capital. IBGE is located in Rio de Janeiro, and INEGI in Aguascalientes. The historical reason for these locations is different: in Brazil, when the capital was moved to Brasília, it was considered too risky to move the massive computers in which IBGE data were stored and processed. In Mexico, after the 1985 earthquake, there was a drive to decentralize the federal government, a measure that achieved its greatest success in the relocation of INEGI.

This physical separation has important implications from the standpoint of the interaction of these institutions' employees with the rest of the federal government, and from the labor mobility perspective as, in their respective cities, jobs in the federal public sector are in short supply. The distance has contributed to their independence and the lack of mobility to their technical soundness. There is also, evidently, a negative aspect, since the location contributes to their isolation, and the limited labor mobility limits cross-fertilization. Whichever the view, both factors have helped make the two institutions what they are today.

depends on building contexts favorable for negotiation and coordination and on the existence of an NSO with sufficient capacity to achieve coordination among different actors. However, it is possible that the technical-methodological development of statistical organizations runs contrary to strengthening its socio-political capacities and, therefore, to coordination. Thus, an NSO may be strengthened to the detriment of the NSS.

Colombia – DANE: Technocratic Areas and International Demands as Opportunities for Statistical Strengthening[6]

The National Statistical Administrative Department (Departamento Administrativo Nacional de Estadística, or DANE), created in 1953, is

[6] This section is based on the work of Martin Alessandro (2015a).

responsible for directing the production and dissemination of official basic information in Colombia. DANE is a highly professionalized agency. Its significant budgetary, human, physical, and technological resources allow it to generate high-quality statistical information in a variety of thematic areas. Its managers tend to be professionals with recognized technical ability and a background in the field. The majority of the other producers and users of statistics in Colombia, both inside the public sector and in academia and the private sector, consider DANE to be a serious and credible entity, even when there are occasional difficulties or when criticism is leveled at its performance. In the LAC region, DANE is a reference point with respect to capacity building.

Nonetheless, it was only recently able to drive forward the reform of part of the institutional framework of the statistical sector. Since 1953, DANE has reported directly to the Presidency of the Republic; thus, it is not an autonomous or independent body, as are other technical entities of Colombia's public sector. The director serves at the President's discretion (in the last decade, in fact, three directors have resigned over differences with the executive branch). The regulations do not specify the ideal technical qualifications of the director. The NSS was established in mid-2015 as part of the National Development Plan (Plan Nacional de Desarrollo, or PND) 2014–18, which assigns the function of NSS coordination and regulation to DANE. At the time of this writing, this reform was still in the process of regulation and implementation.

DANE's outstanding capacities can be attributed chiefly to a deep-rooted technocratic tradition in certain Colombian government entities. Since the 1960s, agencies such as the Treasury, the Bank of the Republic, and the National Planning Department (Departamento Nacional de Planeación, or DNP) have received recognition for their technical excellence. As a kind of "informal institution," successive presidents have generally respected the rule that only top-level experts should be appointed to manage these entities. DANE, as a provider of statistical information crucial for decision making in those agencies, and in part because it has been "mentored" by some of them in certain periods, has benefited from this technocratic tradition. Therefore, DANE's capacities can be understood within a more general capacity-building framework in certain technical institutions of the Colombian public administration.

The failure to update formal institutional capacity can be attributed to a combination of factors. With regard to DANE's autonomy, it is first

worth highlighting that any initiative seeking to establish such autonomy would require a legislative act of constitutional reform.[7] Although constitutional amendments are not totally unknown in Colombia (they have averaged around two per year since the Constitution of 1991 entered into force), their requirements in terms of majorities in Congress are stricter than those needed to amend a law. Second, because DANE's credibility has been historically high, there have been no significant demands aimed at reforming its institutional framework; for most relevant actors, DANE functions sufficiently well that they do not have to mobilize in favor of a reform. Third, and as often occurs in the absence of a crisis or external demands, different governments have preferred to maintain direct control over the entity. Finally, with regard to the absence (until 2015) of a reform to establish the NSS, other statistics-producing entities (such as the Bank of the Republic) have been reluctant to establish a NSS coordinated by DANE, because this would institutionalize DANE's leadership in the field.

The institutional reform of 2015 was a result of the process by which the country is joining the Organization for Economic Cooperation and Development (OECD). As part of this process, the OECD Secretariat recommended, in January 2015, early adoption of a statistical framework law that would confirm DANE's professional independence and its role in coordinating the NSS. The OECD recommendation enabled DANE to once more propose a reform initiative that had been unsuccessful in previous years. Arguing for the need to respond to the OECD, DANE garnered the support of the DNP to make progress toward establishing the NSS and also managed to overcome any resistance by the Bank of the Republic. To favor the chances of approval, the institutional amendment was included as part of PND 2014–18, rather than promulgating a specific law on the issue. The reform became law in June 2015.

The Colombian case also offers clues about certain political-economic factors and processes that influence the development of statistical capacity in public sectors. Some of them are internal to the dynamic of the public sector itself; others arise from countries' international

[7] DANE could become an autonomous entity by law, but this would imply a loss of rank for the agency (in Colombia, the administrative departments have ministerial status). To maintain its position in the hierarchy, the reform would have to a constitutional one, as occurred with the Bank of the Republic in 1991.

relationships. At the same time, some of the factors identified are favorable for capacity building, whereas others hamper it.

Two factors are internal to the public sector: (i) the more general existence of capacities within the State and (ii) the dynamics of "bureaucratic politics" among government entities. The statistical sector operates within the more general characteristics and trends of a country's public administration, including those informal institutions that, even though they are not codified, influence actors' behavior. At the international level, there is a moderately high positive correlation between state capacities in general and statistical capacity in particular. Therefore, in countries (such as Colombia) with comparatively high state capacities, it is logical to suppose that statistical capacity will also be high. This seems to occur not only due to "infection" from the general context, but also because a State with high capacities demands high-quality information for decision making. As the principal producer of that information, the statistical office therefore becomes an entity of particular importance to decision makers. Since other areas of the State are key "clients" of the office's production, their demand for data must influence the value they assign to their work (the resources that they are willing to allocate, how technical work is protected, etc.). To summarize, the State's general capacities affect the demand for information by its managers, and thus the development of statistical capacity. In the case of Colombia, the demand for information by the technocracy located in high positions of government, in entities such as the Treasury, the DNP, and the Bank of the Republic, has been crucial for consolidating DANE's capacities, by allocating it reasonable resources and protecting it from blatant political interference. It is worth highlighting that these technical strengthening processes got underway in the 1950s and the 1960s, especially under the governments of Alberto Lleras (1958–62) and Carlos Lleras (1966–79), to give the Colombian State the capacity to respond to the challenges of development.

The Colombian case also reveals the influence of external factors on the way that countries are embedded in certain networks of international organizations. The process of joining the OECD, a forum for countries that seek to share certain best practices, has meant that Colombia needed to reform some aspects of its state operation. Likewise, as shown in Box 4.4, this process enabled the resistance of certain sectors of the State to DANE reform to be broken. For governments, membership of these organizations can be a "certificate" that attracts

BOX 4.4: IMPETUS FROM OUTSIDE

In the Colombian case, there is a technically strong institution with ministerial rank within the state structure, which has limitations with regard to its autonomy and to DANE's mandate to coordinate the NSS. This situation allowed statistical production to be maintained at an adequate level, but over the previous 10 years had led to the resignation of three directors due to disagreements with the executive branch, and had hampered the coordination of data production. This changed when, in 2015, as part of the National Development Plan 2014–18, the function of coordinating and regulating the statistical system institutions was assigned to DANE. This process came about in accordance with OECD recommendations in the context of Colombia's efforts to join this organization. The objective of joining the OECD encouraged the country to strengthen DANE, with a view to satisfying the statistical quality standards that the OECD demanded.

international investments and contributes to future growth, or that simply enhances the country's "respectability." The statistical sector can benefit from these foreign policy decisions. Whenever admission to these organizations depends on providing high-quality statistics, there may be a significant incentive for governments to support reforms that seek to boost these capacities. Therefore, the strategy of linking the country with international agencies is a factor that influences the calculations of internal political actors, with indirect repercussions on the statistical sector.

Finally, and although the evidence in this respect is more tentative, the Colombian case points to the conclusion proposed below about the importance of NSOs themselves taking advantage of the relationship with civil society to strengthen their own autonomy and capacity. As already described in this work, Colombia is a country with a highly developed technocracy, which not only occupies positions of leadership in the public sector but also in universities, think tanks, and private sector organizations. Particularly high demand from outside the State regarding statistical matters and strengthening of the NSO is therefore to be expected. However, although these actors are important as consumers of statistics, they participated only slightly in the processes analyzed in this paper, which have taken place chiefly within the public sector. This seems to provide evidence that the mere existence of a community of users is important, but is not in itself a sufficient condition in strengthening ties with users and developing the NSO's autonomy. What appears

to be lacking is more proactive activity by the NSO itself to exploit this space in its favor. If this has been the case in Colombia, something similar might be expected to happen in countries with fewer qualified users of statistical products outside the government. It would also appear that these relationships should be exploited and promoted from within the NSO itself.

Dominican Republic – ONE: Continuous Leadership and Opposition from within the State[8]

The Dominican Republic's National Statistical Office (Oficina Nacional de Estadísticas, or ONE) was established in the 1940s. Its history can be divided into three stages. The first is characterized by progressive capacity building in this field. Since its origins in the 1940s, ONE, initially called the General Directorate for Statistics, gradually expanded its production of various statistical indicators until the late 1970s or early 1980s. For example, it conducted surveys of the manufacturing and tourism sectors. In this period, it published annual reports and statistical bulletins on a wide range of topics. This was a relatively advanced level of institutionality, especially considering the Dominican Republic's context at that time, characterized by authoritarian rule.

In the 1980s and early 1990s, ONE's capacities were weakened. In a context of economic crisis, ONE became just another variable of fiscal adjustment, given the relative lack of interest on the part of government in statistical matters (or the refusal to produce data that might be used for monitoring government management). This significantly limited the investment earmarked for statistical production. For example, the data from the 1981 census took approximately five years to be released, due to the lack of resources available for processing and publishing it. Furthermore, the extreme politicization in ONE's operation affected the credibility of its already limited production. In this period, driven by its own need to have access to reliable information, the Central Bank took over the responsibility for gathering production, workforce, and consumer price statistics, among others, further undermining ONE, which practically stopped carrying out surveys of any type. The lack of credibility and resources had a mutual feedback effect, resulting in a

[8] This section is based on the work of Martin Alessandro (2015c).

downward spiral that relegated ONE to a marginal role in Dominican statistical production.

The early 2000s ushered in a period of bolstering of ONE's capacities. To carry out the 2002 census, the Office received an injection of budget resources, mainly thanks to a general agreement about the serious problems that had arisen in the execution of the previous census in 1993. The increased resources and the appointment, in 2004, of new leadership with a broader vision and an understanding of its technical challenges and possibilities, enabled the slow rebuilding of capacities. This was underpinned by the influence of international organizations, which impressed upon the government the need to strengthen the weakened statistical agency to improve the country's existing indicators. Gradually, ONE began to expand its statistical production and regain its credibility with other information producers and users to perform (although still only partially) the task of coordinating the statistical system.

Over the last decade, ONE has undergone significant changes in both its operation and its production. Obtaining resources from international donors enabled household surveys, in operation since 2005, to get underway. More resources also facilitated the recruitment of qualified personnel and the creation of the National School of Statistics aimed at improving staff training. Defining a strategic plan for the sector, holding inter-institutional meetings with entities from the statistical system, and greater transparency in data dissemination are other important changes that ONE has undertaken since then. Presently, the ONE implements the National Multi-purpose Household Survey and the National Economic Activity Survey; it has recently carried out the National Household Income and Expenditure Survey, the National Immigration Survey, the Directory of Businesses and Establishments, the National Register of Establishments, and the Agricultural Pre-census. It calculates the Home Building Cost Index and the Producer Price Index and has developed a new official guideline and methodology for measuring monetary poverty.

Thus, over the last 10 years, the Dominican Republic's statistical capacity has evolved substantially. The human, financial, technological, and physical resources of the NSS, and particularly of the ONE, have been significantly expanded. Today ONE has professionals who are recognized specialists and sufficient budget resources to produce statistics at a higher level than in previous decades in terms of both quantity and

quality. At the same time, it has generally been able to operate without interference from the political authorities of the government. There is significant consensus among producers and users of statistics on the need to rebuild ONE's capacities and credibility.

At the same time, ONE has failed to push forward a reform of the current institutional framework in the statistical sector, which differs from accepted best practices in this field. Law 5.096 (1959) fails to establish guidelines for ONE's technical, budgetary, and operational autonomy; ONE still falls under the central administration of the executive branch. The qualifications required for the national director have yet to be fully described, while mandatory competitive staff selection, as set out in the Civil Service Law of 2008, is still in the process of implementation. Finally, the law does not establish an NSS that formalizes instruments for coordinating the agencies that produce official statistics, nor does it assign ONE a leadership role. Thus, with respect to the production of statistics, shortcomings and duplication of effort persist.

The success in obtaining resources, coupled with stagnation in the institutional framework, reveals that capacity building is not a uniform process. ONE has managed to strengthen its human and budgetary resources, which are essential attributes in every aspect of state capacity. However, the institutional framework does not guarantee that an entity can operate autonomously or in coordination with other agencies, which are also aspects of capacity. Therefore, the case of the Dominican Republic's statistical sector reveals that "state capacities" include a range of attributes that do not necessarily move in harmony.

The progress made in terms of resources can be attributed to a series of factors, among which is the leadership by the authorities who took charge in 2004. The appointment of an ONE director who was recognized in the statistical community and who enjoyed significant backing from the Ministry of Economy, Planning and Development (Ministerio de Economía, Planificación y Desarrollo, or MEPyD) opened up the possibility for the Office to play an increasingly prominent role, as well as enabling the implementation of a specific strategic vision and the capture of resources from international donors. The continuity of these managers in their posts has been significant for the institution's development. Other factors, such as the higher requirements for information for monitoring the National Development Strategy, and international

commitments, such as the UN's MDGs and the Sustainable Development Goals, the influence of certain multilateral organizations, and a more general trend toward strengthening Dominican public administration, have also contributed to capacity building.

The difficulty of altering the institutional framework is explained above all by factors of "bureaucratic politics." In the Dominican Republic, the Central Bank (Banco Central de la República Dominicana, or BCRD) is a major player in the production of official statistics, responsible not just for national accounts but also for generating labor market indicators and the consumer price index, among others. The BCRD took on many of these responsibilities in response to the obvious weakness of ONE in the 1980s and 1990s. At the same time, the BCRD is a highly influential actor in overall public policymaking in the country, especially because of its reputation as the watchdog of macroeconomic stability, a crucial matter following the severe banking crisis of 2003–04. In such a context, progress on an institutional amendment that strengthens the coordination of the sector has been difficult, given the serious disagreements between ONE and the BCRD about the elements of an eventual reform. The Congress has blocked two draft bills dealing with the organization of the statistical system proposed by each institution, due to a tie between the proponents of one project or the other.

If the reform of the institutional framework were to focus on the aspects of apparent agreement between ONE/MEPyD and the BCRD, progress might be made toward building a coalition of support for an updating of the regulations. In any case, this agreement is far from likely in the current context, given the BCRD's drive for a reform contrary to

BOX 4.5: CONTINUITY IN INTERNAL LEADERSHIP

The Dominican case shows how technical consolidation of a statistical office is related not only to the permanence of its professional teams, but also to the continuity of the leadership at the head of the organization. In the case of ONE, having just one director for more than 10 years enabled a technical team to be built with a strong organizational structure. Moreover, it gave ONE the opportunity to have a consistent voice when it came to seeking resources within the government, and defending itself from the intra-bureaucratic attacks of other Dominican government institutions that did not share the vision of a strengthened ONE.

the one promoted by the ONE/MEPyD. In fact, a reform undertaken in this way might even undermine any incipient coordination in the statistical system.

The Dominican case shows how statistical weakness can be consistently improved thanks to the continuity and the ability of bureaucratic leadership and to institution-building strategies. Other factors, also highlighted in previous cases, can help strengthen an NSS (such as international demands) or can undermine its capacity to propose changes in the system (such as bureaucratic politics).

Ecuador – INEC: The Benefits and Dangers of a President Interested in the Statistical System[9]

Perhaps the biggest lesson provided by the Ecuadorian case has to do as much with the advantages as with the limitations for a statistical system when a country's president takes an interest in it. In Ecuador there was little statistical capacity development from 1944 onward, although a significant high point was reached in 1976, when the National Statistics and Census Institute of Ecuador (Instituto Nacional de Estadística y Censos del Ecuador, or INEC) and the NSS were established, during a period of developmentalist dictatorship. However, the main increase in INEC's statistical capacity took place under the administrations of Rafael Correa (2007–17) when, in part thanks to the abundance of resources provided by the oil boom, the institution was endowed with more resources and functions and a higher hierarchical level. INEC has undoubtedly been strengthened, but challenges remain with regard to consolidating its capacity, especially with respect to independence from political power, or in a context of an economic slowdown, when the figures produced by the institution are unfavorable to the incumbent government.

INEC and the NSS were created by the Statistics Act of 1976, during a period of military dictatorship that was keen on developmentalism and central planning. INEC replaced the National Statistical Institute, which had been established by Supreme Decree No. 595 of 1970, and which in turn replaced the General Directorate for Statistics and the Census, set up by the previous National Statistics Act of 1944. Throughout its history, the Institute has fluctuated between dependence on the Ministry

[9] This section is based on the work of Mauricio León (2017).

of Economy in 1944 and on Ministry of Finance in 1998, and being under the auspices of the National Economic Planning and Coordination Board in 1970, and the National Planning and Development Secretariat from 2007 to the present.

The Statistics Act of 1976 established that the NSS should be "oriented to research, study, planning, production, publication and distribution of national statistics that facilitate economic-social analysis, for programs of development" and that it should be the responsibility of the National Council of Statistics and Censuses (Consejo Nacional de Estadística y Censos, or CONEC) and INEC. The CONEC's main responsibilities are to oversee the National Statistical Program (Programa Nacional de Estadística, or PNE) prepared by INEC, make arrangements to facilitate national census taking and approve census planning and budgeting, and authorize INEC and other entities of the NSS to carry out research not included in the PNE.

Between 2007 and 2016, INEC strengthened its statistical capacity considerably. Since 2007, large-scale statistical operations have been carried out, such as the Population and Housing Census and the Economic Census. It provided free access through the institutional website to the databases for censuses, household surveys, and administrative records, and a draft Statistics Act was prepared, although not finally approved. However, in 2013, a key reform milestone was reached which marked a notable improvement in institutional capacity. During this phase, INEC was strengthened in its role in leading and coordinating the NSS, and in its analysis and research capacity, while statistical operations have been updated and their methodologies improved. For most of this period, INEC enjoyed its highest level of budgetary resources in an overall context of increased public spending.

Following Executive Decree No. 77, published in the R.O. 81, September 16, 2013, INEC was reorganized. It became a public legal entity, with legal standing and in control of its own resources, and it was granted technical, budgetary, financial, economic, administrative and managerial autonomy. However, it maintained its character of an entity under the National Planning and Development Secretariat (Senplades). Likewise, the hierarchical level of the executive director of INEC was raised to the level of vice-minister, and it was stipulated that the President of the Republic would make this appointment, chosen from three people nominated by the head of the Senplades. Likewise, there was new legislation regarding the composition of the

CONEC: the head of national planning, or his permanent delegate, would preside; the heads of the coordinating ministries or their permanent delegates and the head of the National Statistics and Census Institute of Ecuador would participate. INEC can therefore be said to have gained relative, rather than absolute, autonomy with respect to the executive branch, and that it became more closely linked to the national planning system.

Moreover, the institution gained more functions, in addition to those established in the Statistics Act of 1976. These new functions strengthen INEC's planning and coordinating role in the NSS. Among the most important are the following: (i) planning national statistical production with a view to ensuring the generation of information relevant for national development planning, and its corresponding monitoring and evaluation; (ii) establishing rules, standards, protocols, and guidelines which the public institutions that comprise the NSS will follow, and (iii) implementing a certification system for compliance with statistical production regulations by all entities subject to the NSS, before it can be given the character of official statistical information. Finally, the reform establishes that institutions are obliged to send, in a timely fashion and free of charge, their administrative records or property registers to INEC. Nonetheless, despite such strong leadership and the central role played by the President in government, the Central Bank of Ecuador (Banco Central de Ecuador, or BCE) and INEC authorities have enjoyed some room for maneuver to circumvent certain presidential requests, such as transferring the national accounts from the former to the latter. The BCE was keen to do this because it had a special interest in keeping the accounts, while INEC saw it as a technically complex process and prioritized other statistical reforms.

The process that explains these changes was related to the incumbent government's (2007–17) interest in strengthening the planning agencies, in which statistics perform a fundamental role, at a time of resource abundance. In this period, the presidential system was strengthened, the government could rely on a legislative majority, there was a boom in oil prices, development planning resumed, the State's role in the economy and public spending was increased, and a new techno-bureaucracy was established, the BCE's autonomy was eliminated (it had already seen its functions undermined by official dollarization of the economy in 2000). On top of all this was the fact that the President of the Republic and

several of his ministers in key positions came from academia. Both the President and several of his collaborators had been researchers in the Latin American Social Sciences Institute (Facultad Latinoamericana de Ciencias Sociales, or FLACSO) and had past experienced of the poor quality of the statistics available in the country. All these factors led to effective strengthening of statistical capacity.

The improvement of the economic and social context between 2007 and 2014 created a favorable environment for increasing autonomy and strengthening INEC and the NSS. The economic resource boom enabled an increase in public expenditure and facilitated statistical production. The availability of resources also created an incentive to gather all types of information through special statistical operations, mainly surveys, to the detriment of strengthening administrative records.

The role of the President has been fundamental in this process. The head of the executive branch has been an important actor in strengthening statistical capacity, both as a political actor and an academic actor who is aware of the importance of statistics. In this case, strengthening the presidential system and the government's majority in the Legislative Assembly did not negatively affect INEC's autonomy, but instead facilitated the introduction of specific articles into various legal bodies that boosted statistical capacity. Nor was it affected by the nationalist policy that reduced the power of influence of international organizations, such as the IMF and the World Bank, since the exchange of information was not interrupted. The President offered political support and economic resources to INEC authorities, but also used his influence as an economist and academic to drive specific reforms, such as the statistical use of administrative records, methodological changes, and new metrics.

It must, however, be borne in mind that these developments may have been closely linked to the positive economic conditions mentioned, and that the President's proximity and support is a double-edged sword, especially in an adverse economic context. The challenge is to guarantee the capacity achieved by INEC in an economic context of fewer resources and with a President who is critical of the institution. The adverse economic situation of 2015 and 2016, therefore, caused by the decline in the price of oil, affected the availability of economic resources for strengthening national statistical capacity. It also strained the technical autonomy of INEC, the BCE, and other actors of the NSS in the area of statistical dissemination.

In a context in which the economy faced grave difficulties, the President was coming to the end of his mandate and faced new elections, and there was even greater tension between the presidency and INEC. The President tended to minimize the negative figures and highlight the positive ones to defend his management and avoid giving an unnecessarily alarmist view to public opinion. This strained relations with INEC, especially with regard to the dissemination of statistical results, by calling into question certain data presentation formats and employment indicators, although this did not affect INEC's technical and methodological autonomy in statistical production. In this situation, there were also delays by the BCE in publishing politically sensitive statistics, which gave rise to doubts by nongovernmental actors. The critical point for the technical autonomy of INEC and other NSS actors was the release of statistics in times of adverse economic conditions, or in the run-up to elections. Autonomy, in this regard, is overly dependent on the personal position of the incumbent director.

A recent reform, introduced with the Organic Code for the Social Economy of Knowledge, Creativity and Innovation, provides an opportunity to strengthen autonomy by decoupling the term of the executive director from the political cycle and by raising the technical requirements for the position. However, rules still need to be established that govern the grounds for dismissal of the director. Likewise, mandatory compliance with the statistical calendar must be strengthened as a mechanism to help keep INEC relatively shielded from political influence that seeks to delay publication of data in complex economic or political situations. Similarly, because President Correa's term of office ended, INEC can no longer rely on the support of this unique politician. It is therefore vital for this agency to gain political support from the new President of the Republic and from the new authority designated at Senplades, and that it be permitted to build institutional mechanisms to achieve independence from political actors.

In conclusion, as Box 4.6 reveals, the Ecuadorian case shows that with political will it is possible to reverse trends of historical weakness in an NSO. However, depending on a particular president for processes of this type is risky, for the reasons put forward in the introductory sections of this book: the NSO's transparency and autonomy can collide with politicians' electoral interests. Therefore, in addition to the development achieved to date, Ecuador's challenge is to improve NSO autonomy and institutionality.

BOX 4.6: A CHAMPION AT THE HIGHEST LEVEL

The Ecuadorian case demonstrates the importance of the country's president with respect to strengthening institutional capacity. The ascendance of an academic user of data with a technical background to the presidency of Ecuador led to increased investment in strengthening INEC. The academic and technical background of the President and those in his immediate circle, also academics, was crucial for reversing the decades-long weakness of statistics. Today, INEC is a nationally and internationally respected institution, in stark contrast with its recent past. However, depending on having a President who understands this issue is also a risk. In Ecuador, a frequent criticism leveled at INEC is that it is unable to defend its independence in an election year when faced with the interests of the executive branch. This means that unless there is more solid institutionalization, progress made under the President's tutelage could also be reversed.

El Salvador – DIGESTYC: Political Polarization as a Barrier to Reform of the NSO[10]

There is broad consensus in El Salvador among members of the statistical community, public users, academics, and civil society about the NSS's serious weaknesses and insufficiencies, and the severe technical limitations, in terms of resources and infrastructure, of the General Directorate for Statistics and the Census (Dirección General de Estadísticas y Censos, or DIGESTYC) in its role as lead agency of the statistical system. This weakness hinders generation of the statistical information that the country requires, in terms of coverage, quality, and opportunity. This case shows that one crucial aspect that limits the possibility of such development is the polarization of two political forces. In this case, the Republican Nationalist Alliance (Alianza Republicana Nacionalista, or ARENA) and the Farabundo Martí Liberation Front (Frente Farabundo Martí para la Liberación Nacional, or FMLN) both have blocked statistical capacity-building initiatives.

The institutional history of El Salvador's statistical system is characterized in general by weakness, but with a certain degree of development prior to the internal armed conflict and the structural reform process that took place in the 1990s. In 1940, the Organic Law of the National

[10] This section is based on the work of Máximo Aguilera (2017a).

Statistical Service was approved, establishing its dependence on the executive branch through the Ministry of Finance. Thereafter, in 1948, the Census Department was created, which was independent of the National Statistical Service. In 1952, the National Census Department and the Statistics Directorate merged and formed the current DIGESTYC. The Organic Law of the National Statistical Service was promulgated in 1955 and has remained in force since then.

The difficult conditions caused by the internal conflict during the 1980s undermined DIGESTYC's work and operation. However, following the peace agreements, in the early 1990s the country embarked on a process of transformations and structural reforms that notably reduced the resources available to DIGESTYC and, therefore, its operational capacity to carry out its functions. It was during this period that economic surveys were abandoned, and other statistical operations were either reduced or discontinued.

A number of studies and reports have called attention to this extreme undermining of the NSS and to the country's need for timely and reliable statistics as the basis for designing, monitoring, and evaluating public policies and, in general, for decision making in both the public and the private sectors. Likewise, these reports stress the urgency of adopting measures to strengthen DIGESTYC in institutional and budgetary terms. However, to date there has been no significant change in the legal framework to create an NSO with technical independence and the capacities and infrastructure needed to perform its leadership role in the NSS.

Among the main weaknesses of the system are the following: (i) the outdated legal-institutional framework of the NSS; (ii) the limited budget; (iii) the institutional position of DIGESTYC as an office of a vice-ministry of the Ministry of Economy (MINEC) and, as such, with limited technical powers for managing either staff or budget; (iv) a professional staff that barely represents a third of the total number of civil servants; (v) salaries below the minimum public sector salaries for each job category; (vi) limited integration and coordination of the NSS, which hampers the adoption of better statistical practices and the continuous improvement of techniques and standards that are easily applicable by members of the system; (vii) producing statistics without including information users in planning; and (viii) the existence of official statistics that do not always meet the criteria of relevance, accuracy, opportunity, punctuality, coherence, comparability, accessibility, and clarity.

International aid mitigates some of these problems by offering training to members of the institution or aid for the projects. In general, however, DIGESTYC is far from being strong enough to fulfill its objectives and organize the country's statistical production. Therefore, in El Salvador, other agencies generate statistics. In effect, various ministries are responsible for statistical production for their sectors. The Central Reserve Bank (Banco Central de Reserva, or BCR) is an important producer of statistics in various areas and also prepares the national accounts, which are still based on an outdated calculation base (the base year is 1989).

This weakness has been a constant feature throughout the institution's history. Despite the existence of a broad consensus among the public and private sectors, international agencies, and academia on the need to modernize the NSS and create an NSO as a public autonomous institution of a technical nature, with legal standing and its own resources, and the resources and infrastructure necessary to accomplish its mission, this reform agenda has yet to materialize. Moreover, two governments on opposite sides, the right-wing ARENA and the left-wing FMLN, have separately prepared draft legislation for this purpose, which has not been presented to the Legislative Assembly for discussion and approval. As previously mentioned, political polarization has meant that these efforts have been blocked, even when both parties recognize their importance.

One institution that does support NSS modernization is the Presidential Technical and Planning Secretariat (Secretaría Técnica y de Planificación de la Presidencia, or SETEPLAN), responsible for developing the National Planning System (Sístema de Planificación Nacional, or SPN). SETEPLAN has been mandated to modernize the NSS legal framework and create the Salvadorian Statistical Institute (Instituto Salvadoreño de Estadística, or ISE) because, to function, the SPN requires good-quality, comprehensive, and timely data, which it currently lacks. In fact, legislation has been drafted for the creation of the NSS aimed at modernizing the Statistical Service Act of 1955, and that the government authorities hope to present to the Assembly for eventual approval during the present government's term of office (2014–19). However, presently SETEPLAN's room for maneuver to comply with its mandate to approve the reform of the NSS and create the ISE has been severely reduced by the financial crisis facing the State, with a high and growing public deficit.

What can explain this continual institutional weakness and the resistance to reform? On the one hand, the long period of authoritarian rule

adopted by the Salvadoran political regime until the 1980s consolidated in the behavior of the political elites and in the management of the State political practices that ran counter to monitoring, accountability, and transparency with regard to the actors that control the State. This is a long-term, structural factor that has conditioned the behavior of the actors until the present day. It explains to a great degree the low priority that NSS strengthening is given on the political actors' agenda, as well as the difficulties faced when implementing the reform.

Likewise, it should also be remembered that, in general, the Salvadoran government's management capacities have significant weaknesses in most of the dimensions that define institutional capacities for public management. Thus, it is hardly surprising that the statistical system also suffers from them. The general characteristics and capacities of the public sector in which the statistical system is embedded do not encourage, inform, or support the development of modern statistical capacity at the national level. Because there are no competent bureaucracies, the demand for technical information that in other countries helps strengthen statistical offices does not occur in El Salvador. In other words, as mentioned in other cases, it is difficult to expect a different reality in a weak government such as El Salvador's: both the general situation and the fragility of the state agencies, which fail to demand high-quality statistics, help to consolidate a poor statistical system.

Furthermore, the political parties do not have a clear programmatic character; the system has been characterized as "polarized pluralism with two dominant political parties," with a wide ideological distance between them, divided along the right/left axis. This type of operation, highly polarized along ideological lines, leaves little room for defining state policies. Therefore, technical demands from international aid or from academic sectors fail to materialize.

Moreover, the state institutions that do enjoy greater capacity and relevance resist reform. Therefore, the BCR, a very significant player in the statistical system and the economic system, has a potential conflict of interests with respect to reforming the statistical system and creating the ISE as, over the medium term, this might imply a drastic reduction of its own statistical and budgetary functions, as well as staff cutbacks. Likewise, the MINEC is not active in promoting reform, as it would lose control of DIGESTYC, given that, in all scenarios, the new statistical institute is not expected to fall under it.

BOX 4.7: POLITICAL POLARIZATION

The Salvadoran case reveals how ideological polarization between two strong parties weakens the development and consolidation of statistical capacity. Developing this capacity is a medium- and long-term process that requires substantial cross-cutting agreements, without yielding significant clientelistic benefits. Political polarization makes the coordination of state policies extremely difficult. Furthermore, proposals made by the opposing party are viewed with distrust and there is little thought for the medium term. In El Salvador, the two main political parties, when in government, have presented proposals for new legal frameworks to strengthen DIGESTYC from the institutional point of view, by granting enhanced autonomy and a higher position in the government structure. However, when they are in the opposition, both parties have refused to support the proposals of the government in office.

To summarize, in El Salvador, despite the declared need to strengthen its statistical system that, due to its authoritarian legacy, is traditionally weak and opaque, there are few actors capable of pushing forward the reforms. Likewise, market reforms have had a negative impact by further restricting the resources available to the statistical system. In general, the State's weakness not only hampers the possibility of establishing professional bureaucracies in the statistical field; it also limits the demand for statistics by other state agencies, a demand that has turned out to be positive in other cases. Therefore, there is a lack of resources, autonomy, coordination, and even political interest in strengthening the institution. International aid is a positive factor, but with limited effect in the face of such resistance. Moreover, in some cases, this aid focuses on obtaining statistics that are of interest to it, without contributing to developing permanent capacity. Furthermore, political polarization hinders the support for and agreement of programmatic policies by both parties. Each party has presented statistical reform proposals, but their rivals have blocked them.

Guatemala – INE: Who Initiates Statistical Reform in a System with Weak and Volatile Parties?[11]

In Guatemala, actors of the statistical community, public users, academia, and civil society all agree about the lack of political and financial support

[11] This section is based on the work of Máximo Aguilera (2015b).

for national statistical activity. This situation creates severe resource, infrastructure, and technical limitations for Guatemala's National Statistical Institute (Instituto Nacional de Estadística, or INE) as the lead agency of the NSS, which hamper the generation of the statistical information the country needs in terms of coverage, quality, and timeliness. Moreover, there is no evidence that the weak and highly volatile political parties have either the willingness or the capacity to promote such reform.

Basically, the weaknesses of INE can be summarized as: (i) lack of financial resources and dependence on external aid for executing important statistical operations; (ii) insufficient personnel and an out-of-date salary scale; (iii) lack of an Administrative Career Plan; (iv) INE's dependence on the Ministry of Economy, which undermines the institution's credibility; (v) INE's limited jurisdiction and competencies in performing its leadership role; (vi) the grave shortcomings of the statistics-producing units in the line ministries; (vii) the absence of a National Statistical Plan; and finally (viii) the lack of institutional plans for communicating, promoting, and releasing statistical information.

Among the INE's management team there is a clear awareness of the strengths and weaknesses of the institution and those of the NSS, and of the need to implement a reform that modernizes INE and the NSS, in accordance with international standards and practices. However, the INE does not have the institutional clout within the State to push such a reform by itself.

With regard to the institutional and political factors that explain this weakness, worth mentioning are the enormous fluidity and volatility in the way the political system operates, which fail to generate incentives for governments and other important political actors to invest political capital and resources in strengthening the INE and the NSS. In recent decades, there has been no political party continuity from one government to the next, while at the same time there has been high volatility at the political party level. These factors have left an imprint of high programmatic instability on the political system, in such a way that neither the design nor the implementation of medium- or long-term policies is stimulated—and it is well known that generating productive capacities, especially with regard to strengthening the institutional framework and building methodological capacities, takes time.

Likewise, the authoritarianism and dictatorship that have characterized Guatemala's historical development have consolidated opaque

practices lacking in transparency and accountability as the normal way of exercising power, which has impacted negatively on the development of a statistical culture. This context does not create incentives for governments to place a high priority on developing statistical capacity and allocating significant resources for this purpose. As in the Salvadoran case, added to this is a weak public sector, lacking in professionalism and meritocracy. The statistical system is no exception, but this weakness also explains why there is no demand for precise and objective information from other sectors of the State.

It is not just weakness: the web of corruption at every level, which has captured the main resource allocation mechanisms of the State, also undermines the public sector and the demand for better statistics. In this context of corruption, political actors cannot be expected to initiate actions aimed at building the country's statistical capacity, because better-quality statistics, with wider coverage and greater opportunity for dissemination, help lay the foundation for accountability and transparency regarding the actions of State and public actors. This runs counter to the interests of the corruption networks. This is a case where the link between corruption and lack of interest in transparency-enhancing reforms in the management of the State is most apparent.

Furthermore, there is no evidence that government agencies with the greatest institutional capacity for developing statistical capacity are interested in reform. The Ministry of Finance is a significant actor in the Guatemalan government, with considerable authority over public resource allocation, and is a member of the INE Executive Board. The Ministry would benefit from INE modernization and strengthening, thanks to the improved statistics being generated throughout all the NSS institutions, to implement the results-based budget management process in which it is currently immersed. In fact, it has involved INE as the coordinator of the NSS and as a provider of technical support for institutions to build the baselines for the results-based budget. However, this has not, until now, implied an increase in resources for INE.

Additionally, some organizations actively resist strengthening INE. The Bank of Guatemala (Banco de Guatemala, or BANGUAT) is, on the one hand, potentially interested in modernizing Guatemala's NSS, as it would benefit from greater resources for statistics producers and a more efficient coordination of the NSS, and would thereby see an improvement in the basic statistics used for preparing national accounts. However, strengthening INE may represent a risk for the BANGUAT,

because boosting INE's technical capacities creates the ideal conditions for transferring to INE statistical functions currently carried out by the Bank.

International aid helps INE to function better and to promote a reform agenda. The country's current links with international organizations, such as the United Nations, and the role of the International Commission against Impunity in Guatemala (Comisión Internacional Contra la Impunidad en Guatemala, or CICIG) have created pressure for more information and transparency in the State and from political actors. This can become a positive factor in mobilizing support for providing the NSS with more resources, so that more timely and higher-quality information can be made available. Moreover, the local community greatly values the active and permanent support to INE and the NSS by international donors. This may become a positive element in allocating more government resources to the NSS and bringing the statistics law up to date. International finance institutions, such as the IMF, have had and continue to have significant influence on improving national statistics, but their role is limited to fiscal and macroeconomic statistics.

Another factor that may become important in the future for improving INE is the demand by civil society for greater transparency, which has previously been low in Guatemala. The authoritarian system in which the dominant sectors exercised power was fierce, and prolonged repression of the social sectors, especially indigenous groups, severely limited opportunities for active participation by social organizations as essential political actors. However, the citizen protests of 2015, which demanded higher levels of transparency and an end to corruption from the political system and the State, represented a turning point with respect to the previous trend. The presence and activities of these new social actors may become influential in building the country's statistical capacity and improving the availability of high-quality statistical information as a way to make government authorities and political actors more accountable.

Finally, academics and researchers from think tanks support providing more resources to INE, especially recruiting professionals and specialized technicians with adequate salaries and working conditions. They also favor updating the current law regarding INE to give it greater independence from the government and more authority to regulate the NSS. However, these demands have failed to take the form of combined concerted actions that are consistent over time, which means that their

BOX 4.8: LACK OF POLITICAL LEADERSHIP

The Guatemalan case reveals the difficulty of overcoming the inertia of statistical weakness when there are not enough actors with the capacity to drive reforms. In this case, however, inertia arising from the country's political weakness and volatility is noteworthy, despite the commitment and the technical capacity of those responsible for INE. In Guatemala in recent decades, there has been no political continuity from one government to the next, while political parties have been highly volatile. Therefore, medium-term agendas are limited and political parties do not view statistics as a priority. As an example, the delay in carrying out the population census is noteworthy. The previous census was taken in 2002, making Guatemala country in Latin America that is the furthest behind in conducting its decennial census.

effectiveness and their ability to influence decision makers in government have been insignificant.

To date, these positive factors—demand from civil society and academia and the encouragement of international aid—have not been sufficient to promote a substantial change in the system. Guatemala's statistical system is comparatively weak, and serious difficulties emerge when attempts to strengthen it are made. The volatility and weakness of the political parties make it extremely difficult to agree on reform efforts with a medium-term view, such as statistical system reforms.

Mexico – INEGI: Crisis as an Opportunity to Strengthen the NSO[12]

Mexico's National Statistical and Geographical Institute (Instituto Nacional de Estadística y Geografía or INEGI) was created in 1983 at a time when the Mexican State was undergoing much-needed strengthening. Since then, Mexico has achieved comparatively high levels in the LAC region in the dimensions that comprise statistical capacity. INEGI not only boasts generous budgetary, human, technological, and physical resources; it is also regulated by an institutional framework that is practically unique in the world, insofar as the entity is autonomous with respect to any other government power. The statistics law also endows INEGI with an important coordinating role in the overall production of official statistics.

[12] This section is based on the work of Martin Alessandro (2016).

There have been a number of milestones in the history of statistical capacity building in Mexico, each of which can be understood by different political economic dynamics. The creation of INEGI in 1983, with the characteristics of a decentralized agency, and with a leading role in the statistical system, took place amid a severe economic and financial crisis. With a view to recovering the flow of international financing, the government-elect in 1982 enacted a series of deep reforms. In such a transformational framework, improving the credibility of government-produced statistics would appear to be the way forward for strengthening international trust in the country. Alongside this contextual factor, it is worth noting that the profile of the new governing class of those years, with more of a background in economics than their predecessors, probably meant that they placed greater value on the importance of having reliable and high-quality statistics. The rise of the "technocrats" coincides with this initial strengthening of statistical capacity.

Toward the end of 1994, a new economic crisis led to improvements in the production and dissemination of certain statistics. In the period before the crisis, the Bank of Mexico published information about its international reserves only irregularly. Consequently, the IMF called for the adoption of new standards for releasing macroeconomic information, with the aim of facilitating earlier detection of problems.

As a way to restore its reputation, the Bank of Mexico wholeheartedly adopted the new standards, becoming one of the world leaders in this area. Other areas of the government also strengthened their data production and dissemination in the same period. INEGI was one of the first statistical offices in the world to adopt new international recommendations regarding national accounts.

The reforms that established INEGI's autonomy between 2006 and 2008 were part of more general trends in the Mexican political system and public sector. Starting in the 1990s, the process of political democratization and decentralization of presidential power was expressed by setting up autonomous agencies for different areas of public policy, such as central banking, electoral organization, human rights, and access to information. At that moment, the debate about INEGI's autonomy entered the public agenda. New political trends had to emerge before this reform would be approved. In 2000, the first alternation in government in more than 70 years took place. The elected party had referred in its campaign to the autonomy of INEGI, although, once in

government, the party's enthusiasm waned somewhat. The opposition, however, took up the matter again and introduced several draft bills. Faced with the progress of these bills, and with the prospect of losing power at the end of the presidential six-year term of office, the governing party again pursued the issue and achieved a constitutional reform that established the National Statistical and Geographical Information System (Sistema Nacional de Información Estadística y Geográfica, or SNIEG) and the autonomy of its coordinating body, INEGI.

Although the constitutional reform gave Congress 180 days to approve a regulatory law, this did not occur until two years later, chiefly due to disagreements between the Ministry of Finance and Public Credit (Secretaria de Hacienda y Crédito Publico, or SHCP) and INEGI about the law's contents. Until that point, INEGI had been a decentralized agency under the SHCP. Therefore, INEGI autonomy undoubtedly represented a curtailing of the Ministry's responsibilities. To remove the SHCP's objections, a text was agreed that would water down INEGI autonomy by framing its budgetary allocation within the ceilings set by SHCP, a characteristic not shared by Mexico's other autonomous constitutional agencies. Additionally, the Bank of Mexico managed to limit INEGI's leading role in statistical production. Despite this attenuation, it is worth remembering that INEGI's character as a separate, independent agency is probably unique in the world.

Crises can serve as critical situations that bring changes to public institutions and policies by altering the existing political-economic balance. The mechanism by which this happens is a transformation of the incentive structure for the actors involved. Specifically, the crisis would imply, at least for certain actors with influence on the decision-making process, a growing cost for their payments in the event that the reform was not approved. The economic and financial crisis of 1982 led the government to negotiate with international agencies to regain access to external financing. As part of this negotiation, the government sought to improve the credibility of the information it produced and published; the creation of INEGI as a decentralized agency with growing powers to coordinate the statistical system helped achieve this objective. The crisis of 1994 affected the reputation of the government and the Bank of Mexico in particular; to regain international trust, new standards were adopted for generating and disseminating data. In both 1982 and in 1994, a crisis appears to have acted as a catalyst for the reforms.

A second factor often overlooked in the analysis of political economy is the individual characteristics and ideas of the actors involved. In these analyses, decisions are the result of the balance of power among actors whose interests are determined to a large extent by the position that they occupy in the "game." Therefore, presidents often have an interest in maintaining control over bureaucracies (Moe, 2013), while bureaucrats are interested in expanding their remits and budgets (Niskanen, 1971). These considerations are relevant and explain part of the dynamic of "bureaucratic politics" analyzed in the following paragraphs. They do not, however, seem to explain all of the protagonists' actions. The managerial class that took the top government positions in 1982 came from an academic and professional background very different from that of previous governments. They were familiar with statistics and appreciated their usefulness for decision making, which appears to have influenced their interest in improving the capacity to produce them. Although proposing ideas as an independent variable for the behavior of economic actors is complicated, in this case it seems unavoidable to consider the technical profile of the new team as an explanatory factor. It is worth noting that the first president of INEGI was subsequently secretary of the SHCP.

The third factor that emerges from the Mexican case is the influence of international actors. In the crises mentioned above (1982 and 1994), one of the government's main concerns was to reestablish credibility with external actors, such as international credit agencies and investors. By its statistical sector reforms, the government sought to boost the confidence of international actors, with whom they faced delicate negotiations to restore external financing. These negotiations in the international arena altered the calculations of decision makers with respect to the way the statistical sector operated. In other words, they opted to give up a degree of control (over the statistical office, or over the dissemination of macroeconomic information) as a way of improving their negotiating position in the external arena. Without this international pressure, they might not have adopted these measures.

A fourth significant aspect is the process of democratization in Mexico, which occurred somewhat later than most countries in the region. The extensive discussions leading to INEGI's autonomy can be understood within a framework of political democratization and decentralization of presidential power, expressed by the creation of various autonomous agencies that have been generally considered to be successes. The

previous experiences of the Bank of Mexico and the Federal Electoral Institute (Instituto Federal Electoral, or IFE) drove the reform of INEGI. At the same time, the moment in which the constitutional reform was approved also seems to have followed broader political trends. Following the first alternation of government in more than 70 years, a party was elected that, while in the opposition, had proposed the reform. Although its enthusiasm for reform dissipated once in government, the opposition took up the matter and moved ahead with its own draft bill, inducing the government to take up the initiative again to avoid the passage of a bill that was, in its view, less satisfactory. At the same time, the probability of another change in government spurred the executive branch to support the reform, as a way of shielding INEGI from future interference from other parties. The fact that the government party was a minority in Congress is another factor worth mentioning when trying to understand why the legislature pushed forward with the reform despite government resistance.

Finally, negotiations within government itself (the "bureaucratic politics" dynamic) influenced the specific content of the final reform. This approach postulates that the results of public policy can be explained by "pulling and hauling" among the individuals that head the different organizations within the public sector. The limitations placed on INEGI's autonomy and its regulatory role in the SNIEG appear to be attributed mainly to the lobbying of entities such as the SHCP and the Bank of

BOX 4.9: CRISIS AS OPPORTUNITY

The Mexican case illustrates how a crisis can foster statistical capacity building by putting high-quality data production under the microscope. In the case of INEGI, its creation is associated with the need to have more and better information following a severe economic crisis. On top of this came the crisis caused by the 1985 earthquake, which led to the strengthening of the institution and its relocation to an environment more favorable to its autonomy. Likewise, the demand for high-quality statistics by the technocratic agencies was crucial for reinforcing INEGI's autonomy, resources, and its capacities in general. Added to the technocratic demand dynamic is the context of the country's democratic transition in the 2000s, which meant that the political parties sought to establish guarantees to ensure the autonomy and quality of diverse institutions, among them INEGI. These processes led to the establishment of a technically sound, internationally recognized institution with a unique framework of legal autonomy.

Mexico, which were able to block approval of the regulatory law until these articles were incorporated. Given the influence of both agencies in the Mexican political system, it is hardly surprising that they were able to water down what was indicated in the constitutional text itself.

The Mexican case confirms the significance of some of the aforementioned regional processes and factors in strengthening INEGI and related to the resistance to its reform: crises as opportunities that drive the need for high-quality statistics, the role that technically trained politicians can perform, the importance of international aid, a context of democratization, and bureaucratic politics. In a context of democratization, the process of professionalization of some state agencies was particularly important for offering guarantees of neutrality to the political actors.

Peru – INEI: Fulfilling its Mission but with an Uncertain Future[13]

The agency responsible for the production and direction of Peru's statistical system is the National Institute of Statistics and Informatics (Instituto Nacional de Estadística e Informática, or INEI). This agency has evolved, in general, in a progressive and incremental manner throughout its history, following a course of continual and stable improvement. Without ever becoming an agency with the strength of others in the Peruvian institutional system (such as the Central Reserve Bank or the Ministry of Economy), INEI enjoys the prestige of professionalism and autonomy in carrying out its functions, qualities that situate it clearly above the average in the Peruvian public sector.

Peru's NSS was created in 1975 during the military government. It arose within the framework of the development planning undertaken by a progressive military government and that demanded an enormous production of statistical information that, until then, had been poor, fragmented, and uneven. Thus, the NSS was born with the objective of integrating, coordinating, and rationalizing the production and the rules of the statistical offices existing throughout the government. The system comprised the National Statistical Office (Oficina Nacional of Estadística, or ONE, later Instituto Nacional de Estadística, INE), the sector-based ministerial statistical offices, and the decentralized and

[13] This section is based on the work of Eduardo Dargent (2017).

local government agencies. The ONE was established as a specialized government agency that reported to the director of the National Planning Institute and whose highest authority was the technical director selected by the former. More specifically, it was in charge of coordination and/or execution and supervision of censuses and surveys, and for producing demographic statistics and economic and social indicators.

INE and the system overall did not experience major formal changes with the transition to democracy in 1980 and throughout the 1980s. Nonetheless, in practice, it began to assume a more executive and proactive role than in the previous period, especially thanks to international financing. Therefore, for example, during this decade, the INE conducted the eighth population and the third housing (1981) censuses, as well as a number of other surveys that were carried out in the country for the first time. Likewise, during the second Belaunde administration (1980–85), the process of transferring the national accounts to INE was culminated, thanks to a decision reached jointly between the Central Reserve Bank and the institution itself.

The economic crisis that afflicted the country at that time also affected INE's capacity to continue producing and maintaining (and improving on) the development achieved, due to lack of financial resources. Likewise, President Alan Garcia's decision not to pay the external debt cut the technical and financial assistance from international organizations that had been so crucial for statistical production. However, the need for information for public management, especially in the social area, meant that other agencies such as the World Bank oversaw the implementation of the National Living Standards Survey 1985–86. Similarly, the need to have more frequently available information about prices in the country during a period of severe hyperinflation meant that other agencies took charge of producing such information. In that period, public trust in INE was low. In the 1980s, INE became INEI, when its institutional mission incorporated the development of aspects of information technology.

Toward the end of the 1980s and throughout the 1990s, important changes took place at INEI and the NSS. First, INEI was granted greater technical and managerial autonomy although it would continue to report to the Presidency of the Cabinet of Ministers. A further notable innovation was the formal creation of advisory bodies for the institution, such as the National Advisory Council for Statistics and

Informatics, made up of representatives from outside the public sector, and the Inter-institutional Coordinating Committee, for coordinating NSS activities.[14] The economic recovery following the crisis allowed these projects to be financed with both national and foreign funds, while those that had stagnated in the previous period could resume. However, the 1990s also brought problems for the NSS. The austerity measures of 1990 led to budget cuts in all sectors of the State, and these cuts were especially tough on the statistical offices within the ministries, which were shut down.

The 2000s also saw an essential change for INEI. The transition to democracy in 2000–2001 marked the institution's opening up to public scrutiny in pursuit of transparency. After nearly a decade of authoritarian government by Alberto Fujimori (1990–2000), and following the corruption scandals that finally brought down this government, transparency became a key principle for the institution, which—like so many others—was seeking to rebuild its credibility. With this in mind, a series of audits of the inherited economic and social figures were conducted, the updated versions published, and the primary databases were disclosed to the public through the Internet. The process of openness and professionalization begun following the democratic transition of 2000 gave rise to a more abrupt positive change.

This led to an internal reorganization of INEI, which manifested itself in the new regulation of organization and functions, with special emphasis on the practices of disseminating statistical information. This radical shift brought about a fundamental change in the way that civil servants thought of information: it went from being the property of the institution to being a public good. This decision produced good progress in the area of data transparency: information is currently published according to a time frame and through official INEI channels (principally the website), and it is accessible to users on demand at no charge. In fact, following disclosure of information at the beginning of the 2000s, visits to the website have increased notably, rising from only 300,000 visits

[14] See the Legislative Decree 604-1990. This consultative council is currently deactivated. However, in 2001, it was activated for a brief period with the aim of gearing statistical production towards the needs of users. The council was made up of business associations, universities, trade unions and state agencies organisms, such as the Ministry of the Economy and Finance and the Central Reserve Bank.

in 2001, to more than 2 million in 2008 (INEI, 2009: 99). Also in this period, a advisory body of INEI experts was appointed.

During the early 2000s, production and improvement of the various censuses and surveys continued and new ones were added, such as the Agricultural Census, educational censuses, a police station census, among others. Finally, in 2008, within the general framework of the reform of the Peruvian State, the transformation of INEI into a specialized technical agency took place. One of the most noticeable innovations in this respect established that this type of agency must have a board of directors. However, currently neither the board of directors nor the advisory council is currently operating, and the commissions and committees, with the notable exception of the Advisory Commission for Poverty Measurement, only meet on an ad hoc basis.

These developments are important. They show that, over time, INEI has been technically strengthened and that it is generally considered to be an autonomous institution. The institution is almost unanimously viewed favorably by those interviewed with regard to its capacity and autonomy, and even by the public, which situates it among the better government agencies evaluated. At the same time, however, INEI has limitations when it comes to carrying out its functions, including: budgetary problems, especially related to salaries; difficulties in exercising its leadership role; and relative heterogeneity in the quality of its products. Therefore, although INEI's image is of an agency that fulfills its functions, it faces obstacles that could become even greater unless their source is addressed.

In this case, various factors explain INEI's progress, such as: (i) the internal strategies of the actors that have established informal and formal rules to guarantee the institution's technical continuity; (ii) the technical complexity of the tasks it carries out, which limits political interference; (iii) the development of linkages with civil society actors, especially experts on poverty, which have been an important driver of continuous technical improvement of the products and have therefore enhanced the institution's legitimacy and protection from detractors; (iv) the internal demand for statistical information from technocratic sectors of the State, such as the Ministry of Economy and Finance or, more recently, the Ministry of Development and Social Inclusion, and the recent orientation of the State toward results-based management that requires evidence as the basis for policy evaluation; and (v) international linkages, which are a source of resources and partnerships for capacity building.

However, the capacities acquired have not been accompanied by greater professional development or more formal and real institutional weight. INEI is still below other technical areas of the Peruvian State, as illustrated by the great difficulty it faces in leading the statistical system. Likewise, the segmentation related to data-gathering and the mechanical way in which data production is carried out hamper achievement of an integrated, more innovative vision of the statistical system. Three problems can be identified that stand in the way of a higher-capacity INEI: (i) lack of resources, especially competitive salaries, which encourages the flight of young professionals from the institution to other areas of the State or to the private sector, and excludes the possibility of attracting people with more technical professional backgrounds at every level; (ii) the same formal and informal mechanisms of technical continuity that have helped shield the institution from outside influences reduce the possibility of making innovations and renewing the institution; and (iii) the fact that the institution lacks real clout at both the regulatory and the political level prevents it from being an effective leader of the statistical system with the capacity to negotiate its demands as an equal with the highest political and government authorities.

Thus, the Peruvian case also highlights some of the positive impact factors mentioned above: a developmentalist State that, in the 1960s, reinforced the statistics sector; the importance of a context of democratization, which permits greater transparency; international demands made on the Peruvian State; resources from international donors; the fact that the State's technical agencies demand high-quality statistics, and linkages with civil society actors that demand adequate service, while protecting the institution's technical quality. With respect to the negative impact factors, it is worth mentioning that the crisis was not so much an opportunity as a limiting factor on capacity building and the market reforms that, as in the Salvadoran case, affect the available resources. In the current conditions of weakness of the political parties and economic stability, INEI's capacity and autonomy would seem to be guaranteed. However, a change in these dimensions could cause this capacity to decline. Undoubtedly, the current situation does not allow for innovation or tackling more complex challenges in the production of official statistics. Evidence of these limitations came to light in the problems that occurred during the population and housing census of 2017, which revealed INEI's struggles to build trust among the population and to be efficient.

BOX 4.10: A FINAL PUSH

The Peruvian case illustrates how NSOs enjoy favorable conditions that enable them to perform their duties reasonably well, but they also face difficulties in making a qualitative leap in statistical quality and institutional consolidation. Over the last 10 years, INEI has been led by people promoted from within, that is, career technical civil servants from the institution itself. This can be interpreted as an acknowledgement of its autonomy by the executive branch. Moreover, INEI has responded to a broad demand for information from the technocratic sectors of the State, which is an affirmation of confidence in the technical quality of the data it produces. However, there are obvious problems that are holding INEI back from becoming a more important, autonomous institution. In particular, the institution's real influence, both regulatory and political, is weak, which prevents it from fulfilling its responsibility to coordinate the statistical system or from being able to negotiate its demands as an equal with the highest political and state authorities.

CHAPTER 5

Analysis of the Political Economy of Statistical Capacity

The comparative analysis presented below seeks to explain both the general trends observed in the region with respect to statistical capacity and the particular characteristics detected in the case studies. As mentioned in the introduction, three levels of analysis are proposed. The first highlights the historical processes common in Latin America that, in general, explain the gradual improvement in the statistical capacity of the region's countries over time. These processes have been classified into three groups: changes within the State, demands for transparency, and fiscal restrictions. Within this general trend, the study highlights the ways that some of these processes had differential impacts in the countries analyzed.

The second level of analysis presents the political-economic factors considered relevant for statistical capacity development. Five factors are suggested as being extremely significant for explaining the strong heterogeneity observed in the case studies: (i) the existence of technical departments of the State that need statistics to carry out their functions; (ii) external demands on countries and the international support that NSOs receive; (iii) the role played by the president of the country; (iv) the effect of economic and political crises; and (v) the existence of a civil society and businesses that demand good-quality statistics. In keeping with the hypotheses that guided this study, but after refining or broadening them after reviewing the case studies, this chapter describes how these factors are significant for explaining statistical capacity building, as well as maintaining it over time.

In the section on measuring statistical capacity, a first factor has already been pointed out as being important for determining an NSO's level of capacity: the country's general bureaucratic capacity. Alessandro

(2017) has also highlighted this point. It is not surprising that some NSOs reach a level similar to that of their bureaucratic environments, given the similar resources, problems, and levels of these countries' bureaucratic institutions. But, as previously highlighted, NSOs have special characteristics that make them more likely to achieve higher capacity than the average in the rest of the bureaucracy. This potential is not always realized, but the possibility is greater in these agencies than in others. The bureaucratic environment does not explain all the variation observed. The second level of analysis specifically examines in depth the political economy factors that help to explain the cases in which NSOs have managed to develop capacity beyond the level of their environments, as well as the cases in which they are below the average.

The third level of analysis seeks to go beyond factors of political economy. The comparative exercise and the detailed analysis of the cases revealed that not all the variation in statistical capacity levels was attributable to these political economy factors. In the case studies, notably there is also room for the action of the NSO leaders and bureaucrats themselves in their efforts to build better institutions. Therefore, this section of the chapter proposes factors associated with strengthening institutionality, which refers to the strategic action of these leaders and bureaucrats.

Obviously, the previous levels of analysis will determine how much room such leaders have to develop these strategies. These favorable or unfavorable conditions in part explain the success of these actors. But it is also true that within this space there are better institution-building strategies that guarantee continuity. The case studies provide a wealth of information about these processes. It is therefore notable that some cases in which there were favorable conditions were not always exploited by the NSO bureaucracy to build capacity and that, by contrast, in other cases, institutional capacity building has also depended on being able to take advantage of these opportunities.

These three levels of analysis enrich the interpretation of the study's findings and yield lessons for those interested in promoting reform processes in Latin America and the developing world in general. One example, related to the resources available to an NSO, a key aspect of statistical capacity, illustrates the relevance of these three levels. The common historical processes identified in Latin America give rise, in most cases, to an increase in the resources that strengthen the NSO, with the aim of providing good-quality statistics. At the same time, the political economy

factors presented can lead to an increased resource allocation for NSOs, for example, having to respond to technocratic demands or to international demands to produce better statistics. Finally, the strategic acts of leaders and NSO bureaucracies, taking the opportunities as they arise in order to force or negotiate improvements, can also be successful when it comes to obtaining resources, or maintaining them. A similar exercise can be carried out with the factors that have led to establishing better legal frameworks that foster NSO autonomy and coordination capacity.

In this way, the framework of analysis enables general trends in the region to be discussed and the political economy hypotheses organized, giving priority to the significance of some factors for the emergence of statistical capacity and for institutionalizing its continuity. Moreover, as some of these are agency mechanisms, the analysis is more sensitive to talent and to contingency, elements that can be useful for reformers and for civil servants, as will be discussed in the conclusions.

Common Historical Processes in Latin America: General Context

The cases show that there are three major factors that contribute to either the strengthening or weakening of NSOs, and that these are related to a more general context of changes in Latin America: changes within the State, the demand for transparency, and fiscal constraints.

Regarding the first factor, the more general changes within the State, the cases show that the major state reform processes had an impact on statistical capacity from different paradigms. Therefore, in most countries of the region, the emergence or strengthening of statistical institutions got underway with the processes of building more competent States, usually associated with the period known as developmentalism (Evans, 1992). These state construction processes required reliable statistical information to enable the State to fulfill its new functions, information non-existent in countries with underdeveloped statistical capacity. Following the example of more developed countries, statistical systems had to be directed by specialized offices. To adopt the new developmentalist policies, more specialized surveys are required, rather than just population censuses, and they must be more frequent. Similarly, work is also carried out with the national accounts and, although they were not always the responsibility of the new or strengthened statistical offices, the overall capacity of the government to produce such data was reinforced.

In the process of building the developmentalist state, the NSO became more specialized by recruiting and training civil servants to perform specialized functions that were previously not performed by public civil servants. Thus, statistical capacity was developed with the help of technical, financial, and human resources, enabling these agencies to begin to work in a certain way, generally in accordance with the wider international community. All of this requires staff capable of learning such skills and producing the desired products.

The various case studies show the importance of this initial period, in which NSOs were strengthened within a wider context of growth of general state functions, which translates into capacities in terms of more resources and more autonomy for the institutions. In the Brazilian case, for example, the process began in the 1930s, with a broader proposal to build a bureaucratic and centralized State, with strong and technical organizations. The NSO became the organization that would enable the country "to get to know itself" before making more appropriate public policy proposals. This process was reinforced in the 1970s, under the developmentalist and centrally planned State.

The case of the NSO in Colombia is similar and begins in the late 1950s, in a context in which the national State was being built, although its strengthening and autonomy would only be achieved more recently. Argentina's process was similar but took place in the 1970s, when the State was centralized and its functions were strengthened under the rule of a dictatorship. As part of this process, the government invested in a centralized, autonomous organization with a high degree of technical knowledge able to provide support for state planning. With respect to Peru, the military reformist and centrally planning government of the 1970s is now recognized as the main promoter of what was then INE. For its part, Mexico also began building its NSO in a context of reform of the State, with the aim of attracting foreign resources into the country, in the 1980s.

Although they occurred slightly later, also within the framework of changes within the State and democratization, decentralization processes that elevated the importance of statistical data for politics in various countries are noteworthy. Decentralization made room for greater demand for data from different levels of government. These processes included formulas for transferring resources at the subnational level that depend on population size. It is interesting to note how, in the context of the role of institutions and political actors, the case

studies have not yielded much evidence about the contribution of a plural and balanced political party system to improving statistical production. In general, no evidence was found that indicated the opposite: in countries lacking a plural system of political parties, it was easier for powerful presidents to put pressure on the statistical system and reduce its capacity (Argentina, Peru). However, this dynamic of checks and balances that would favor statistical capacity does appear in the cases in which decentralization has transferred power to the new territorial agencies. Therefore, a certain subnational political pluralism is noticeable in the demand for reliable statistics in a matter of such vital importance for the distribution of resources. This demand favors NSOs by allowing them more space to protect their autonomy and expand their capacity. This is noticeable in the cases of Bolivia, Brazil, and Colombia, where the process of decentralization in the late 1980s and early 1990s led to changes in the statistics to include resource transfers to the subnational entities that had become important actors, and which demanded objective national statistics. As with other factors discussed below, demand, in this case subnational, is a central aspect of NSO strengthening.

Likewise, two more recently observed processes related to changes within the State have also helped to boost statistical capacity. The poverty alleviation programs that were generalized in the region over the last decade have required better statistics, with surveys capable of evaluating a series of aspects linked to poverty throughout the country. This has strengthened the capacity and the territorial scope of the statistical offices in Bolivia, Brazil, Colombia, Mexico, and Peru, among other nations. Censuses have become more complex, as they are even more essential than before for presenting the results of the impact of policies, as well as for making better assessments.

Second, international integration policies adopted by the region's countries in recent years also constitute a positive factor for enhancing statistical quality in the region. These agreements usually include demands for information that end up strengthening statistical production. This is evident in the case of Colombia and its agreement to join the OECD, which required changes in statistical production capacity. This factor enhanced both the NSO's autonomy and its visibility. In the Dominican Republic, international linkages have motivated similar changes. Likewise, in Peru, it has been announced that statistical capacity will be reinforced as part of the requirements for OECD membership.

In the following section on analyzing the political economy factors, this factor will be examined in more detail.

Other state reform processes that had an impact on statistical capacity, although with more ambiguous results, were the market reforms carried out in various countries of the region in the 1990s. This factor will be dealt with when the effects of fiscal restrictions on statistical capacity are presented, specifically the economic crisis that struck the region in the 1980s. In response to that crisis, many countries adopted market reforms.

With respect to the second factor, the demand for transparency, another key moment for developing statistical capacity took place with the process of democratization that Latin America experienced in the late 1970s and 1980s, which was accompanied by stronger transparency policies. These policies contrasted with the opaque nature of the authoritarian governments that had prevailed in the majority of the region's countries in the 1970s. This transparency agenda has been incremental, and it is obvious today that NSOs need to have information that users can access, and that their methodologies must have built-in transparency. In the case studies, a gradual general process can be observed, although there are peculiarities in each case. The Brazilian case is emblematic. It reveals how democratization broadened the NSO's dialogue with society and the press, making the methodologies more transparent, creating institutionalized processes for dealing with the press and disclosing statistics. This guaranteed that neither the State nor the market had privileged access to data. In Peru, this process was delayed by the reversion to authoritarianism in the 1990s. However, in the 2000s, during the democratic transition process, transparency returned. Mexico, another country late to democratize, also enhanced the transparency of its statistics in the 2000s. However, there have been some recent steps backward on the road to transparency, caused by wider political changes, as described in the Argentinian case in 2006–2015, while the examples of El Salvador and Guatemala show the burden of authoritarian legacies that are unresolved following democratic transitions.

The third factor, fiscal constraints, appears in the same period of the 1980s and beginning of the 1990s, when the region was beset by economic crises. These crises had a negative impact on state capacities, given that available resources were reduced. The cases indicate that statistical offices were no exception. In this period, the NSOs of Argentina, Brazil, Ecuador, and Peru saw their budgets cut. This made

the capacity to carry out surveys more precarious and led to smaller teams of professionals, which contributed to the institutions' weakness over the long term.

In various countries, state reform processes were set in motion to tackle these economic crises. The findings indicate that such processes impacted the region's countries differently, and it is unclear whether they have followed a similar trajectory. In some cases, the impact was positive, as reformers required more information to measure their effects or develop new public policies. Therefore, for example, in the Mexican case, it is noticeable how the group of technocrats that occupied positions in the government starting in the late 1980s and 1990s reinforced INEGI as a way to support their own reform programs. Furthermore, in some countries, the cuts demanded by international organizations as a condition of economic support were made in areas of the State considered of secondary importance, or associated with the developmentalist State. This affected NSOs by reducing their resources. The Peruvian case illustrates this dynamic well, since budget cuts led to the closure or scaling down of the sector statistical offices. This is also true of Argentina, where budgetary cuts affected technical teams and, over the long term, weakened the institution, as was noticeable in the 2000s. It is worth mentioning that, even in places where statistics continued to be important, this did not necessarily imply the strengthening of NSO autonomy. One of the precepts of the reforms of the 1990s was autonomy for some governmental agencies, principally those linked to the state economic and fiscal sectors. Although this autonomy became effective in some organizations, such as central banks, this process failed to occur with NSOs. In some countries, statistical production was strengthened as a key product for evaluating policies and monitoring efficiency. But the focus was not on these organizations' autonomy as such, but rather on their statistical products.

Except for the economic crises and the differential impact of market reforms, all these processes led to gradual positive changes. In some circumstances, they may have had a greater impact (for example, the level of adoption of developmentalist models varies greatly in the region) and produced more abrupt changes, but generally the regional trend is positive.

However, this common history fails to explain the complexity of the trajectories identified: it is, rather, a trend that conceals considerable heterogeneity. In some cases, sudden leaps in capacity were observed

(and there were also cases of declines), that are more difficult to explain according to these common regional processes. Brazil and Mexico have older institutions that have achieved significant levels of capacity and institutionalization. This contrasts with other countries and with the level of their own national bureaucracies, which have high human, financial, and technical capacities, political autonomy and institutional resources, and certain capacity for coordinating statistical production. Furthermore, Peru and Colombia have achieved a medium/high level of capacity in the regional sphere, although higher than the bureaucratic average of their countries. There are cases in which the levels of resources are not so high, but levels of autonomy and some capacity for coordination are still quite developed. Bolivia and Ecuador have been historically weak, especially considering the scant resources with which they have struggled, but the political internal or external changes of recent years have strengthened their NSOs considerably. However, it is unclear whether these improvements bring greater institutionality and the capacity to resist pressure from government in economic and political contexts that are less favorable than those of recent years. The Dominican Republic is an interesting case where international actions have prompted a significant boost in statistical capacity, taking into account the investment in resources, but at the same time internal dynamics hampered greater consolidation of the NSO in terms of its autonomy and coordination capacity. Finally, in El Salvador and Guatemala, lower statistical development and higher resistance to change is seen; in general, there is less capacity to take advantage of contexts that, in other cases, have inspired the strengthening of these entities.

As previously indicated, this disparity is due in part to the existing level of bureaucratic capacity in each country, as an NSO is part of a broader state system. But there are also other factors that are presented below. The following section seeks to explain these diverse trajectories to better understand the factors that permit the rise or the decline in statistical capacity, as well as its stability over time.

Political Economy Factors in Each Country

This section examines five political economy factors that are relevant to statistical capacity. These are the result of the interaction between the five elements considered to influence the political economy of statistical capacity: (i) the political system's institutions and actors, (ii) the public

administration's general characteristics, (iii) bureaucratic politics in the statistical sector, (iv) participation by external actors, and (v) individual actors' characteristics.

The first factor that encourages increased statistical capacity is the demand for good-quality statistics by state institutions with high technical capacity. The professionalization of certain state organizations gives rise to more competent and technical NSOs that, in turn, raise the statistical level and help strengthen these technical institutions because of the information they will receive. This factor is clearly illustrated by the emergence of developmentalist institutions in the 1960s and 1970s, but it can also be observed in more recent processes of strengthening the state organizations dedicated to fighting poverty and implementing social programs. In the countries in which this type of body has evolved, there is notable growth of the NSO, whether owing to increased capacity due to extra resources, or because of enhanced autonomy or development of its coordination capacity.

The Colombian case is emblematic in this sense. The technocratic state reform processes seen in the 1960s placed technical experts at the head of a series of ministries and institutions. These experts required data for their development plans or for evaluating the impact of their policies, and they supported DANE's institutional development in response to this need. Likewise, Peru saw an improvement in its poverty statistics when, in the period 2011–2016, the Ministry of Social Development was established with a high technical level that required high-quality data. In Mexico, the technocracy that took power in the 1980s was in part responsible for strengthening INEGI in those years. Similarly, the relaunch of a more developmentalist State in Ecuador under the administrations of Rafael Correa led to the empowerment of INEC, which enabled it to fulfill a series of functions. This also happened in Brazil at different times: with the strengthening of the State's planning functions and the demand for better statistics in the 1960s, and with the priority given to social policies and the subsequent creation of the Ministry of Social Development and Fight against Hunger, which required the creation of social indicators in the 2000s.

However, these technical sectors are not always a positive factor for NSO strengthening. If the more professionalized and technical sectors of the State are in charge of statistical production, they can limit capacity building in the NSO. By failing to trust that the other institution can adequately fulfill this function, or given the costs for

bureaucrats of leaving a professional institution, often with better salaries than in other areas of the State, to transfer to another weaker or less developed organization, technical institutions have often opposed strengthening NSOs. For example, some cases show how central banks and ministries of finance have opposed the transfer of national accounts to the NSO, which diminishes their importance and autonomy, in addition to limiting their capacity to coordinate. This happened, for example, in the Dominican Republic when, in the 1990s, the Central Bank assumed control of statistical production and weakened the NSO. Similar resistance was observed in Guatemala and El Salvador, where the central banks also resisted entrusting the national accounts to the NSO. In Colombia, despite the fact that two technical bodies, such as the National Planning Department and the Ministry of Finance, lobbied to make the national accounts the responsibility of the NSO, the Central Bank opposed the move. Only recently, due to pressure for the country to conform to OECD entry requirements, which call for NSO strengthening, was this impasse broken. Similar processes of transfer of national accounts can be seen in Bolivia, Brazil and Peru, where for various reasons the NSOs have assumed responsibility for the national accounts following negotiations, and have therefore been reinforced as coordinators of the NSS.

To summarize, the process by which technical institutions of the State demand good-quality statistics is a generally positive factor that can enhance NSO autonomy and boost both its resources and coordinating capacity, but it might also represent a barrier in certain cases. If the demand is maintained, and the NSO conserves its credibility and its monopoly over some areas of statistical production, this factor helps to explain the continuity or strengthening of statistical capacity, as any reduction in the quality of the data produced will be immediately detected and questioned.

A second significant factor in the research has been the international dimension, with emphasis on the initial hypotheses, which stated that external pressure on the region's countries was more significant. In fairness, two mechanisms are observed by which international actors affect statistical capacity. On the one hand, international pressure, due to obligations from signing international treaties or joining international organizations, inspires deep reforms that favor NSOs and increases opportunities to enhance its coordinating role and its priority with respect to state resource allocation. The results are similar to those of

the capacity-building processes explored in the literature, such as the strengthening of the Dominican Republic's labor inspection agencies, thanks to integration with the United States (Schrank, 2013), or strengthening state agencies in Peru in response to international demands (Dargent, 2014). Furthermore, international aid, whether bilateral (Canadian, American, Swedish or French, to mention the most significant) or from international organizations, has an invaluable impact on NSOs with respect to providing resources for staff training, strengthening the entity in general by providing legitimacy, and using courses and professional training to improve the incentives to make a career in the NSO.

Therefore, for example, Mexico's adherence to the World Trade Organization (WTO) in 1986, the North American Free Trade Agreement (NAFTA) in 1994, and the OECD, also in 1994, inspired more complete and transparent statistical production. Similarly, in the Dominican Republic, the Free Trade Agreement with the United States was an incentive to strengthen the Office. The same thing happened in Brazil, when it began to participate in multilateral organizations and gain visibility in the 1990s. This, as already mentioned, was also the path taken by Colombia in 2015, when it joined the OECD, and more recently that of Peru, which seeks to join the same organization. Although there are differences, similar strengthening dynamics are seen in Bolivia, with the promise of benefits from international donors related to debt relief and the MDGs. Before receiving this aid, Bolivia was asked to improve its statistical capacity. Such a demand can support the continuity of statistical capacity if maintained as a constant stimulus, since it implies remaining within international organizations. This can be less important, however, if demand is only sporadic, as in the Bolivian case.

One interesting theme is that these external pressure mechanisms have not been found to be related to the conditions set by international financial institutions within the framework of the austerity programs of the 1990s. This is true in Mexico in 1994, when the IMF requested greater predictability and transparency in the dissemination of macroeconomic information. In general, however, international financial institutions were less relevant than it might have appeared with respect to applying pressure to boost local statistical capacity, given their interest in being able to access reliable information. Furthermore, the Peruvian case shows that protecting its statistical systems was not a priority when called on to make cuts in response to structural adjustment programs, as the government was permitted to reduce these offices' budgets.

With regard to international aid, this type of support can be seen as important for strengthening NSOs by providing knowledge, legitimacy, and resources. This factor is especially noteworthy, as these resources serve to offer training opportunities to agency staff that, in many cases, compensate for their relatively uncompetitive salaries. A series of programs have reinforced statistical capacity, such as the actions led by the IDB, ECLAC, and bilateral agencies, such as those of Sweden, France, and Canada. In some cases, this aid even directly finances the censuses and other instruments.

Participation in these programs or in events carried out by the organizations provides visibility for NSOs and credibility for their statistics, while strengthening their image and legitimacy in their own countries. This factor is essential for boosting NSO capacity and giving them more room for self-development. At the same time, if this is sporadic or not made permanent, it can affect the continuity of institutional capacity. In addition, international aid can also entail risks and have limited impact on capacity building. This happens when institutions impose their own statistics agenda without helping to build internal demand or achieve sustainable institutional strengthening of the NSO. They can, then, compel or help to achieve the production of certain indicators that interest them, but that might not be the most significant for the national statistics agenda.[1]

A third important factor is the role played by the countries' presidents in strengthening statistical agencies, whether as positive or negative actors. Some presidents invest in or build up the NSO, due to their convictions or an interest in implementing specific policies. In this way, statistical capacity is enhanced, either by increasing available resources or allowing more autonomy or responsibilities as coordinators of national statistics. The case studies show that, in general, the legislature is not as important in this context. Rather, the executive branch is the most significant state power with respect to building statistical capacity, whether through the action of technical bodies that are often part of the executive branch or, as will be seen below, because of the political preferences of the presidents themselves. These results confirm previous studies on the importance of national presidents in driving improvements in institutions of the State that can help promote their reform plans (Geddes, 1990; 1994).

[1] Daveraian (2013) makes similar critiques of international aid (2013) with respect to African countries.

Some cases show how certain presidents used their authority to strengthen statistical capacity as part of broader state reform processes. Thus, for example, in Brazil in the 1930s, President Getúlio Vargas structured the Brazilian public sector and created the NSO. In Peru, General Juan Velasco Alvarado and his military reformists decided in the 1970s to give more functional autonomy to INEI, separating it from sectors that were not considered part of the reform project. INEI was a key element of developmentalist reform in Peru. Similarly, the role of President Rafael Correa has been crucial for understanding the strengthening of Ecuador's INEC in the 2000s, when he personally decided to invest in its strengthening and autonomy.

Presidents, however, can also be a negative factor and weaken statistical agencies whose transparency and professionalism stand in the way of political data manipulation. Argentina, under the administrations of Néstor Kirchner and Cristina Fernández de Kirchner, is the case that best illustrates this dynamic, with the growing politicization of INDEC. Likewise, the Ecuadorian case shows the costs of excessive dependence on the executive branch: when elections were approaching in which the official government candidate was not likely to be a clear winner, or when the economic figures were negative, the President did not maintain his previously positive attitude toward INEC.

It is worth considering that presidential decisions (political, seeking legitimacy, coalitions, and governance) follow a different logic from purely statistical decisions (technical, seeking methodological credibility). Presidential decisions, therefore, are not always beneficial to the statistics sector. Therefore, the power that presidents can exert on the trajectory of NSO institution building is patent: strengthening, when the use of statistics is inherent to a political project; weakening, when the statistics might generate criticism or call the policies into question. But it also seems clear that a president's capacity to interfere in the NSO based on his or her interest is also conditioned by the degree of maturity of the institutions, which may be more or less immune to political interference.

As shown throughout this work, the cases of strengthening can be episodic unless greater institutionality is built through rules, resources, and partnerships with key internal or external actors, or if other factors that ensure stability are lacking. The increase in capacity under the administrations of some presidents presents an even greater risk that this is a case of sporadic strengthening. This point highlights, once

again, one aspect of state capacity building that is not often mentioned in the literature: episodic strengthening is one thing, the conditions that maintain that strength over time is another thing entirely. Therefore, the factors related with internal (technical bodies, civil society, enterprises, the press) or external statistical demand (international cooperation, demands from international organizations) may be crucial and can serve as a counterbalance to presidential interference.

A fourth significant factor that explains the trajectory of the cases centers on the economic and political crises. Although the crisis of the 1980s was mentioned briefly as a general factor of the decrease in statistical capacity in the region recorded in the case studies, crises do not always have a negative impact on the development of state capacity. Natural disasters or political crises can politicize the need for greater NSO transparency and autonomy, especially if these crises link state actors with scandals of corruption or manipulating information. Or, as has been studied in the region, economic crises can inspire the technical strengthening of state economic management areas (Weyland, 2002; Kaplan, 2013; Dargent, 2015). Consequently, although economic crises obviously affect state capacity, including statistical capacity, they also make room for NSO strengthening.

Therefore, for example, the earthquake in Mexico in 1985 provoked a political scandal due to problems of corruption that ended up strengthening the statistical system. Moreover, by transferring its headquarters to a region with a lower seismic risk, the NSO's isolation was increased, which helped reinforce its autonomy. Similarly, in Peru, the transition in 2000, marked by a corruption scandal in the State, engendered a transparency policy throughout the government, especially in INEI. In those years, the bases were established for what would be a radical change in the way statistics were presented by the Peruvian State. The Argentinean case, where the politicization of official statistics under the government of both Kirchner presidencies was called into question, also shows a similar dynamic in response to political scandal. As in the case of the countries' presidents and episodic strengthening, crises also bring opportunities, but it is important to seize such chances to achieve continuity.

Finally, an additional factor that appears to be crucial for building continuity at the statistical level is the presence of national actors, mainly in civil society, who demand and take an interest in the availability of objective, high-quality statistics. These actors strengthen capacities

to demand more resources or to build the legitimacy needed to enhance NSO autonomy. Business associations, academics, NGOs, and the media that use statistics are key for maintaining a strong NSO. A higher density of actors in these sectors would provide the NSOs with added informal protection, as governments would face consequences if their actions affected the interests of these sectors. These actors monitor, and are concerned about, the institution's objectivity, even intervening in cases in which objectivity is threatened. This happens when an NSO has sufficient capacity to respond to social demands for statistics, achieves a degree of monopoly over its production, and builds belief in its technical capacity. Likewise, the NSO's fluid relationship with these sectors engenders a process of improving the response to demand and learning from its needs to produce the best possible statistics. This fluid relationship, known as embedded autonomy (Evans, 1992), enhances the quality of statistical production. It is, therefore, a permanent form of oversight that helps maintain the continuity of the quality achieved and to encourage improvements. This finding comes on top of a series of recent studies that point to the significance of demand from social actors for the State to fulfill its functions, implement its policies, and even increase its capacity (Amengual, 2016; Brinks and Botero, 2014; Evans et al., 2017; Augusto et al., 2017, among others). In a similar vein, other works find that the absence of this kind of organized social demands means that there are no strong incentives for the State to provide better social services (Kauffman and Nelson, 2004).

The Brazilian case is emblematic in this sense. In Brazil, the IBGE's autonomy and legitimacy have been linked, throughout its 80 years of history, with building institutional relations with external actors—the academic world, the press, the market and international organizations—that guarantee the institution's credibility and its political autonomy. Consequently, any attempt by political actors to weaken or to change the NSO provokes an external response that makes changing the organization almost impossible. This embedded autonomy is so strong that some IBGE presidents have lacked the power to make changes due to the lack of support from the NSO's professional body, which is supported by external backing.

Likewise, the Peruvian case reveals how creating an advisory committee on poverty issues, with ample capacities to work alongside INEI, analyze its methodology and review its results, meant that poverty statistics could be defended in political contexts in which the sensitive

nature of the information could have led to accusations of politicization. More extensive use of these data by researchers and organizations provides informal protection to the Peruvian NSO.

Building Autonomy and Capacity: The Agency of the NSO

The common processes and factors that explain the levels of statistical capacity show a high degree of determinism that exaggerates what is revealed by the case studies. In these, there is room for more contingency and agency in state capacity building than would seem likely from reading these general processes and political economy factors.

Of course, highlighting agency and contingency is somewhat complicated in social science theory, as it is difficult to document and isolate them as independent factors. Theories can make it seem that the actors' decisions are insignificant, as they are constructed from the present-day standpoint and by contrasting the general conditions of each case. The cases, moreover, show the clear relevance of both the general processes and of the political economy factors: many of the examples of bureaucratic agency in statistical institutional capacity building in this section take place in cases in which conditions are better (Brazil, Mexico), whereas when these conditions are worse, there is little room for such bureaucratic creativity and strategy (El Salvador, Guatemala). It would be unfair to say that the lack of creativity and strategy among the bureaucrats of El Salvador or Guatemala is what explains their low statistical capacity; the challenges they face are enormous.

However, it seems clear that in the matter of state capacity building, minimizing the effect of agency is erroneous and perhaps results more problematic than when studying other political phenomena. Although part of the changes can be explained by exogenous factors, as shown in the previous sections, part of the institutional changes can be understood in terms of endogenous changes arising from within the institutions (Mahoney and Thelen, 2012). Therefore, the strategic action of managers and bureaucrats engenders significant changes both in enhancing the capacity and autonomy of the institution, and institutionalizing them, which can be of help, because in certain cases the statistical capacity can go beyond the general capacities of the State. The political economy factors open up spaces and possibilities, but those possibilities can be better exploited by certain actors than by others, as the evidence gathered in the case studies indicates.

This point is clearly seen when comparing different periods of the NSOs within each State, when in general similar conditions prevailed in the political economy factors but some managers were better able to take advantage of them. These are the cases of Brazil, Mexico, Peru, Ecuador and Dominican Republic, for example. Some central aspects of statistical capacity, such as obtaining more resources, protecting the organization from external interference, strengthening autonomy and legitimacy, or establishing a better legal framework, which, in turn, help to guarantee its continuity, are very often achieved thanks to the actions of the institution's managers or its bureaucracy, even when their predecessors or successors fail to display a similar interest. The search for institutional capacity building from within is analyzed by the theories that try to explain institutional changes and that show how actors develop strategies in accordance with their motives. Different motives and interests generate different strategies over time, which can produce changes that are more or less deep according the actors' ability to appreciate the potential of the moment and its resources (Mahoney and Thellen, 2010; Fligstein, 2001). This is how the skills and strategies of certain actors embedded in institutional environments, as well as the existence of exogenous opportunities, help explain why in certain moments of the history of NSOs, changes were made that brought them to different levels of capacity.

This can best be illustrated by the various decisions that actors take when faced by exogenous forces. What is more complicated to prove, due to the diversity of factors in play, but is also significant, is that in similar contexts of opportunity throughout the different countries, some decisions to institutionalize NSOs were better than others. The international pressure exerted by the OECD, for example, might not have been used as it was in Colombia, where it helped bring fundamental changes. It is unclear whether the same could happen in Peru, given INEI's current weakness. To put it more clearly, having plentiful resources in certain periods of greater abundance in the region might not lead to similar institutional capacity building in the absence of NSO-led reform strategies. This section presents the information gathered with respect to these actions, which are also important regarding the dependent variable, especially in connection with the recommendations for reform for politicians and bureaucrats interested in NSO strengthening.

This internal work undertaken by leaders or bureaucrats to change their institutions and boost capacities can be called institutional work. It

is the intentional action of individuals and organizations whose objective is to create, maintain, or transform their organizations (Lawrence and Suddaby, 2006).

In the case studies, four aspects were found in which agency has played an essential institution-building role. First, some leaders have opted to build coalitions of internal and external support to consolidate autonomy by establishing links both inside and outside the State, thus making themselves more useful to other actors. In a similar way to that described by Carpenter regarding institutional capacity building in U. S. federal agencies, bureaucrats there were able to build coalitions that backed the institution (Carpenter, 2001). Such coalitions, including academia, international organizations, NGOs, the press, and the market, bring prestige and recognition to an NSO and make it more difficult to ignore its demands or interfere with its autonomy. In the Brazilian case, the relationships established with academia, the press, the market, and the international organizations led to the achievement of an embedded autonomy (Evans, 1992). This is also true in the case of Peru, with its transparency measures and the creation of an advisory council in 2001 within the framework of the country's political transition following Fujimori's departure because of a corruption scandal, or the establishment of the previously mentioned Poverty Council. These are all actions initiated from the NSO, which took advantage of favorable conditions to demonstrate the importance to various actors of having objective information and to tighten the links with sectors that oversee NSO production.

One important aspect that highlights the importance of agency is that, as the Colombian case suggests, the existence of a community of users does not by itself guarantee that these links will be developed. Therefore, investing in creating a community of users, which demands high-quality statistics, becomes a fundamental strategy. In Colombia, according to the case study, strengthening the links with these external actors was not a central part of bringing changes in the statistical system. Concerted, strategic action of NSO civil servants is essential for reinforcing such links. These examples highlighted the deliberate strategies followed by internal actors to create a demand, or to strengthen their links with external actors that legitimize or strengthen the institutions.

Second, these coalitions and support are not only internal. The cases show the importance of exploiting international networks and external cooperation to reinforce the NSOs with knowledge and resources. The Dominican and the Peruvian cases, following the political transition, are

examples of how some managers, due to their contacts and efforts, have figured out how to take advantage of the possibilities offered by international aid. These links, of course, also help to create networks that can help to defend the institution's autonomy.

Third, directors and bureaucrats have been able to benefit from certain situations to promote a better institutional framework for carrying out their functions. As argued above, the institutional framework is often seen as a cause of increased capacity and, undoubtedly, once adopted, it can become crucial for consolidating statistical capacity. But this formal, institutionalist perspective loses sight of the fact that the power achieved by an organization is precisely what has enabled it to negotiate and approve a better institutional framework that consolidates continuity: that is, the influence of NSOs has been crucial to their own institutional capacity building. Similarly, building an organization by stimulating and incentivizing the staff (internal strength) also relies in part on the agency of managers and bureaucrats capable of directing resources toward these types of incentives, which strengthen internal coherence and labor competitiveness. Therefore, for example, in the framework of Mexican democratization, INEGI promoted reforms that gave it greater autonomy and capacity to coordinate the statistical system. Moreover, it managed to consolidate the new legal framework in the short term. The literature also points out that building institutional frameworks is one of the principal strategies of bureaucratic actors for building institutional capacity.

Finally, in the cases analyzed, it is noteworthy that some managers and bureaucrats have used their knowledge in statistics to make themselves indispensable to government leaders and other sectors that needed such knowledge. The task of producing statistics is not simple, and is, in fact, highly technical and specialized. The data must be demanded by certain groups and must also be useful and legitimate. Moreover, as seen in the case studies, when demand increases, NSO's importance also increases. Rather than a natural process, this is a strategy employed by actors who managed to change the agenda of their organizations to respond to, or to create, new demands and, therefore, make themselves even more significant. Again, this is about the role of investing in building up a community of users, knowing how to respond to them, and having a degree of monopoly over the production of legitimate and essential statistics. This takes place as a result of the action of internal leaders and bureaucrats who accept the challenge of

changing the organization and its statistical production to respond to new demands as an institutional capacity-building strategy. The cases of countries that have changed their statistical production agendas in response to new presidential priorities can be cited as examples, as was the case in Bolivia, Brazil, and Ecuador. In all these countries, the government agendas were accompanied by changes to the NSO agendas to generate new indicators, which guaranteed their importance to the president.

A further lesson of the case studies, considered fundamental in this work, is having identified—thanks to the contrast between the case studies as well within the cases themselves—the significance of agency in these changes in capacity. This might be the most significant finding arising from this study with respec to those responsible for reform: to understand that NSOs, due to their position in the State and their international links, have the potential to develop their capacity beyond their bureaucratic environments if they take advantage of the available opportunities.

CHAPTER 6

Conclusions and Recommendations

This study proposes three levels of analysis that seek to explain the processes and factors that influence the basic aspects of statistical capacity (resources, autonomy, and coordination). The first highlights the historical processes common in Latin America that, in general, explain the gradual improvement over time in the statistical capacity of countries of the region. The second presents the political economic factors significant for developing a country's statistical capacity. The third centers on factors associated with institutional capacity building, generally the strategic actions of statistical office leaders and bureaucrats. Analyzing these three levels yields a series of important recommendations for fostering the elements that promote strengthening of the statistical sector. Among them, it is obvious that institutional reforms are positive when they foster modernization of the legal frameworks that govern NSOs in aspects such as autonomy, transparency and coordination, as well as other reforms that strengthen statistical systems with resources and personnel.

However, one interesting aspect of the study is that mechanisms are needed to establish forms of informal protection and possible sources of such institutional capacity building. Therefore, three opportunities for reformers have been alluded to in these pages: creating both State and civil society demand; the importance of the context and of international aid; and understanding that these processes are part of a dynamic within the State, which needs to seek allies and to exploit opportunities.

First, developing links with state actors, CSOs, economic agents, and the press helps to form an informal barrier that guarantees the continuity of statistical capacity. The importance of the demand for statistics as a key component of statistical capacity is obvious here. Such

groups oversee the levels of transparency and quality achieved, and guard against any politicization or undermining of the NSO. This external demand is crucial for strengthening the institution and, although responding to whatever the users demand takes time and resources, it is a way of embedding statistical capacity in society in such a way that it remains unaffected by changes in government. It is worth reiterating that the mere existence of a community of users is not in itself sufficient to build solid links. These links must be institutionalized to be effective. But having them is a potential force for the development of statistical capacity, strengthening autonomy, and probably justifiably increasing the demand for greater resources and better coordination mechanisms.

Second, this paper underlines the opportunities for strengthening statistical capacity that international actors can offer. One the one hand, in contexts in which they demand reforms in the NSO, the institution's bureaucrats can take advantage of those spaces to push ahead with a capacity-building agenda. This role will vary according to the country's level of development; for example, in less developed countries such as Bolivia, the international demand for information for monitoring the MDG indicators was very significant, as it has also been, for more advanced countries, the process of joining the OECD membership, or the IMF after the crisis of 1994 in Mexico. Participation in forums and spaces promoted by international organizations is also important for internally strengthening the NSO's legitimacy in the country. Therefore, in addition to exploiting these situations in which there is external demand to promote strengthening, bilateral or multilateral international aid also play crucial roles in strengthening the sector in various countries by providing the NSO with resources and knowledge.

Finally, the case studies also show that governments are not monolithic entities: within them, agencies and civil servants coexist with different positions on this matter. The processes of strengthening the statistical sector often imply expanding the NSO's resources and powers as the lead agency or, at least the coordinator, of official statistics production. In the same way, these processes bring regulatory changes that grant more responsibilities to these offices. But even if political authorities support these reforms, it is likely that other agencies that produce statistics (such as central banks or the ministry of finance) will resist these changes, as they represent a reduction of their own responsibilities. The processes by which powers are transferred to NSOs require prudence, and guarantees must be provided to ensure that production quality will be maintained.

Reformers would do well to take these experiences into account when promoting changes, and to identify their potential allies and the entities most likely to resist the change. This study uses comparative experience to point out a series of opportunities that can be exploited to develop a more efficient and autonomous statistical system.

It is worth mentioning some of the challenges that NSOs will have to tackle in the coming years. The first challenge is technological. In recent decades, NSOs have experienced profound technological changes that have altered the way they produce statistics. Perfit et al. (2012) demonstrate that adopting new technologies for data-gathering, as well as digitalizing the census, can lead to savings in resources. With the current new technologies, NSOs also face a new challenge: discussing how to incorporate the use of administrative records and big data in their information production activities. This implies technological, methodological, legal, and security challenges that will have to be debated in each country. Moreover, if there is so much data currently available, it is not clear how NSOs can take advantage of them without affecting statistical quality or encountering problems with their legal statistical frameworks.

The technological changes also reinforce a further challenge for NSOs: assuming the role of NSS coordinator. Although in the case studies the NSS has not been analyzed, the debate around the difficulty of coordinating other statistics-producing organizations is present in nearly all of them. Coordination is even more important when considering the possibility of using administrative records as primary data for statistical production. The evolution implied in moving from being a mere producer to becoming also the coordinator and regulator of national statistical production is a challenge that many NSOs will have to overcome in the coming years.

A final challenge that emerges from the case studies is the capacity of NSOs to adopt innovations. Innovations require methodological and legal changes and new training practices, which are not easy to introduce in the public sector. If the institutions' autonomy can strengthen their innovative capacity, an excess of autonomy can also isolate these organizations and make them less favorable to change. The challenge, therefore, is to understand the relationship between the institutions' autonomy and their capacity to innovate, while the conditions under which innovation can be generated from within these institutions must also be understood.

References

Aguilera, M. 2017a. La economía política de las capacidades estadísticas. Case Study: El Salvador.

____. 2017b. La economía política de las capacidades estadísticas. Case Study: Guatemala.

Alessandro, M. 2015a. Propuesta teórica y metodológica para estudiar la economía política de los Sistemas Estadísticos Nacionales. Estudio de caso: Colombia. (Noviembre.)

____. 2015b. Propuesta teórica y metodológica para estudiar la economía política de los Sistemas Estadísticos Nacionales. Estudio de caso: México. (Noviembre.)

____. 2015c. Propuesta teórica y metodológica para estudiar la economía política de los Sistemas Estadísticos Nacionales. Estudio de caso: República Dominicana. (Noviembre.)

____. 2017. La economía política de la capacidad estadística: una aproximación práctica. Washington, D.C.: IDB.

Allison, G. and M. Halperin. 1972. Bureaucratic Politics: A Paradigm and Some Policy Implications. *World Politics*, 24: 40–79.

Amengual, M. 2016. Politicized Enforcement in Argentina. New York: Cambridge University Press.

Antelo, E. 2000. Políticas de estabilización y de reformas estructurales en Bolivia a partir de 1985. Serie Reformas Económicas 62. Amsterdam: Government of the Netherlands.

Augusto, M. C., E. Dargent and S. Rousseau. 2017. Más allá de la capacidad estatal: sociedad civil e implementación de políticas a nivel subnacional en Cusco y San Martín (Peru). *Colombia Internacional*, 90: 99–125.

Beccaria, L. 2017. Capacidad estadística: una propuesta para su medición y aproximación práctica. Washington, D.C.: IDB.

Bersch, K., S. Praça and M. Taylor. 2017. Bureaucratic Capacity and Political Autonomy within National States: Mapping the Archipelago of Excellence in Brazil. In: M. Centeno, A. Kohli and D. Yashar, *State-Building in the Developing World*.

Boylan, D. 1998. Preemptive Strike: Central Bank Reform in Chile's Transition from Authoritarian Rule. *Comparative Politics*, 30 (4): 443–462.

Brinks, D. and S. Botero. 2014. Inequality and the Rule of Law: Ineffective Rights in Latin American Democracies. In: D. Brinks, M. Leiras and S. Mainwaring (eds.), *Reflections on Uneven Democracies: The Legacy of Guillermo O'Donnell*, 214–239. Baltimore: The Johns Hopkins University Press.

Carpenter, D. 2001. The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies. Princeton, N.J.: Princeton University Press.

Chuaire, M., C. Scartascini and M. Tomassi. 2014. State Capacity and the Quality of Policies: Revisiting the Relationship between Openness and the Size of Government. Working Paper No. IDB-WP-553. Washington, D.C.: IDB.

Dargent, E. 2014. Determinantes internacionales de la capacidad de las agencias estatales. *Apuntes*, 41(74): 9–40.

____. 2015. Technocracy and Democracy in Latin America: The Experts Running Government. New York: Cambridge University Press.

____. 2017. Estudio de caso: La economía política de las capacidades estadísticas en Perú.

Devarajan, S. 2013. Africa's Statistical Tragedy. *The Review of Income and Wealth*, 59 (S1): S9-S15.

Eisenhardt, K. 1989. Building Theories from Case Study Research. *The Academy of Management Review*, 14(4) (October): 532–550.

Evans, P. 1992. The State as Problem and Solution: Predation, Embedded Autonomy and Adjustment. In: S. Haggard and R. Kaufman (eds.), *The Politics of Economic Adjustment: International Constraints, Distributive Politics, and the State*. Princeton, NJ: Princeton University Press.

____. 1995. Embedded Autonomy: States and Industrial Transformation. Princeton, NJ: Princeton University Press.

Evans, P., E. Huber, and J. Stephens. 2017. The Political Foundations of State Effectiveness. In: M. Centeno, A. Kohli and D. Yashar (eds.), *State Building in the Developing World*. Cambridge, MA: Cambridge University Press.

Fligstein, N. 2001. Social skill and the theory of fields. *Sociology Theory*, 19: 105–125.

Geddes, B. 1990. Building "State" Autonomy in Brazil, 1930–1964. *Comparative Politics*, 22(2): 217–235.

Geddes, B. 1994. Politician's Dilemma: Building State Capacity in Latin America. Berkeley: University of California Press.

Goodstat, L. 2006. Government without Statistics: Policy-making in Hong Kong 1925–85, with Special Reference to Economic and Financial Management. Working Paper No. 6/2006. Hong Kong: Institute of Monetary Research.

Government of Bolivia. 2009. Marco de Referencia del Sistema de Planificación Integral del Estado Plurinacional (SPIEP). La Paz: Government of Bolivia.

———. 2016. Estrategia Boliviana de Reducción de la Pobreza. La Paz: IDB.

Graham, C., M. Grindle, E. Lora and J. Seddon. 1999. Improving the Odds: Political Strategies for Institutional Reform in Latin America. Washington, D.C.: IDB.

Head, B. 2010. Evidence-based Policy: Principles and Requirements. In: *Productivity Commission 2010, Strengthening Evidence Based Policy in the Australian Federation*, Volume 1: *Proceedings, Roundtable Proceedings*. Canberra: Productivity Commission.

High Level Forum on Aid Effectiveness, Busan, South Korea, April 2011.

INEGI (Instituto Nacional de Geografía y Estadística). 2009. 125 años de la Dirección General de Estadística 1882–2007. Mexico, D.F.: INEGI.

International Roundtable on Managing for Development Results 2, Marrakech, Morocco, 2004.

Jacobs, A. 2014. Process Tracing the Effects of Ideas. In: A. Bennett, and J. Checkel, Process Tracing. From Metaphor to Analytic Tool. Cambridge, MA: Cambridge University Press.

Jemio, L. C. 2016. Estudio sobre la economía política de los Sistemas Estadísticos Nacionales. Case Study: Bolivia.

Kaplan, S. 2013. Globalization and Austerity Politics in Latin America. Cambridge, MA: Cambridge University Press.

Kaufman, R. and J. M. Nelson (eds.). 2004. Crucial Needs, Weak Incentives: Social Sector Reform, Democratization and Globalization in Latin America. Baltimore: The Woodrow Wilson Center and The Johns Hopkins University Press.

Krätke, F. and B. Byiers. 2014. The Political Economy of Official Statistics. Implications for the Data Revolution in Sub-Saharan Africa. Discussion Paper No. 5. Maastricht: PARIS21 and European Centre for Development Policy Management.

Kurtz, M. 2013. Latin American State Building in Comparative Perspective: Social Foundations of Institutional Order. New York: Cambridge University Press.

Lawrence, T. and R. Sudabby. 2006. Institutions and Institutional Work. In: R. Stewart, C. Clegg, T. Hardy, T. B. Lawrence and W. R. Nord (eds.), *The SAGE Handbook of Organization Studies*.

León, M. 2017. Estudio de caso: La economía política de las capacidades estadísticas en Ecuador.

Lotta, G. 2017. Estudo de caso: A economia política das capacidades estatísticas no Brasil.

Mahoney, J. and K. Thelen. 2010. Explaining Institutional Change: Ambiguity, Agency and Power. New York: Cambridge University Press.

Moe, T. 2013. Presidentes, instituciones y teoría. In: M. Alessandro and A. Gilio (comps.), La dinámica del Poder Ejecutivo en América. Estudios comparados sobre la institución presidencial. Buenos Aires: INAP.

Niskanen, W. 1971. Bureaucracy and Representative Government. Chicago: Aldine-Atherton Publishing Co.

North, D. 1990. Institutions, Institutional Change, and Economic Performance. New York: Cambridge University Press.

Perfit, J. et al. 2012. El uso de tecnología en los censos. Washington, D.C.: IDB.

Ríos Figueroa, J. 2007. Fragmentation of Power and the Emergence of an Effective Judiciary in Mexico, 1994–2002. *Latin American Politics and Society*, 49(1): 31–57.

Saylor, R. 2014. State Building in Boom Times: Commodities and Coalitions in Latin America and Africa. Oxford: Oxford University Press.

Scartascini, C., E. Stein, and M. Tomassi. 2008. Political Institutions, State Capabilities and Public Policy: International Evidence. Working Paper No. 553. Washington, D.C.: IDB.

Schrank, A. 2009. Professionalization and Probity in a Patrimonial State. *Latin American Politics and Society*, 51(2): 91–115.

____. 2013. From Disguised Protectionism to Rewarding Regulation: The Impact of Trade-related Labor Standards in the Dominican Republic. *Regulation & Governance*, 7(3): 299–320.

Scott, C. 2005. Measuring Up to the Measurement Problem: The Role of Statistics in Evidence-based Policymaking. London: London School of Economics. Silva, E. 1993. Capitalist Coalitions, the State and Neoliberal Economic Restructuring: Chile, 1973–1978. *World Politics*, 45(4): 526–559.

Silva Ardila, D. 2016. Propuesta teórica y metodológica para estudiar la economía política de los Sistemas Estadísticos Nacionales. Estudio de caso: Argentina. (Octubre.)

Slater, D. and D. Kim. 2014. Standoffish States: Nonliterate Leviathans in Southeast Asia. *Trans-Regional and National Studies of Southeast Asia*, 3(1): 25–44.

Soifer, H. 2015. State Building in Latin America. New York: Cambridge University Press.

Sojo, E. and G. Leyva. 2011. NSO's Autonomy: The Mexican Experience. Presented at the 58th World Statistics Congress, Dublin.

Stein, E and E. Tomassi. 2006. The Institutional Determinants of State Capabilities in Latin America. Paper presented at the Annual World Bank Conference on Development Economics. Washington, D.C.: IDB.

Sturzenegger, F. and M. Tomassi. 1998. The Political Economy of Economic Reforms. Cambridge, MA: MIT Press.

Taylor, M. 2016. The Political Economy of Statistical Capacity: A Theoretical Approach. Washington, D.C.: IDB.

United Nations. 2003. Handbook of Statistical Organization: The Operation and Organization of a Statistical Agency. New York: United Nations.

Weyland, K. 2002. The Politics of Market Reform in Fragile Democracies: Argentina, Brazil, Peru, and Venezuela. Princeton: Princeton University Press.

ANNEX 1

The National Statistical Capacity Index, by Country

The National Statistical Capacity Index (Índice de Capacidad Estadística Nacional, or ICEN) is based on an explicit conceptualization of the notion of capacity, understood to be the combination of aptitudes, talents, and qualities enabling someone to perform something well. A country's statistical capacity, therefore, is defined as "the existence of a permanent structure or system that has the resources necessary to generate relevant and high-quality statistical data in a sustainable fashion and to publish them in an appropriate and timely manner" (Beccaria, 2017).

Based on this definition, and taking into account the attributes and the experience accumulated from other methodologies, the ICEN focuses on five aspects: (i) the human, financial, technological, or infrastructural resources that the statistical system can use to produce and disseminate statistical data; (ii) the characteristics of the organizations, regulations, and institutional practices that frame the work of the statisticians, including the levels of technical autonomy and coordination between information-producing entities; (iii) methodologies and practices employed in data production; (iv) data dissemination methodologies and practices; and (v) the range of statistical products elaborated.

Sub-dimensions were defined for each of these dimensions and, within them, indicators were developed. The methodology includes the first four dimensions, whereas the indicators relating to products have been included in dimensions (iii) and (iv). The ICEN is composed of 89 individual indicators, which are distributed in approximately equal numbers among the four dimensions. Working with a large number of

indicators not only helps to better cover the complexity of statistical capacity, but also makes the index less sensitive to drastic fluctuations due to a change in any of specific aspects, a frequent shortcoming in other measurements.

For each indicator, a number of categories are established that reflect situations more or less removed from the one considered as ideal or optimal. In general, four categories are defined in each variable, even though some include three and others only two. The latter case refers to those for which only the answers "Yes" or "No" are possible. Each category is assigned a score: the optimal score has a value of 10 and the minimum a value of 0. In the case of three categories, the intermediate scores 5 points, and in the four category options, the intermediate values are 6.7 and 3.3.

The averages produced by the ICEN are based on weighting factors that give equal importance to each dimension and equal weighting to all the indicators. Therefore, the aggregate result that reflects statistical capacity arises from taking a simple average of the results of the four dimensions. At the same time, to arrive at these average values for each dimension, a simple average is taken of the scores of the individual indicators that comprise it.

The information needed to evaluate the performance of each of the ICEN indicators comes from various sources. In some cases, it comes exclusively from the review of documentation (regulatory, technical, and

Table A1.1: ICEN Scores of the Sample Countries Studied, from Highest to Lowest, 2016

Country	ICEN
Mexico	8.83
Colombia	8.19
Brazil	7.84
Peru	7.23
Ecuador	6.94
Dominican Republic	6.18
Argentina	5.95
Bolivia	5.87
El Salvador	5.38
Guatemala	4.53

management). In others, evidence must be gathered from informants, such as national statistical offices (NSO), agencies of the national statistical system, skilled users from the public and private sectors, and journalists. In general, the NSO is the informant that provides the data for most of the variables.

Table A1.2: ICEN Disaggregated by Dimension

Dimension	Mexico	Colombia	Brazil	Peru	Ecuador	Dominican Republic	Argentina	Bolivia	El Salvador	Guatemala
Resources	8.25	8.33	8.02	6.85	6.91	7.35	6.00	5.81	6.26	5.67
Institutional	9.17	7.07	6.78	7.26	6.78	5.00	4.40	5.56	5..19	3.46
Methodologies	9.36	9.85	8.78	7.19	7.31	7.52	6.00	5.78	5.55	3.93
Dissemination	8.54	7.52	7.75	7.61	6.77	4.83	7.40	5.87	4.53	4.85
Average	8.83	8.19	7.83	7.23	6.94	6.18	5.95	5.76	5.38	4.48

ANNEX 2

Determining Factors of Statistical Capacity

Table A2.1: General Processes, Political Economy and Agency Factors

	Strengthen statistical capacity	Weaken statistical capacity
Common processes specific to Latin America	Changes in the State: i. The emergence of developmentalist States in the 1960s and 1970s. ii. The demand for better-quality social policies, especially linked to poverty relief. iii. The decentralization processes that require higher-quality data and greater geographical disaggregation to organize the distribution of resources throughout the country. iv. The recent regional and bilateral integration processes. Demands for transparency: i. The democratization processes and their greater demands for transparency in the 1980s and the 1990s.	Fiscal restrictions: i. The economic crisis of the 1980s, which negatively hit the region and weakened its bureaucracies. ii. Some economic reform processes of the 1990s that reduced the number of, and the resources available to, statistical offices.
Political economy factors that explain heterogeneity	i. The existence of technical state organizations that require statistics in order to carry out their functions. ii. International demands and the availability of resources from international cooperation. iii. The role of the countries' presidents, sometimes positive when they see the NSO as a necessary instrument for their policies. iv. The effect of economic and political crises. v. The existence of civil society, businesses and media that use statistics, and that demand the government maintains an adequate technical level to ensure high-quality statistics.	i. The role of the countries' presidents, which can be negative when they politicize the NSO.

(*continued on next page*)

Table A2.1: General Processes, Political Economy and Agency Factors (*continued*)

	Strengthen statistical capacity	Weaken statistical capacity
Factors associated with institutional capacity building related to the strategic action of leaders and bureaucrats	i. The leaderships that have opted to build coalitions of internal and external support to consolidate autonomy by establishing links both inside and outside of the State to make themselves indispensable to other actors. ii. These coalitions and their support are not only internal (using international networks and international cooperation to strengthen the NSO with knowledge and resources). iii. Managers and bureaucrats have been able to exploit certain situations to promote a better institutional framework in which to carry out their functions. iv. Certain managers and bureaucrats have been good at taking advantage of their own statistical abilities to become indispensable for governments and other sectors that rely on their knowledge.	

This book is a must-read for all those concerned with improving statistics in Latin America. Its careful case studies explain how and why some national statistical offices established their autonomy and credibility while others remained fragile. Its ideas on how demand for quality statistics can be nurtured and channelled to consolidate countries' statistical capacity are especially valuable.

Martine Durand
Chief Statistician
Organisation for Economic Co-operation and Development

The book is a welcome first step in the necessary research on the causes of regional variation in statistical capacity in Latin America.

Louis Marc Ducharme
Chief Statistician and Data Officer
Director, Statistics Department
International Monetary Fund

Why are some national statistics offices strong and others weak? This comprehensive guide is a valuable resource for all who are interested in learning what it takes to strengthen and reform statistical systems through a comparative political economy lens.

Haishan Fu
Director
Development Data Group
The World Bank Group

The United Nations Sustainable Development Agenda has made the need for data as an enabler of development worldwide blatantly apparent. We live in an age where there is more information than ever before: numerical data, geospatial data, big data. This is an enormous data management challenge that requires strong institutional arrangements to tackle it. I have long believed that effective national statistical and information systems, with strong national statistical offices at the core, need to be the focus of our capacity-building efforts around the world. This timely book reflects on the determinants for strong and effective institutions and gives us valuable insights for the way forward.

Stefan Schweinfest
Director
United Nations Statistics Division
United Nations

ISBN 978-1-59782-320-3
90000>
9 781597 823203

IDB