

Introduction

World data ... are essential for international organizations assisting countries to organize their health services, as well as for institutions and individuals undertaking research into epidemiological and statistical matters of world or regional concern.¹

In a World Health Organization (WHO) document entitled “International Work in Health Statistics, 1948–1958,” WHO founding statisticians Yves Biraud (also known as Yves-Marie Biraud) and Satya Swaroop, along with a former consultant, Harry Sutherland Gear, set out their aspirations for global health data. The document was published in 1961, decades before the catchwords “evidence-based medicine” and “big data” came to epitomize the predominance of quantitative data in global health policy-making. The trio underscored the importance of incorporating statistics into research and policy-making, presenting a vision in which researchers and public health officers across the world would use statistics to advance understanding of epidemiological situations and devise policies aimed at improving people’s health. The quotation above also encapsulates the main purpose of this book. Whereas policy publications tend to present numerical analysis as an innovative – if not exactly new – panacea for global health research and governance, this book aims to portray the historical process and sociopolitical contexts through which statistical practices circulated and eventually became a legitimate means of communication between international health organizations and national and local administrations. I also examine the strategies public health institutions and experts used to collect and disseminate statistics vis-à-vis international health organizations.

It is no accident that this book starts with the 1910s, when a wide array of transnational organizations, public and private, aspired to serve several countries at once and used statistics as a language to facilitate international collaboration. Governments, in Western Europe in particular,

¹ Harry Sutherland Gear, Yves Biraud, and Satya Swaroop, *International Work in Health Statistics, 1948–1958* (Geneva: WHO, 1961), 56.

had of course already been collecting numbers to better manage the health conditions of their populations in various ways.² Although historians have provided accounts of early (and often failed) European-led attempts to collect statistics at the international level ever since the first International Sanitary Conference of 1851,³ little is known about how countries outside of Western Europe (including their colonies) and North America used similar statistical practices to tackle public health crises. As this book will demonstrate, it was only in the twentieth century that American philanthropic organizations began to provide resources and expertise to help administrations and research organizations on other continents to quantify their public health affairs. These programs, which aimed to improve the well-being of humanity across the globe through public health actions, spread the consensus on the usefulness of statistics for public health beyond Europe and North America, persuading research institutes and health administrations in a number of countries to learn the language of numbers.

It should be stressed that the statistical initiatives presented in this book were a continuation of nineteenth-century European initiatives that sought to standardize vital and health statistics at the international scale. Specifically, nineteenth-century Europe underwent a series of administrative changes – public health movements, the increased use of statistics by national administrations, and growing intergovernmental collaboration – which led to the collection and exchange of vital and health statistics at the international level. Existing historiographies chronicle how, during the first half of the nineteenth century, an increasing number of experts in Europe began to rely on numbers to tackle public health crises.⁴ For instance, British experts Edwin Chadwick (1800–1890) and John Snow (1813–1858), along with their French counterparts Louis René Villermé (1782–1863) and Pierre-Charles Alexandre Louis (1787–1872), all used cross-tabulated birth and

² See, e.g.: Michael Donnelly, “William Farr and Quantification in Nineteenth-Century English Public Health,” in *Body Counts: Medical Quantification in Historical and Sociological Perspectives/La Quantification Médicale, Perspectives Historiques et Sociologiques*, eds. George Weisz et al. (Montreal: McGill-Queens, 2005), 251–65; Mervyn Susser and Zena Stein, *Eras in Epidemiology: The Evolution of Ideas* (Oxford and New York: Oxford University Press, 2009).

³ Valeska Huber, “The Unification of the Globe by Disease? The International Sanitary Conferences on Cholera, 1851–1894,” *The Historical Journal* 49, no. 2 (2006): 453–76; Céline Paillette, “Épidémies, santé et ordre mondial. Le rôle des organisations sanitaires internationales, 1903–1923,” *Monde(s)*, no. 2 (2012): 235–56.

⁴ For more on public health experts’ use of statistics in their work see, e.g.: Alfredo Morabia, *A History of Epidemiologic Methods and Concepts* (Basel: Birkhäuser, 2004); Susser and Stein, *Eras in Epidemiology*.

death statistics by district (or other criteria) to infer the origins of communicable diseases. At the same time, European public administrations were beginning to recruit specialists to collect and compile statistics. The best-known case was that of Louis' two pupils, William Farr (1807–1883) and Marc d'Espine (1806–1860), both of whom became official compilers of vital and health statistics (Farr in England and Wales, and d'Espine in Geneva). Farr and d'Espine further took on leading roles when the number of international conferences and congresses mushroomed in the 1850s, and the two men endeavored to standardize the collection of vital and health statistics across countries. Specifically, the International Statistical Congresses and the International Sanitary Conferences each produced a set of reporting standards for health statistics that are still maintained and revised by international health organizations: an international nomenclature of causes of death (the precursor to the International Classification of Diseases), which Farr and d'Espine were the first to draft, and the International Sanitary Regulations (now known as the International Health Regulations). Despite their differing priorities, the participants in the conferences managed to devise these standards in the hope of harmonizing vital and health statistical collection and reporting across countries. The goal was for statistics to be comparable and be used to alert the world to future epidemics. Reaching a consensus proved extremely difficult during both series of gatherings, as there was disagreement as to the etiology of communicable diseases for most of the nineteenth century. The International Sanitary Regulations also became embroiled in diplomatic disputes and international trade issues.⁵

If the main development in the nineteenth century was the birth of these sets of standards, the core achievement in the twentieth was the crystallization and implementation of statistics-led health administration procedures in different corners of the world through the work of various organizations, with financial support from American philanthropic

⁵ For detailed historical accounts of these international gatherings and the standards they produced, see, e.g.: Norman Howard-Jones, *The Scientific Background of the International Sanitary Conferences, 1851–1938* (Geneva: World Health Organization, 1974); Éric Brian, “Statistique administrative et internationale statistique pendant la seconde moitié du XIXe siècle,” *Histoire & Mesure* 4, no. 3 (1989): 201–24; Huber, “The Unification of the Globe by Disease? The International Sanitary Conferences on Cholera, 1851–1894”; Anne Rasmussen, “L’hygiène en congrès (1852–1912): circulation et configuration internationales,” in *Les Hygiénistes: Enjeux, modèles et pratiques, (XVIIIe-XXe Siècles)*, ed. Patrice Bourdelais (Paris: Belin, 2011), 213–39; Sylvia Chiffolleau, *Genèse de la santé publique internationale: de la peste d’Orient à l’OMS* (Rennes: Presses universitaires de Rennes, 2012); Mark Harrison, *Contagion: How Commerce Has Spread Disease* (New Haven, CT: Yale University Press, 2013).

foundations. In 1917, the Johns Hopkins School of Public Health (JHSPH), financed by the Rockefeller Foundation, established the very first statistics department within a public health school, thus launching the legitimatization of statistical practices within public health academia. The establishment of the JHSPH dovetailed with the end of World War I, when the establishment of the League of Nations institutionalized a form of internationalism that promoted collaboration between nation-states.⁶ In the decades that followed, health statisticians trained at the JHSPH went on to be employed by the League of Nations and health organizations around the globe. The Rockefeller Foundation also backed the Epidemiological Intelligence and Public Health Statistics Service of the League of Nations Health Organization (LNHO, 1922–1946), which aimed to standardize and legitimize the statistical practices of national health authorities. The Service went further than its predecessors by developing knowledge and programs to help member countries integrate statistical collection into their health systems. The impact of the JHSPH and the LNHO statistical service at the international and local levels endured after World War II and left its mark on the United Nations Relief and Rehabilitation Administration (UNRRA, 1943–1947) and the vital and health statistics system of the WHO.

Some alumni of the JHSPH would become leading figures in China and Taiwan before or after the political upheavals of the mid-twentieth century. These statisticians brought their interwar and wartime experience to the postwar context, during which the WHO strove for an all-encompassing global statistical system, and Cold War rivalries came to be a critical factor in international organizations' work,⁷ as well as in the attitudes of the two Chinese regimes vis-à-vis the organizations.

Over the course of seven chapters covering statistical initiatives in the interwar, wartime, and postwar periods, and their implementation in China and Taiwan, this book focuses first and foremost on investigating the circulation of statistical practices from the North Atlantic sphere to other parts of the world – that is, how health organizations at different levels came to use statistics in their work (for some, this also included devising a network to integrate standardized practices into other organizations). I also examine how various stakeholders – whether experts from

⁶ This feature of interwar internationalism is discussed in Glenda Sluga, *Internationalism in the Age of Nationalism* (Philadelphia, PA: University of Pennsylvania Press, 2013).

⁷ Scholars have argued that distinct countries and their experts had different ways of making use of the Cold War rivalry for their respective public health programs. See: e.g. Anne-Emanuelle Birn and Raül Necochea López, *Peripheral Nerve: Health and Medicine in Cold War Latin America* (Durham, NC: Duke University Press, 2020).

international organizations or officers within national or local administrations – used statistics to evaluate health conditions on the ground and communicate (and argue) with one another.

Ultimately, this book asks the question: To what extent did statistics influence global health policy-making?

Quantification, its Socio-Historical Context, and Politics

In this book, people and their statistical practices are kept center stage through the application of socio-historical research on the rise of statistical thinking.⁸ (I use the term “statistical practices” to refer to all statistical work, including the collection, dissemination, and use of statistics to formulate arguments.) I postulate that statistics are closely intertwined with the people who produce them: the following chapters therefore present and analyze the visions and actions of individuals – researchers and administrators for the most part – in producing quantified data, and how their work impacted public health programs. Experts employed by research institutes and health organizations at the international, national, and local levels made use of a large variety of statistics to support their arguments.

In investigating how quantification fits into its socio-historical context, I do not seek to repeat or add to existing accounts on the intellectual genealogy of renowned statisticians and epidemiologists such as Karl Pearson or Major Greenwood;⁹ nor do I intend to structure my narrative around the history of each type of statistics. Generally speaking, the statistics used for public health are divided into the following categories: demographic statistics, which aim to present the composition and changes in a given population in terms of age, sex, and marital status;¹⁰ vital and health statistics,

⁸ See, e.g.: Ian Hacking, *The Taming of Chance* (Cambridge: Cambridge University Press, 1990); Alain Desrosières, *La politique des grands nombres: histoire de la raison statistique* (Paris: Éd. La Découverte, 1993); Theodore M. Porter, *Trust in Numbers: In Pursuit of Objectivity in Science and Public Life* (Princeton, NJ: Princeton University Press, 1995).

⁹ See, e.g.: J. Rosser Matthews, *Quantification and the Quest for Medical Certainty* (Princeton, NJ: Princeton University Press, 1995); Eileen Magnello and Anne Hardy, ed., *The Road to Medical Statistics* (Amsterdam; New York: Rodopi, 2002); Anne Hardy and M. Eileen Magnello, “Statistical Methods in Epidemiology: Karl Pearson, Ronald Ross, Major Greenwood and Austin Bradford Hill, 1900–1945,” *Sozial- und Präventivmedizin* 47, no. 2 (2002): 80–9; Susser and Stein, *Eras in Epidemiology*.

¹⁰ See, e.g.: Simon Szreter, “The Idea of Demographic Transition and the Study of Fertility Change: A Critical Intellectual History,” *Population and Development Review* 19, no. 4 (1993): 659–701; Keith Breckenridge and Simon Szreter, *Registration and Recognition: Documenting the Person in World History* (Oxford: Oxford University Press/British Academy, 2012).

which record the health conditions of a given population, including morbidity, mortality, cases of disease, etc.;¹¹ and health economic statistics, which are based on the first two categories but which add in the cost of health services and disease prevention.¹² As all three categories were gradually combined within the collection and dissemination work coordinated by international organizations during the period under study, to examine them separately would be to lose sight of how statistical practices as a whole were integrated into the global health domain.

Instead, I do as many historians, philosophers, and sociologists of quantification have done and outline the relationship between quantification work and its socio-historical context. Researchers rooted in the disciplines of philosophy and history, such as Theodore Porter, Ian Hacking, and Alain Desrosières, have studied how socio-political contexts give rise to different ways of quantifying a phenomenon, and how numbers in turn shape knowledge about the phenomenon in question.¹³ Taking case studies from North Atlantic countries, these scholars bridge the gap between historiographies that focus on the statisticians themselves and those that focus purely on the political context. Sociologists, inspired by such work, have adopted a similar approach to study quantification and its social effects in the contemporary world, such as in global rankings of universities and policing statistics.¹⁴ Even closer to the themes discussed here, a book edited by anthropologist Vincanne Adams' edited volume presents a variety of case studies on the use of quantified data in public

¹¹ See, e.g.: Iris Borowy, "Counting Death and Disease: Classification of Death and Disease in the Interwar Years, 1919–1939," *Continuity and Change* 18, no. 3 (2003): 457–81; Iwao Moriyama et al., *History of the Statistical Classification of Diseases and Causes of Death* (Hyattsville, MD: National Center of Health Statistics, 2011).

¹² See, e.g.: Dan Bouk, *How Our Days Became Numbered: Risk and the Rise of the Statistical Individual* (Chicago, IL: University of Chicago Press, 2015); Michelle Murphy, *The Economization of Life* (Durham, NC: Duke University Press, 2017).

¹³ See, e.g.: Theodore M. Porter, *The Rise of Statistical Thinking: 1820–1900* (Princeton, NJ: Princeton University Press, 1986); Porter, *Trust in Numbers*; Hacking, *The Taming of Chance*; Desrosières, *La politique des grands nombres*; Alain Desrosières, *Gouverner par les nombres*.

¹⁴ Wendy Nelson Espeland and Mitchell L. Stevens, "Commensuration as a Social Process," *Annual Review of Sociology* 24, no. 1 (1998): 313–43; Wendy Nelson Espeland and Mitchell L. Stevens, "A Sociology of Quantification," *European Journal of Sociology* 49, no. 3 (2008): 401–36; Martha Lampland and Susan Leigh Star, *Standards and Their Stories: How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life* (Ithaca, NY: Cornell University Press, 2009); Michael Sauder and Wendy Nelson Espeland, "The Discipline of Rankings: Tight Coupling and Organizational Change," *American Sociological Review* 74, no. 1 (2009): 63–82; Emmanuel Didier, "Globalization of Quantitative Policing: Between Management and Statactivism," *Annual Review of Sociology* 44, no. 1 (2018): 515–34; Andrea Mennicken and Wendy Nelson Espeland, "What's New with Numbers? Sociological Approaches to the Study of Quantification," *Annual Review of Sociology* 45, no. 1 (2019): 223–45.

health governance and resource allocation.¹⁵ All of the above point to the salient role played by statistics in knowledge production and policy-making from the eighteenth century to today, as well as demonstrating the unintended consequences of quantification on the social world.

In addition to Adams, other emerging scholarly works also attempt to construct historical narratives on the use of health metrics at the international level. Research by Martin Gorsky and Christopher Sirrs compares metrics from statistical publications by international organizations in the interwar and postwar years, and draws a broad picture of the organizations' attempts to create records of their member countries' health systems: from mortality and morbidity to health expenditures and hospital numbers.¹⁶ David Reubi's article starts by examining a contemporary program, the Bloomberg Initiative to Reduce Tobacco Use in Developing Countries, and traces the history of metrics and surveys back to the interwar years.¹⁷ Both of these publications show that the pervasive reach of quantification in international organizations' health work has its origins in the interwar period. In this book, I will further argue that pervasive quantification began to radiate outside of the North Atlantic world well before the postwar years. Through multi-archival studies, I trace how the LNHO and WHO worked to include countries in regions with less administrative capacity, and how Chinese experts interacted with the organizations when it came to implementing and reporting statistics. In that sense, this book also complements the literature on how the use of customs statistics, social surveys, and national statistics came to be used in modern China.¹⁸

More specifically, the following quote from Desrosières encapsulates the approach employed here:

Quantification provides a specific language, with remarkable properties of transferability, the possibility for standardized manipulations by calculations, and of routinized interpretation systems. Thus, quantification provides social actors

¹⁵ Vincanne Adams, ed., *Metrics: What Counts in Global Health* (Durham, NC: Duke University Press, 2016).

¹⁶ Martin Gorsky and Christopher Sirrs, "World Health by Place: The Politics of International Health System Metrics, 1924–c. 2010," *Journal of Global History* 12, no. 3 (2017): 361–85.

¹⁷ David Reubi, "A Genealogy of Epidemiological Reason: Saving Lives, Social Surveys and Global Population," *BioSocieties* 13, no. 1 (2017): 1–22.

¹⁸ See, e.g.: Andrea Bréard, "Robert Hart and China's Statistical Revolution," *Modern Asian Studies* 40, no. 3 (2006): 605–29; Tong Lam, *A Passion for Facts: Social Surveys and the Construction of the Chinese Nation-State, 1900–1949* (Berkeley, CA: University of California Press, 2011); Arunabh Ghosh, "Accepting Difference, Seeking Common Ground: Sino-Indian Statistical Exchanges 1951–1959," *BjHS Themes* 1 (2016): 61–82; Arunabh Ghosh, *Making It Count: Statistics and Statecraft in the Early People's Republic of China* (Princeton, NJ: Princeton University Press, 2020).

and researchers with “objects that hold” [*des objets qui tiennent*] in the triple sense of their robustness (holding water in face of criticism), of their capacity to combine together, and finally, of the fact that they “hold people together” by encouraging them (or obliging them) to use this language with universalist aims, instead of others.¹⁹

Here, Desrosières provides a promising way of considering statistics within their socio-historical context. Instead of plunging into the classic debate as to whether statistics are a manipulated or faithful representation of a given phenomenon, studying statistics as a language that actors use to present their ideas and advance their agendas offers a fruitful third way to understand such practices without losing the nuances inherent to statistical collection and reporting. The language metaphor brings us back to the quotation that opened this book, and the implication by WHO statisticians that international organizations would one day use statistical data to communicate with public health research institutes and administrations at the national, regional, and international levels. In other words, statistics would act as a *lingua franca*. Numbers would eventually become a language into which public health conditions and fieldwork could be translated in order to provide that information to stakeholders in different localities or at different organizational levels.

In this sense, I hope to open a fresh chapter in the debate on the use of statistics for policy-making, which has been monopolized by political and social scientists for far too long. Inspired by Michel Foucault’s accounts of biopolitics and governmentality, some researchers have presumed that actors trusted and lauded the capacities of statistics, and regarded statistical practices as a governing technique that organizations, whether national or international, used to influence the behavior of populations.²⁰ In general, these authors believe that the organizations

¹⁹ Translated from: Alain Desrosières, *Pour une sociologie historique de la quantification* (Paris: Presses de l’Ecole des mines, 2008), 10. Original text: “*La quantification offre un langage spécifique, doté de propriétés remarquables de transférabilité, de possibilités de manipulations standardisées par le calcul, et de systèmes d’interprétations routinisées. Ainsi, elle met à la disposition des acteurs sociaux ou des chercheurs « des objets qui tiennent », au triple sens de leur robustesse propre (résistance à la critique), de leur capacité à se combiner entre eux, et enfin de ce qu’ils « tiennent les hommes entre eux » en les incitant (ou parfois en les contraignant) à user de ce langage à visée universaliste, plutôt que d’un autre.*”

²⁰ For an analysis at the national level, see, e.g.: Graham Burchell, Colin Gordon, and Peter Miller, eds., *The Foucault Effect: Studies in Governmentality* (Chicago, IL: University of Chicago Press, 1991); Andrew Barry, Thomas Osborne, and Nikolas Rose, eds., *Foucault and Political Reason: Liberalism, Neo-Liberalism and the Rationalities of Government* (Chicago, IL: Chicago University Press, 1996). On the application of Foucauldian analysis to international organizations, see e.g.: Arturo Escobar, *Encountering Development: The Making and Unmaking of the Third World* (Princeton, NJ: Princeton University Press, 1995); Tania Murray Li, *The Will to*

trained experts to evaluate the status quo and make political decisions in a certain way (using statistical analysis, for example) and that the experts and their governing techniques served as intermediaries that translated local situations into a given analysis, based upon which certain policies were applied. Drawing on multi-archival sources, this book will put such conjectures into historical context by revealing the mechanisms that led public health experts to turn to statistics in their work and the standardized techniques used in health organizations at different levels. I will also illustrate how statistical practices – and the extent to which they were trusted as a basis of reasoning – evolved depending on the global socio-political context.

My focus is on the making of an international health statistics system through the transfer of statistical practices from public health schools, intergovernmental health organizations, and philanthropic public health programs to their counterparts in China and Taiwan. What makes this research unique in quantification studies is the extensive span of time and space covered. The relatively long time period serves to show the continuities and changes in international health statistics and to follow actors' endeavors to create a consolidated international statistical system for public health. The sections focusing on the LNHO (Chapter 3) and its postwar successors, UNRRA and the WHO (Chapter 5), juxtapose the underlying differences within the international health statistical network managed in Geneva. Theodore Porter posits that statistics build trust in groups of experts in need of authority,²¹ and the history of the international health statistical network further shows that the collection of statistics also hinges upon the leading organization's authority.²² Trust in numbers and in organizations can thus be symbiotic.

The broad geographic span under analysis here also signals the heterogeneity of quantification practices. Public health experts in different localities, in both the interwar and postwar periods, played different roles in the life cycle of making and circulating health statistics. The LNHO,

Improve: Governmentality, Development, and the Practice of Politics (Durham, NC: Duke University Press Books, 2007); Jeremy Youde, *Biopolitical Surveillance and Public Health in International Politics* (New York: Palgrave Macmillan, 2010); Jonathan Joseph, *The Social in the Global: Social Theory, Governmentality and Global Politics* (Cambridge: Cambridge University Press, 2012); Nicholas J. Kiersey and Doug Stokes, eds., *Foucault and International Relations: New Critical Engagements* (London: Routledge, 2011).

²¹ Porter, *Trust in Numbers*. For a concrete example of experts resorting to mechanical objectivity, see Porter's fifth chapter, in which he discusses the case of accountants and actuaries.

²² Porter also briefly touches upon the organizational basis for trust in numbers. See: Porter, *Trust in Numbers*, 213–14.

as discussed in Chapter 3, formed separate circles of experts when creating a global health statistics exchange system: North Atlantic statisticians sat in expert meetings, whereas others merely participated in training sessions. In the postwar period, statisticians from regions outside of the North Atlantic world were invited to join WHO expert committees, and the organization's experts tailored standards to localities with different levels of administrative capacity (see Chapter 5).

Throughout this book, I also investigate the diachronic implementation of public health initiatives, including statistical practices. During the interwar and postwar years, experts and researchers used statistical data to formulate their arguments, yet gave themselves leeway to select the statistics that supported their ongoing policies. During the interwar health demonstrations in both the United States and China, experts implicitly or explicitly designed their programs in line with controlled laboratory principles, which led them to include statistical collection in the hope of demonstrating the programs' effectiveness (see Chapters 2 and 4). However, when numbers were lacking, interwar program designers mostly resorted to their authority as experts to promote the program in question and simply dismissed the statistics. Thus, during this period, statistics did not always serve as an effective language for communication between organizations. Statistics became more embedded in argumentation for policy decisions after World War II, as the WHO centralized its various types of statistical data and devised statistical practices that connected fieldwork administration, research, and policy-making. Public health experts both within and outside the WHO were pushed to select statistics more meticulously to support their arguments.

The Globalization of Health Administrations

This is, by its very nature, a history that transcends national borders: a study of how statistical practices and data were transferred between international health organizations and local agencies. Phenomena that span borders have been a heated subject in historical studies. The number of such studies has peaked in the last two decades with the publication of a number of introductory books on how to conduct research on different kinds of border-crossing phenomena.²³

²³ Pierre-Yves Saunier, "Circulations, connexions et espaces transnationaux," *Genèses* 57, no. 4 (2004): 110–26; Madeleine Herren, Martin Rüesch, and Christiane Sibille, *Transcultural History: Theories, Methods, Sources* (Berlin: Springer, 2012); Pierre-Yves Saunier, *Transnational History* (New York: Palgrave Macmillan, 2013); Akira Iriye, *Global and Transnational History: The Past, Present, and Future* (New York: Palgrave

Though all share a common interest in moving beyond the nation-state as the traditional unit of historical writing, these studies have given rise to different methodologies: “transcultural history,” “transnational history,” and “global history.” Advocates of *transcultural* history emphasize the intercultural encounter; *transnational* historians make a meticulous study of a wide array of connections; and scholars of global history emphasize the structural contexts that allow those connections to be made. All three methodologies study connections by placing emphasis on either the micro level (cultural encounters), the meso level (transboundary formations), or the macro level (global context). All three approaches center on the study of mobility, connection, exchange, and the circulation of people, ideas, practices, and institutions across politics and societies.²⁴ Nonetheless, it is worth noting that the three are not mutually exclusive – authors from one camp do not deny the importance of the others’ angles of emphasis.

Rather than subscribing to one of these methodologies in particular, my approach is to emphasize the interaction between institutions and experts at different levels, putting my work in dialogue with that of researchers who explicitly underscore the importance of “playing with levels” (*jeux d’échelles*), an approach through which historians investigate the interaction of events or phenomena that took place at the local, national, and global levels.²⁵ By focusing on people, ideas, practices, and data that circulated between local/national administrations and organizations (usually based in the United States or Western Europe) tackling public health affairs at the international level, this book tells the story of international health experts and their visions, paying equal attention to how those visions were put into practice on the ground by experts working in national or local organizations. This research details how statistical practices in public health became globalized by investigating the historical formation of quantification mechanisms within health organizations at different levels – mechanisms that public health experts played a decisive role in implementing. And by taking different levels into account, this

Macmillan, 2013); Akira Iriye and Pierre-Yves Saunier, *The Palgrave Dictionary of Transnational History: From the Mid-19th Century to the Present Day* (New York: Palgrave Macmillan, 2009); Sebastian Conrad, *What Is Global History?* (Princeton, NJ: Princeton University Press, 2016).

²⁴ Herren, Rüesch, and Sibille, *Transcultural History*, vi, 11; Saunier, *Transnational History*, 3, 8; Iriye and Saunier, *The Palgrave Dictionary of Transnational History*, xix; Iriye, *Global and Transnational History*, 11; Conrad, *What Is Global History?*, 5.

²⁵ Jacques Revel, ed., *Jeux d’échelles. La micro-analyse à l’expérience* (Paris: Seuil, 1996); Caroline Douki and Philippe Minard, “Histoire globale, histoires connectées: un changement d’échelle historiographique?,” *Revue d’histoire moderne et contemporaine* 54–4, no. 5 (2007): 7–21; Saunier, *Transnational History*, 122.

method provides a nuanced reading that shows the extent to which political interests were incorporated into the international health statistical system.

This book builds on a wealth of scholarly research on international health organizations, from the LNHO to the WHO.²⁶ In digging under the surface of global health governance, it joins abundant historical accounts of international health programs, most of which nonetheless focus on one specific public health program (such as malaria control, mass *Bacillus Calmette–Guérin* vaccination campaigns, or the development of public health work in a specific territory).²⁷ By focusing on statistical practices, I seek to explain how public health officials communicated outside of official policy communiqués and how their standardized programs were implemented both in the governing centers of the North Atlantic world and in national administrations and fieldwork. This book recounts the reality of international health governance on the ground, showing why and how experts designed a statistical reporting network, how their standard practices were transferred, and how their colleagues at the national and local levels – who believed in the power of public health programs but were hindered by small government budgets – used statistical data to maximize foreign funding of their work. Having been trained in public health schools established by international health organizations, these workers were familiar with the rationale used to award funding and the statistical language necessary for presenting a convincing project. The production of health statistical data was thus

²⁶ For general accounts on these two organizations and more, see, e.g.: Iris Borowy, *Coming to Terms with World Health: The League of Nations Health Organisation 1921–1946* (Bern: Peter Lang, 2009); Randall M. Packard, *A History of Global Health: Interventions into the Lives of Other Peoples* (Baltimore, MD: Johns Hopkins University Press, 2016); Anne-Emanuelle Birn, Yogan Pillay, and Timothy H. Holtz, *Textbook of Global Health* (Oxford: Oxford University Press, 2017); Marcos Cueto, Theodore M. Brown, and Elizabeth Fee, *The World Health Organization: A History* (Cambridge: Cambridge University Press, 2019).

²⁷ See, e.g.: Marcos Cueto, *Cold War, Deadly Fevers: Malaria Eradication in Mexico, 1955–1975* (Washington, DC: Woodrow Wilson Center Press, 2007); Randall M. Packard, *The Making of a Tropical Disease: A Short History of Malaria* (Baltimore, MD: Johns Hopkins University Press, 2007); Sanjoy Bhattacharya, “International Health and the Limits of its Global Influence: Bhutan and the Worldwide Smallpox Eradication Programme,” *Medical History* 57, no. 4 (2013): 461–86; Christian W. McMillen, *Discovering Tuberculosis – A Global History, 1900 to the Present* (New Haven, CT: Yale University Press, 2015); Harry Yi-Jui Wu, “World Citizenship and the Emergence of the Social Psychiatry Project of the World Health Organization, 1948–c.1965,” *History of Psychiatry* 26, no. 2 (2015): 166–81; Dóra Vargha, *Polio Across the Iron Curtain: Hungary’s Cold War with an Epidemic* (Cambridge: Cambridge University Press, 2018).

co-constructed by officers working in health organizations with different scopes.²⁸

China: An Ideal Site for Studying the Transfer and Implementation of International Health Statistics

China provides the perfect setting for answering this book's core question regarding the process by which national and local experts came to use statistical standards to communicate with international organizations. The country was the object of significant interest from international health organizations – including the LNHO, the Rockefeller Foundation, UNRRA, and the WHO – all of which designed and implemented programs in China and provided technical support starting between the 1910s and 1960 (in 1949, that support shifted to Taiwan). China thus provides a rich case for comparing the local implementation of those initiatives and studying the continuities among them over different periods.

This research thus joins existing historiographies that study the relationship between colonial medicine and international health.²⁹ Though never a colony, China was a battlefield in which imperial powers competed for political and economic domination from the mid-nineteenth century. Until 1943, there were a total of fifty-four treaty ports in the country.³⁰ And because foreign powers controlled parts of China's territory, Chinese soil was itself intergovernmental, offering spaces and opportunities for intergovernmental organizations

²⁸ On the idea of co-construction, see, e.g.: Kapil Raj, "Colonial Encounters and the Forging of Knowledge and National Identities: Great Britain and India, 1760–1850," in *Social History of Science in Colonial India*, eds. S. Irfan Habib and Dhruv Raina (Oxford: Oxford University Press, 2007), 83–101.

²⁹ See, e.g.: David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (Berkeley, CA: University of California Press, 1993); Warwick Anderson, *Colonial Pathologies: American Tropical Medicine, Race, and Hygiene in the Philippines* (Durham, NC: Duke University Press, 2006); Packard, *A History of Global Health*; Jessica Lynne Pearson, *The Colonial Politics of Global Health: France and the United Nations in Postwar Africa* (Cambridge, MA: Harvard University Press, 2018).

³⁰ The first treaty ports were established in China in 1842 following the country's defeat by the United Kingdom in the First Opium War. To guarantee its commercial interests in China, the British government included an article in an unequal treaty with the Qing government (1644–1911) requiring it to provide the British government with extraterritorial rights over five Chinese ports. Other imperial powers later signed similar treaties with the Qing government, increasing the number of treaty ports in China (Robert Nield, *China's Foreign Places: The Foreign Presence in China in the Treaty Port Era, 1840–1943* [Hong Kong: Hong Kong University Press, 2015]).

to intervene.³¹ International health organizations were no exception: they had been providing health programs and considerable funding to the country since the early years of the Republic of China (ROC). Moreover, at the time, China was often depicted as a great civilization in decline, and providing aid to the country was in line with the guiding philosophy of philanthropic foundations. In the 1910s, the Rockefeller Foundation launched its most expensive medical and public health projects in China, establishing the elite Peking Union Medical College (PUMC).³² In the late 1920s, China also became one of three countries to receive LNHO support in devising their national health systems.³³ The collaboration between the ROC and the LNHO came at a time when the Nationalist government regained control of most of the mainland following the Northern Expedition.³⁴ Recovering sovereignty was a diplomatic priority for the Nationalists, who were increasingly involved in international negotiations with the primary aim of reclaiming authority over customs controls.³⁵ Collaboration with the LNHO on quarantine reform was a win-win proposition for the LNHO and China. The LNHO could include Chinese ports in

³¹ Foreign powers also established an intergovernmental organization in Tianjin during their occupation of the city in the aftermath of the Boxer Rebellion (Pierre Singaravélou, *Tianjin Cosmopolis. Une histoire de la mondialisation en 1900* [Paris: Le Seuil, 2017]).

³² On Rockefeller-funded medical philanthropy in China, see, e.g.: Mary Brown Bullock, *An American Transplant: The Rockefeller Foundation and Peking Union Medical College* (Berkeley, CA: University of California Press, 1980); Mary Brown Bullock and Bridie Andrews, eds., *Medical Transitions in Twentieth-Century China* (Bloomington, IN: Indiana University Press, 2014).

³³ The other two countries were Greece and Bolivia. For more information on the League of Nations' collaboration with the ROC during the interwar years, see, e.g.: Chang Li, *Guoji hezuo zai Zhongguo: Guoji Lianmeng jiaose de kaocha [International Collaboration in China: A Study of the Role of the League of Nations (1919–1946)]* (Taipei: Academia Sinica, 1999); Margherita Zanasi, "Exporting Development: The League of Nations and Republican China," *Comparative Studies in Society and History* 49, no. 1 (2007): 143–69.

³⁴ In 1926, the Nationalist government in Guangdong launched the Northern Expedition, a military campaign aimed at reunifying China, which was divided by warlords, including the Beiyang government, which occupied the ROC's then capital, Beijing. The Northern Expedition concluded in 1928, with the Nationalist government regaining most of the mainland, ending the Warlord Era.

³⁵ These efforts were considered successful, as several treaties were revised between 1928 and 1931, before the outbreak of the Manchurian Crisis (William C. Kirby, "The Internationalization of China: Foreign Relations at Home and Abroad in the Republican Era," *The China Quarterly*, no. 150 [1997]: 443). On the late Qing and the ROC's efforts to be included in the international system before 1949, see e.g.: Chang Li, *Guoji hezuo zai Zhongguo*; Guoqi Xu, *China and the Great War: China's Pursuit of a New National Identity and Internationalization* (Cambridge: Cambridge University Press, 2005).

its statistical information network, and China could use the LNHO's impartial standing and expertise to recover quarantine authority.

Foreign health organizations did not shift their attention away from China with the outbreak of the Second Sino-Japanese War (1937–1945). Rather, the country's plight attracted the sympathy of the LNHO and other foreign associations, which provided funding for various wartime relief activities.³⁶ As the center of a World War II arena, and later as a permanent member of the United Nations Security Council, China received a large share of aid from international health organizations such as UNRRA and the WHO.³⁷

In 1949, the Chinese Communist Party took control of the mainland, establishing the People's Republic of China (PRC), and the ROC government was exiled to Taiwan. The two Chinese regimes' contrasting relationships with the international health organizations offers an intriguing parallel in terms of international health statistics against the backdrop of the Cold War. As most socialist countries were absent from the WHO in the 1940s and for a large part of the 1950s, the Cold War divided WHO-led international epidemiological intelligence into separate circuits. During their absence from the WHO, socialist countries exchanged epidemiological information among themselves. The PRC was one of the countries most hostile to the UN system, cutting off relations with the WHO until 1971. During this period, the PRC government devised its own international medical and health exchanges with individual countries, both socialist and non-socialist (see Chapter 7). The ROC, on the other hand, was part of the WHO network. It hosted many WHO campaigns, as the Western bloc considered it to be a critical frontier of the "free world," and the WHO strove to reinforce its public health campaigns there. As I will demonstrate in Chapters 5–7, both the PRC and ROC continued to collect and report statistics for their own public health governance, despite the Cold War divide. The constant political upheaval in China during the period under study provides a rich field for analysis of the continuities and ruptures in the implementation

³⁶ Brazelton's book focusing on Yunnan proffers interesting accounts of wartime vaccination campaigns and relief programs by the ROC and the LNHO, as well as other relief organizations, and how they laid the basis for the postwar development of Chinese public health (Mary Augusta Brazelton, *Mass Vaccination: Citizens' Bodies and State Power in Modern China* [Ithaca, NY: Cornell University Press, 2019]). On medical relief programs by other foreign organizations in wartime China, see also: John R. Watt, *Saving Lives in Wartime China: How Medical Reformers Built Modern Healthcare Systems Amid War and Epidemics, 1928–1945* (Leiden: Brill, 2014).

³⁷ On the ROC's prominent role in the immediate postwar years, see: Rana Mitter, "Imperialism, Transnationalism, and the Reconstruction of Post-War China: UNRRA in China, 1944–7," *Past & Present* 218, no. suppl. 8 (2013): 51–69.

of statistical practices by international health organizations, in two distinctly different socio-political contexts.

This book surveys the statistical practices of Chinese and Taiwanese health officials from the interwar to the postwar years, and joins emerging historiographies of medicine and health in which China is studied as a knot of globalization of biomedicine; these historiographies offer accounts of how the Chinese government interacted with the outside world in terms of medical and public health service.³⁸ More specifically, this book enters into dialogue with research into the appropriation of a Western-style public health system by China in the nineteenth and twentieth centuries. Specifically, a number of historians have investigated public health actions implemented by foreign organizations in China from the perspective of cultural history.³⁹ Their work mainly focuses on the ROC before 1937 and examines the introduction of public health measures into Chinese daily life.⁴⁰ This book covers a larger

³⁸ See, e.g.: David Luesink, William H. Schneider, and Zhang Daqing, eds., *China and the Globalization of Biomedicine* (Rochester, NY: University of Rochester Press, 2019); Wayne Soon, *Global Medicine in China: A Diasporic History* (Stanford, CA: Stanford University Press, 2020). Other researchers, who have not put transnational networks at the center of their research, still offer pertinent accounts of China's interaction with the world in terms of medicine and public health. See, e.g.: Brazelton, *Mass Vaccination*; Xun Zhou, *The People's Health: Health Intervention and Delivery in Mao's China 1949–1983* (Montreal: McGill-Queen's University Press, 2020).

³⁹ Ruth Rogaski, *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China* (Berkeley, CA: University of California Press, 2004); Yang Nianqun, *Zaizao "bingren": Zhongxiyi chongtu xia de kongjian zhengzhi (1832–1985) [Remaking "Patients": Space Politics under the Conflict between Chinese and Western Medicine (1832–1985)]* (Beijing: China Renmin University Press, 2006); Sean Hsiang-Lin Lei, *Neither Donkey nor Horse: Medicine in the Struggle over China's Modernity* (Chicago, IL: University of Chicago Press, 2014).

⁴⁰ In a series of articles, for example, Yang Nianqun demonstrates how the new public health system altered the landscape of social life in cities; Hsiang-Lin Lei's two works respectively investigate the Chinese equivalent for the term "public health" – which translated literally means "guarding life" – and the implementation of tuberculosis control measures in China. See: Yang Nianqun, "'Lan Ansheng moshi' yu Minguo chunian Beijing shengsi kongzhi kongjian de zhuanhuan ['The John B. Grant Model' and the Transfer of Spaces of Birth and Death Control in the Early Years of the Republic of China]," *Shehuixue yanjiu [Sociological Studies]*, no. 4 (1999): 98–133; Yang Nianqun, "Beijing 'weisheng shifanqu' de jianli yu chengshi kongjian gongneng de zhuanhuan [The Establishment of Beijing Health Demonstration and the Transformation of Urban Space Functions]," *Beijing dang'an shiliao [Beijing Archives Series]*, no.1 (2000): 205–31; Hsiang-Lin Lei, "Weisheng weihe bushi baowei shengming? Minguo shiqi linglei de weisheng, ziwo, yu jibing [Why Weisheng Is Not About Guarding Life? Alternative Conceptions of Hygiene, Self, and Illness in the Republican China]," *Taiwan shehui yanjiu jikan [Taiwan: A Radical Quarterly in Social Studies]*, no. 54 (2004): 17–59; Sean Hsiang-Lin Lei, "Habituating Individuality: The Framing of Tuberculosis and its Material Solutions in Republican China," *Bulletin of the History of Medicine* 84, no. 2 (2010): 248–79.

time period (up to the Cold War), thus complementing a corpus of historiographies that offers accounts of the establishment and transformations of the ROC Ministry of Health (which later became the National Health Administration), from the interwar to the postwar years.⁴¹ Specifically, I chart the continuities and ruptures during a long period of constant political change and provide accounts of the on-the-ground implementation of the national health systems in China and Taiwan. The last chapter, in which I focus on the PRC's vital and health statistics, also complements research on PRC-era public health campaigns.⁴²

A detailed analysis of the process of statistical communication at the local, national, and international levels reveals that Chinese public health officers had a tendency to curate the statistics used in their arguments to their sponsor organizations. Once on the ground, experts had to reconcile their vision with the suspicion and mistrust of local inhabitants regarding government collection of their personal data. Given the limited local administrative capacity, statistical practices for health tended to be reduced to routinized work, and public health experts recorded statistics that they did not actually believe in or make use of when taking decisions in the field.⁴³ On other occasions, despite differences in their statistical practices, these experts used statistical data to present their programs as conforming to the standards set out by international organizations, or as a potential showcase for universal implementation of the organizations' ongoing policies, in the hope of receiving financial and technical support.

Playing with Levels: Research Methods

To establish an accurate picture of the globalization of statistical practices, I have drawn on archival sources as well as publications in both English and Mandarin Chinese. By comparing the worldviews of public health experts in different languages and different health organizations, I am able to show how some experts adapted their discourse when writing in a different language. A *jeux d'échelles* analysis also offers a reading of how stakeholders at different levels, each with their own policy priorities,

⁴¹ Book-length research works include: Lei, *Neither Donkey nor Horse*; Liping Bu and Ka-Che Yip, eds., *Public Health and National Reconstruction in Post-War Asia: International Influences, Local Transformations* (London: Routledge, 2015); Liping Bu, *Public Health and the Modernization of China, 1865–2015* (London: Routledge, 2017).

⁴² Book-length research works include: Xiaoping Fang, *Barefoot Doctors and Western Medicine in China* (Rochester, NY: University of Rochester Press, 2012); Miriam Gross, *Farewell to the God of Plague: Chairman Mao's Campaign to Deworm China* (Berkeley, CA: University of California Press, 2016); Zhou, *The People's Health*.

⁴³ Similar testimonials can be found in Chapters 2, 4, and 5.

Table 0.1 *List of institutional archival holdings*

	International organizations	National and local organizations
Public	<ul style="list-style-type: none"> • LNHO • UNRRA • WHO • United States federal aid agencies 	<ul style="list-style-type: none"> • PRC Ministry of Foreign Affairs • ROC Ministry of Health • ROC Ministry of Foreign Affairs • City of Beijing • City of Shanghai
Private	<ul style="list-style-type: none"> • Rockefeller Foundation • Milbank Memorial Fund • JHSPH • American Bureau for Medical Aid to China • PUMC 	

interacted and negotiated with regard to vital and health statistical practices. To carry out this analysis, I drew on the institutional archives of fourteen organizations at different levels and localities (see Table 0.1).

To carry out a *jeux d'echelles* analysis, the different levels are first categorized (see Table 0.1) in order to clarify how statistical practices and data were transferred between levels. I classify as “international” any organization with international ambitions that implemented programs in countries outside of that in which it was headquartered. I also divide organizations at the international level into public and private. The public organizations at the international level are the LNHO, UNRRA, and the WHO. These organizations devised standardized programs that spanned national borders, with national governments contributing as member states. All American federal aid agencies are categorized at the international level, as the United States government conceived programs to be implemented in territories outside its borders, thus acting in a similar spirit to the international organizations. Private organizations whose programs shared the same traits include American philanthropic foundations based in New York (the Rockefeller Foundation and the Milbank Memorial Fund), schools that received funding from the Rockefeller Foundation to train public health experts from different countries (the JHSPH and the PUMC), and a New York-based private organization that supported medical work in China (the American Bureau for Medical Aid to China). Unlike the public international organizations, these private entities did/do not represent national governments, despite the fact that they often collaborated closely with public administrations.

In the national/local context, my research draws on the institutional archives of Chinese public organizations at distinct administrative levels, which leaves one category empty: local, private organizations. This is for two interrelated reasons. During the period under study, Chinese civil society was rather fragile. To ensure their statistical practices were properly implemented, some international organizations established their own dependent organizations in China (such as the PUMC); all partnered with the national government. Local and private organizations were thus relegated to the margins. The only exception was the Chinese Mass Education Movement (see Chapter 4), which also received funds from international organizations. Nevertheless, the Movement was relatively unstable in terms of organization and depended largely on support from the public authorities. This brings us to another reason for its absence in the table above: it did not conserve independent archival holdings that illustrate its institutional vision about statistical practices or were of any relevance to this research.

Organizations at different levels were intertwined in several ways. Organizations and individuals collaborated by providing funding, technical consulting, and staff, or simply kept in contact about their work on the ground. The relationship between health organizations at different levels was complex and changed over time. Indeed, as I will demonstrate, the transfer of statistical practices was not implemented in an orderly fashion: from public international organizations to the national administration, and then on to the local authorities. Instead, some private actors (e.g. the Milbank Memorial Fund) were able to connect directly with partners in China, skipping (or receiving minimal assistance from) intergovernmental and national agencies. Inversely, some international organizations, both public and private (e.g. the LNHO and the Rockefeller Foundation), had to coordinate with the ROC's national or local administrations before they could implement their initiatives in interwar China. By mobilizing archival sources from health organizations at different levels, I seek to demonstrate the complexity of the configuration of the different levels and show how every connection played a crucial role in quantifying health – in international health organizations, China, and postwar Taiwan.

Book Structure

By examining the work of organizations in four different localities (the United States, Western Europe, mainland China, and Taiwan), I faced the challenging prospect of writing a history in which the main players were active at the same time but in different places. Moreover, the four

territories in which this historical account takes place were interlinked in complex ways.

I do not wish to give the impression of an orderly lineage between the statistical practices of international health organizations and their implementation on the ground. When examining the full range of statistical practices, the divergences are impossible to ignore and indeed are vital for understanding the implementation process. True to the complex relationship between the various organizations, each chapter – excepting Chapter 1 (which sets the stage) and Chapter 7 (on the early PRC) – recounts a different circuit through which key statistical knowledge and practices were transferred between international organizations and their Chinese partners. With an emphasis on cross-continental transfers, I pay equal attention to international health organizations and national and local health administrations. In each chapter, I first present how statistical initiatives were devised and implemented in the West, then how they intermingled and metamorphosed in China or Taiwan once confronted with the local context and the visions of health officials there. I then explore how experts made their arguments using the data they collected. It should be noted that although each chapter presents a self-contained circuit, all the circuits were connected in one way or another. By narrating each circuit and the connections between them, this book paints a picture of how statistical knowledge and practices circulated between places with very different administrative cultures.

Chapter 1 presents the historical context and the key players who called for the collection of statistics for public health programs in the interwar period. I then examine those programs in detail in Chapters 2, 3, and 4. Striving to promote the health of “others” – poor rural communities, or a foreign country – using scientific methods, the Rockefeller Foundation and the Milbank Memorial Fund provided support to these statistical initiatives, with the help of bacteriologists trained in laboratory methods who aimed to extend those principles to the social world as well, as other experts with knowledge of Chinese culture and/or public health in China. It was these experts who made the public health programs, and the associated statistical practices, possible.

Chapter 2 details how Karl Pearson’s mathematical statistics methods were integrated into public health education by focusing on the Rockefeller-funded statistics department at the JHSPH and its Chinese counterpart in Beijing. In this chapter, I illustrate how conceptions of the role of statistics in science differed at the two schools. Chapter 2 also contains an account of the JHSPH’s transition from a biological focus, in Pearson’s tradition, to a focus on public health and epidemiology. The

JHSPH's approach was transferred – up to a point – to the PUMC. The major intermediaries were a JHSPH alumnus and Rockefeller Foundation officer, John B. Grant, and his student Yuan Yijin (Yüan I-Chin, commonly known as I. C. Yuan). Grant promoted the idea that statistics should not be used for research (as they were at the JHSPH), but rather for adapting health programs to the Chinese context. Lastly, I provide case studies showing how graduates of the two schools used mathematical statistics in their fieldwork, in the course of which they encountered resistance from other field experts and locals. Nonetheless, statistical reporting took on an increasingly prominent role in public health work in New York, Geneva, and Beijing.

Chapter 3 focuses on the LNHO's Epidemiological Intelligence and Public Health Statistics Service and its relationship with the Chinese government. Using Rockefeller funding, the LNHO positioned itself as a center of statistics and strove to lead international health collaboration. The LNHO's statistical authority, however, was a patchwork, as the organization had to negotiate with existing stakeholders individually. I also explain how the Service devised separate circles for generating and diffusing statistical standards and data. A focus on the Chinese government's strategies of cooperation with the Service is illuminating as to the geopolitical context, which played a salient role in the epidemiological reporting network, given that the ROC was also collaborating with the LNHO with a view to recovering its customs controls from the imperial powers.

Chapter 4 recounts the rising prominence of public health demonstrations as a policy-making method. In such demonstrations, a zone was demarcated in which public health services were provided and financial needs calculated as a policy experiment. The Milbank Memorial Fund popularized the concept as a *modus operandi* through its demonstrations in New York State. Edgar Sydenstricker – formerly one of the founding statisticians at the LNHO – was hired by the Milbank Memorial Fund and worked with a cohort of the graduates of the PUMC to reproduce Milbank's demonstration in Ding Xian (Ting Hsien), a rural county some 200 kilometers southwest of Beijing. In both New York and Ding Xian, statistics were central to setting up the experiment but less so in terms of policy follow-up. The Ding Xian demonstration converged with European health programs in rural areas conducted through the LNHO and served as the prototype for China's Central Field Health Station, a national research institute where public health situations, whether social or bacteriological, were quantified. Yet again, however, this quantification did not feed directly into policy-making, as the experts in charge retained the authority to make sense of the numbers.

Chapters 5, 6, and 7 bring the storyline up to the end of World War II and its aftermath. Together, they paint a picture of the reconstruction and expansion of the international statistical system during the postwar years. An account of China and Taiwan's implementation of statistical programs during this period illustrates vividly how the Cold War political divide influenced how statistics were used at the national and local levels. Chapter 5 provides an account of efforts by UNRRA and the WHO to rebuild a health statistics reporting system from 1943, when UNRRA took over the LNHO's international epidemiological intelligence efforts, and continues into the postwar years. The WHO also developed an all-encompassing statistical system to gather statistics collected through research, administration, and policy-making via a network that took better account of local variation when making standards; the WHO's network for spreading its ideas was also broader than that of the LNHO. A case study on the ROC – which ruled the mainland in 1943 but was exiled to Taiwan as of 1949 – shows that UNRRA and the WHO's statistical reporting was often undermined by geopolitics and administrative constraints.

In Chapter 6, I investigate the WHO's malaria and tuberculosis control programs in the 1950s and 1960s, which made use of statistical collection and analysis. Numbers had become omnipresent in program design and implementation by this time, and experts both at the WHO and in the Taiwanese government used their knowledge to justify their selection of statistics. I also chronicle how WHO experts and Taiwanese health officers used numbers in advocating for their programs. In particular, experts curated their numbers to bolster their arguments in the context of ongoing policy disputes at the WHO. The WHO experts mobilized their knowledge on the diseases in question to justify their selection of certain statistics over others, and their Taiwanese colleagues also used numbers to present Taiwan as a viable testing ground for WHO's policies, with a view to obtaining financial and technical support.

Lastly, in Chapter 7, I explore the ways statistics were used to govern public health in the PRC in the 1960s, showcasing another way the language of statistics was spoken during the postwar years. The PRC was cut off from the WHO's network during this time, instead becoming part of an international health network made up of socialist countries. I detail the ebb and flow of socialist statistics within the PRC and the continuity running through public health researchers' methods, despite the central government's enforced implementation of socialist statistics in the 1950s, as well as a series of anti-intellectual campaigns aimed at challenging experts' authority. Chapter 7 presents a case in which statistical

thinking continued to develop, at a time when this authority was being called into question.

By examining different areas of statistical application involving different organizations and actors, this book presents the complex cross-continental circulation of statistical practices and data between the United States, Europe, China, and Taiwan, revealing the strategies employed by public health institutions and experts when making and interacting with statistical reporting systems.