CHAPTER
1

Introduction

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Research excellence under scrutiny

Perceptions of what constitutes 'good science' shape the progress of knowledge creation and knowledge-based innovation. Globally, 'good science' affects decisions about what is funded, and what is not. It dictates who is rewarded and encouraged to pursue research. It promotes certain disciplinary traditions, but likewise discounts and discourages others. However, in the ever-competitive world of science and research, 'good' may not be good enough anymore. 'Excellent' science and associated prestige is increasingly seen as more valuable – something one should strive for. Not surprisingly, 'excellence' has become a buzzword, more popular than the underlying core notion of 'quality'. Those who are seen to be producing 'scientific excellence' are elevated to the highest paid jobs in the most prestigious institutions, granted greater degrees of academic leeway and expression, lauded as 'thought leaders' by peers, and turned to for policy and practice insights in the non-scientific realm. What gets called excellent, steers and influences the behaviour of individual researchers and teams, research organisations and research funders, and affects society at large. This would all be helpful and good if we had a widely endorsed view, and

clearly measurable definition of, excellence. We do not. And it is highly unlikely we will be able to find a single suitable arrangement.

Nonetheless, there has been much high-level thrust for the adoption, application, implementation and celebration of 'research excellence' – at individual, institutional, and increasingly, national scales. In fact, excellence nowadays permeates all types of research and scientific work: from the curiosity-driven pure and discovery sciences, such as mathematics or logic to highly applied or translational work, such as epidemiology or anthropology. And the notion of excellence is permeating into research-related activities such as science communication, science-based education, knowledge translation and research management. What really makes for excellent science? How important is it we reach a consistent conceptualisation of excellence? Is excellence a means to 'protect' research against undue 'outside' interference, or a means of subjugating it to the requirements of managers, funders, publishers and other forces? And should striving for excellence be driven by the logics of competitive markets or by societal value considerations? These are important normative questions, and addressing them will require multiple voices, multiple perspectives and dynamic revisitation. This book attempts to add to this discussion.

There is a wealth of perspectives on excellence, and its implementation in science funding systems, that can be harnessed – from academics, non-academy-based scientists and non-scientists alike – to address those questions and feed this discussion. Take for example the adoption of the Research Excellence Framework (REF) in the United Kingdom, a high-income country with an advanced science system. This top-down REF approach provides performance-based funding to universities and promotes high-quality research through a quite explicit competitive scheme. It has gained considerable support from stakeholders in terms of increasing accountability and transparency, as well as promoting more rigorous standards. However, it has also sparked fierce criticism, especially from the UK's scientific community, for imposing an output-driven 'neoliberal agenda' and promoting over-competition within scientific disciplines that ultimately has an adverse effect on how contemporary science is produced, which is increasingly collaborative, interdisciplinary and impact-oriented.

Scholars from the humanities and social sciences have often been most vocal. These critiques touch on fundamental problems that extend far beyond the REF and the UK science system. Those from lower-income countries on the 'periphery' of world science also raise issues about their misrepresentation in scholarly journals and research disciplines, and the skewness of science in terms of its language and geographical distribution (see Vessuri et al. 2014; Chavarro et al. 2017).

Scientific research in lower-income countries, or in languages other than English, is poorly captured in most international databases and poorly covered by the main publishers who have come to dominate as gatekeepers and diffusers of research. These are some of the many biases that have become increasingly apparent. Cumulative advantage is another way that research from such countries or regions may be inadvertently considered less excellent, given how research resources are distributed globally, including both direct funding and access to infrastructure (equipment, library subscriptions, etc.). Scholars and scientists in lower-income countries also tend to face additional obstacles in their career development (lack of mobility, increased teaching loads) that restrict their ability to publish prolifically and to promote their publications.

The increased ubiquity of the term 'research excellence', its use in the context of rankings (at various levels), and the tendency towards quantitative scoring is not a coincidence. Nor is an increasingly explicit 'standardisation' of quality (e.g. through bibliometric statistics) at a global level, affecting most if not all disciplines and methodologies associated with scientific research. The standardised, global excellence paradigm makes it harder to play catch-up for given science systems, research-intensive universities, etc. that are relatively new, even if they are producing high-quality research. This move towards standardisation is problematic for assessing research produced in the Global South, in particular, as this is not where the standards originated. There is also evidence of a systematic bias towards researchers from the Global South in peer-review processes (see e.g. Yousefi-Nooraie et al. 2006). Clearly there is a need to deepen and enrich our understanding of excellence by presenting fresh views from academics and practitioners from the Global South, especially from those who have

emerged relatively recently to take part in worldwide research structures, networks and disciplinary communities.

Being a common thread throughout this book, our use of the term 'Global South' requires some up-front clarification and explanation. Originating from the 1960s (Oglesby 1969), the term 'Global South' loosely refers to less developed or emerging countries. It is not meant to introduce a clear-cut dichotomy between the Southern and Northern hemisphere, nor between high-income countries and others in less developed stages of economic development. Our conceptualisation mixes both geographical dimensions and socio-economic characteristics. We use the term because it is a conveniently recognisable tag and a purposeful grouping of perspectives. When it comes to research excellence, the term represents a grouping that has been traditionally marginalised by more powerful voices.

In the remainder of this introductory chapter we set the stage by exploring some of the definitional issues around research excellence, and highlighting some debates and issues that have arisen in recent years, around the globe, related to the use of excellence as a normative term, the criteria used to judge it, and the far-reaching implications it may have. In essence, this book is an attempt to bring together critical voices from the often-overlooked science systems, particularly those of the Global South. We believe the reflections that follow will help to elucidate new debates and ideas on global and national scales, and that sharing and learning from these experiences and perspectives can bring about good change within the Global South, and around the world.

The elusive search for excellence

Using the term research excellence should, ideally, imply that it can be defined, recognised and assessed. Sometimes its meaning is obvious: for example, in describing important new discoveries or, on the other end of the spectrum, as a heuristic for sweeping narratives or impressive showcasing. However, more often, it escapes easy conceptualisation and identification. In everyday usage, the term excellence simply means being 'very good' (or at least 'better' than most others). Researchers who stand out above all others are seen as excellent. Focusing on excellence,

as a normative concept, implicitly contains the assumption that it is possible to select the best proposals and best researchers by ranking. Excellence then implies determination by comparison, and therefore, competition (for research funding, for publications in top journals, etc.). Not surprisingly, excellence is often understood to be about elite science. Those 'best' researchers are not only masters of specialist fields, but are also creative and original. They are well positioned to determine what needs to be done in science and should be offered funding for their research proposals. Adopting such a narrow definition of the term also implies that it is possible to distinguish between a proposal for excellent research and one for non-excellent research.

Comparative judgements are of course unavoidable in circumstances where scarce resources are distributed and decisions require legitimation. Performance assessment is and will remain important, but we should strive to implement the best possible approaches. However, excellence is not a value-free term – far from it. It is highly contested and has acquired a set of specific meanings determined by dynamic interplays between science policy, funding instruments, research culture, performance assessment methodologies, internationalisation of science, and public accountability regimes. Building on the ideas of Gallie (1956), Ferretti et al. (2018) explore the idea of excellence as an 'essentially contested concept', highlighting the genuine difficulties that practitioners experience in coming up with a working definition for research excellence. In the extreme case, excellence could be construed as the degree to which a researcher measures up to his/her own values. Like the somewhat less problematic notion of 'quality', excellence is of course pluralistic and very much context sensitive. The evaluative criteria that make up quality in one field of scholarly work, (consider a pure math challenge that has stumped leading minds for decades) may not be the best criteria to judge research in another field (say clinical trials during a deadly disease outbreak). It is also time-dependent: what is considered 'excellent' today may well change dramatically in a few years' time. Accepting its inevitable fluid and multidimensional nature, there is still a need for systematic approaches to define and appreciate research excellence in order to manage science more effectively.

Some features of excellent science can be grasped and conveyed convincingly, and in many cases seem intuitive. Following the old truism 'what can be measured is treasured; what can't be scored is ignored', the quantitative approach tends to have more appeal and clout, especially among decision-makers craving clear and simple answers. In order to compare, performance must be observable and as measurable as possible. This urge for easily accessible information created a powerful drive for registering observable research outputs. Among the variety of approaches that have been used to identify and communicate research excellence during the last 30 years, the 'bibliometric' method has been particularly successful on a worldwide basis. Broadly speaking, bibliometrics comprises a number of quantitative analytic techniques that rest on the aggregation of quantitative 'indicators' captured from peer-review publication in journals indexed in international, largely privately owned, databases. A metrics-based approach requires yardsticks. Measuring the numbers of research publications in scholarly outlets, and/or the numbers of references ('citations') between publications, output levels were gradually adopted as a computational method to identify those top performers located at the high end of such performance distributions.

It was in the early 2000s that the citation impact approach was first explicitly connected to the notion of excellence, by assuming that excellence is more likely to be found in the top percentiles of citation impact distributions (Tijssen et al. 2002). Advances in bibliometric analysis methodologies, the increasing productivity of scientists (as measured by numbers of publications) and better ways of tracking these publications (e.g. through databases), since the first citation indices, have underpinned this particular attribution of excellence (or lack thereof). Nowadays, many bibliometric evaluation software tools, and also world university rankings, include a bibliometric indicator that refers to an entity's contribution to the 'top 10% most highly cited publications' as (an implicit) mark of outstanding performance. Supported by such (verifiable) empirical data, the empirical fact of being among the most highly cited worldwide can create an almost monolithic aura of exclusivity.

Many empirical studies have shown positive correlations between prolific output levels or high-impact performance and the outcome of *ex post* qualitative peer-review evaluations of scientific performance. However, questions about the validity and true meaning of bibliometric results, even when well executed, are coming to light too. These correlations often seem obvious, but it may prove difficult in some cases to disentangle cause (doing good research) and its effect (receiving citations as a mark of visibility, relevance or influence on others). For instance, the recognition from winning a Nobel prize 'causes' a significant number of citations. This is often referred to as a Halo effect or Matthew Effect, which refers to cumulative advantage processes that tend to favour those who are already prolific or highly visible in the international landscape of science. Citations alone can no longer be used as a predictor – other subjective factors prevail increasingly in the now exponentially large pool of 'top' researchers in a given discipline (Gingras and Wallace 2010).

Bibliometric approaches are valued for their (seemingly) precise results. And the straightforward quantitative ranking and comparison they facilitate is without doubt valuable for decision-making. But has simplicity seduced the system? Developed in the Global North, and based on a narrow concept of knowledge creation and sharing while extracting its empirical data from international sources that favour science in the advanced, higher-income countries, the 'top 10%' approach falls short in many ways. The citation impact approach provides at best interesting (but crude) comparative measures of excellence in 'discovery-oriented' science; that is, researchers working in worldwide communities on issues of widespread interest. It is certainly not very helpful for capturing scientific performance that addresses local issues or problems – be it applied, translational or discovery-oriented science.

The quest for excellence, rather than 'soundness' or 'quality', combined with the availability of quantitative indicators, often produces situations of 'hyper-competitivity' among researchers vying for finite resources and recognition. Such strong incentives to publish have been linked to the rise of predatory journals (which disproportionately affect

researchers from the South), as well as increased cases of 'salami slicing' (publishing many separate articles instead of one of greater importance), 'ghost' authorship, and, in many cases, data manipulation and fraud. These trends, combined with evidence of lack of reproducibility of research in many fields and the exponential increase in publications, point to many incentives leading to greater *research waste* as well as the production of research which is less *relevant* to tackling urgent societal problems. Many have therefore urged the need to re-question and exercise restraint in the application of bibliometrics. Perhaps the foremost is the call to action for more responsible practice presented in the *Leiden Manifesto* (see Hicks et al. 2015, for the complete set of principles for action). Practical responses to the misuse of bibliometrics have also been launched; one leading example is the *San Francisco Declaration on Research Assessment* (DORA) which has recruited signatory members from across the globe to act out against bibliometric malpractice.

There is no international 'gold standard' metrics of excellence. Acknowledging the fact that it is definition-bound, assessment-specific and information-dependent, this book addresses a key measurement question: should research excellence solely reflect the criteria set by the scientific community, or should it reflect the broader value that we expect research to have for society? Opting for a broader and fluid concept of excellence requires developing measures able to capture multiple dimensions where we expect research to deliver social value. This process calls for joint efforts involving engagement and co-creation with relevant social actors. Such performance criteria also depend on geography – the location where the science is done, and where the primary users and potential beneficiaries of scientific findings are to be found. As one moves from a 'global' to a 'local' perspective, or from science in the Global North to that of the Global South, the core analytical principle should be: *scientific excellence cannot and should not be reduced to a single criterion, or to quantitative indicators only.* Any criterion of excellence in Global South science that does not take these considerations into account creates inadequate views and indicators of research performance, inappropriate assessment criteria, and therefore problematic rationales for justifying exclusivity of those tagged as 'excellent'.

Excellence becomes even more ambiguous when universities are described (or more often, self-described) as being 'excellent'. The above-mentioned REF, for example, or statistics on research publication performance, have shown an increasing focus on university rankings – and to a lesser degree country rankings – where the 'excellence' rhetoric hinders important debates and capacity building that should take place within these scholarly institutions (Moore et al. 2017). In the case of rankings, measurement of excellence is often done through a less-than-rigorous and often opaque methodology. Politics and public relations exercises blur debates on measurement methodologies. The question is often not 'how best to characterise the top universities' but rather, 'should we be ranking universities at all?'. And excellence does not necessarily only accrue to research outputs or impacts: high-quality features or outstanding performance may also emerge in knowledge sharing or dissemination strategies, ways of offering access to technical facilities, or other process-related characteristics of scientific research and its infrastructures.

University rankings are often prime instances of measurement out of context. Southern academic leaders have expressed concern that reliance on the predominant approaches to ranking may broadly miss the point for Southern institutions (Dias 2019). Worse still, rankings may exacerbate systemic bias toward the flawed approaches of the North, and undervalue unique ways of knowing, as well as essential scientific work from the South. Local relevance should be a leading concern and one of the key performance criteria, especially in resource-poor research environments of low-income countries of the Global South. A fuller picture can only be captured and revealed by applying assessment criteria and indicators that put researchers and users of research outcomes at centre stage. Adopting user-oriented approaches will require dedicated capabilities, cash and care. But it also needs a dose of creativity, and well-designed experimentation in the science funding models and mechanisms of the Global South is essential to arrive at workable assessment solutions customised for resource-constrained circumstances.

Indeed, the Global South may have a head start in developing and implementing these new and much-needed approaches. By avoiding the

entrenched biases and well-described flaws of the mainstay methods of excellence assessment, Southern-derived solutions may offer potential improvements globally. One example is the *Research Quality Plus* (RQ+) approach developed by the International Development Research Centre (IDRC) with and for its Southern research community (Ofir et al. 2016; IDRC 2019). In short, RQ+ presents a values-based, context-sensitive, empirically driven and systematic approach to defining, managing, and evaluating research quality. As such, it is one practical and transferable response to the calls to action such as the *Leiden Manifesto* (see McLean and Sen 2019 for a comparison of RQ+ vis-a-vis the Manifesto's principles). But, as is argued within the dedicated chapter in this book (Chapter 15), RQ+ requires further trialing, testing and improvement. Still, the practical validation to date at IDRC, and at a growing number of Southern institutions, demonstrates that another way for research evaluation and governance is possible. A key purpose of this book is a further critique of, and experimentation with, new approaches such as RQ+.

Practical implications of embracing 'excellence' in the Global South

The Global South has an opportunity to do differently, and by doing so, to do better. Rethinking what makes for good science is essential; it is a process from which all can learn. But just as some of these issues can partly be traced back to the 'blind' quest for excellence, so too can new visions of excellence and quality have significant impacts on research systems, particularly in the Global South. In this book we present new options and alternative experiences. In the introduction outlined above we have only described the tip of the iceberg lurking beneath our collective scientific profession. It would be entirely possible for this book to focus solely on discontents with the status quo. But that is not our intent. Our goal is to provide a platform for new perspectives that have been under-represented and undervalued in the global debates and systems driving the status quo of excellence, and thereby offer novel experiences and different ways of thinking. We hope this lens will benefit those from either geographical location

(South or North), those across disciplines of science (pure maths or public health), or component (researcher, funder, university, government) of the global research system. We believe it opens a path toward a fairer, more efficient, more motivating, and more impactful global research ecosystem. In the following paragraphs we suggest why.

The adverse consequences of the quest for excellence are most strongly felt in the Global South, given scarce resources, and challenges in attaining visibility on a global scale. Moreover, the lesser developed regions of the globe also happen to be those where socially relevant research is most needed to address pressing local and regional development issues. Hence, more appropriate criteria and performance indicators, fit for purpose in the Global South, should embrace two other guiding principles: inclusivity and local relevance. As for inclusivity, with the rise of cooperation in science, and team-based research, it has become increasingly complex – and perhaps also less relevant – to assign a quality stamp to one particular 'excellent' entity, be it an individual researcher, an organisation or a country. Broader visions of local relevance can also help retain and reward a more diverse set of 'top' researchers, and thus a greater diversity of knowledge that can be assessed and compared. This can be achieved by recognising researchers' motivations for not only producing high-quality science (as judged by their international peers), but also pushing the boundaries of knowledge to tackle pressing societal problems (as judged by local society). To move in this direction, quality and excellence can be shaped to embrace a wider community of knowledge producers, brokers and users, reinforcing the 'social contract' that provides science with the autonomy and legitimacy to operate in the eyes of decision-makers, as well as the public. In an era where many point to declining trust in evidence and in scientists, this is sorely needed.

On a more practical level, accepting a pluralistic vision of research excellence can lead to greater flexibility in research evaluation practices and in setting research agendas that reflect development needs. This highlights the importance of science granting councils which, on a national scale, can link research to national policy priorities and facilitate connections between users and producers of scientific knowledge. This means putting the onus on useful, robust knowledge

that can make a difference in a given context. While retaining what at times is a competitive process (e.g. to make funding decisions), research evaluation tools, particularly in the Global South, can be empowered to be more deliberate in recognising 'success' or 'quality'. Perhaps more importantly, moving away from a narrow or 'blind' usage of the term 'excellence' can enable funders to decide, based on evaluations as well as policy considerations, how to distribute research resources in a given system. In some cases, focusing on a few 'top' researchers or research teams may be desirable, while in others a greater return may be obtained from a more equitable distribution of resources (e.g. to promote diversity in approaches to solving grand challenges, or to build capacity in the research system).

What the South does not lack is scientific talent. Researcher capacity is another area where rethinking excellence, and how it is embedded in research systems, holds significant potential and importance for the future. However, few young people decide on a career in science in order to outperform other researchers in terms of the number of papers published or the popularity of their papers amongst other scientists. Instead, they develop an interest in scientific research – and make the difficult and at times costly choice to enter a career in research – motivated by a desire to do better for people, to advance a business objective, or even to benefit the health of our planet. But the academic incentive and rewards systems tend to favour, compensate and advance researchers based on the number of their publications, not on the socio-economic impacts of their research. This creates an often unnecessary tension between output-driven and impact-inspired science.

Of course, researchers will seek financial rewards for their investments and efforts, and feel good receiving the acknowledgement of their peers. But if these returns were tied to underpinning motivations (say to help people) rather than the insular status quo (such as the number of journal publications), a challenging and demanding career choice would receive renewed carrots for incentivising hard work. Measures of excellence which relate to the values and motivations of why people enter research would attract new entrants to research, and retain the fire and enthusiasm of those who do choose the path. On a global scale, there is a real opportunity here. As the world population

grows it is expected that more than half of that growth will come from low- and middle-income countries. If Southern actors successfully align incentives to enter research with the right reasons for wanting to do research, there will be an unprecedented renaissance of science across the globe. At such a time, new ideas, advanced knowledge and fresh solutions will be most needed.

Structure of the book

Overall, this book sets out to take a different approach from a standard collection of academic essays. It brings together people from a variety of settings and disciplines, and includes both practitioners and scholars. Many of the contributions are thus reflections on practical experience, either from an individual or an organisational perspective. Editors and organisers of the 2018 workshop from which the material is drawn sought to be 'reflexive' in the knowledge that is produced here. As we seek to broaden notions of scholarship, and argue for more pluralism, relevance and diversity rather than decontextualised notions of excellence, we also apply this lens to our own work. We sought out contributions that bring new ideas that are relevant to the theme, but we chose not to 'standardise' the style or perspective taken by participants, preferring instead to have the contributions reflect a discussion, debate and collective search for solutions.

The volume thus seeks to address the needs of policy-makers, first among the granting agencies of sub-Saharan Africa, but also others around the world, to better grasp the issues, and to identify and implement policies and practices around research excellence to strengthen organisations and national research ecosystems. And as a result, the book should offer novel experiences and different ways of thinking that speak across geographies, disciplines and components of the global science system.

The first five chapters provide the theoretical underpinnings for new interpretations and uses of research excellence in the Global South. These contributions are critical to understanding precisely what the current problems are, what their current impact is on scholarship from the Global South and in identifying how rigorous,

sustainable solutions can emerge and be implemented. Sutz sets the stage, calling for the need to move away from a 'universalistic' conceptualisation of research excellence that harms research agendas in the service of development objectives. Rather, she shows how alternative evaluation practices can better reflect these goals, in part by recognising excellence as 'situated' in specific institutions. Chataway and Daniels take stock of research-funding dynamics in Africa with a focus on science granting councils, and, taking into consideration the pressures faced by these councils, propose ways to 'embed' a new form of scientific excellence in the research they support, responding to a need for researchers' autonomy, while addressing national priorities. Tijssen's chapter draws on the body of knowledge that seeks to define and operationalise 'research excellence', highlighting new perspectives from the Global South that can lead to more nuanced interpretations of the term, as well as concrete recommendations for how research is evaluated. Kraemer-Mbula discusses the persistent gender disparities and imbalances in research performance, with particular attention to academic institutions in the Global South, proposing avenues to move towards diversity thinking in research excellence. Finally, Neylon portrays the current research excellence agenda as a manifestation of the dominance of international power centres at the expense of national or regional ties and information flows that are critical for development.

The second set of five chapters focuses on first-hand accounts of how universities, think tanks and granting councils currently operationalise the issue of research excellence. They shed light on the current constraints, trends and all-important national or regional contexts for implementation of policies and practices. The chapters highlight the need for grounding the conversation and for integrating new perspectives on the issue.

Siregar reviews the impacts and nature of policies of the Indonesian government to promote the quality and quantity of research in the country, pointing to a need to focus on research utility rather than a narrow view of excellence. Ouattara and Sangaré ground the notion of research excellence in terms of the formulation of research policies

and instruments to promote high-quality, high-impact science in Côte d'Ivoire. Their experiences point to the need not only for effective processes in grants management, but also for broader efforts to strengthen national research systems. Ssembatya takes a longitudinal look at policies related to research excellence at Makerere University as the main research institution in Uganda, highlighting progress in many areas, but also policy gaps and perverse incentives that prevent the effective development of university research. Singh and Raza seek to explore new views of research excellence by examining some of the systemic biases that are faced by researchers in the Global South, bringing to the forefront different philosophies about research excellence, and finally arguing for the need to 'amplify' Southern voices when it comes to defining research excellence. Finally, Mendizabal provides an alternative view of research excellence through the lens of think tanks, which need to balance scholarly rigour and 'non-academic impact' in order to provide them with the credibility that they need to thrive.

The book's last four chapters – by Chavarro; Barrere; Allen and Marincola; and Lebel and McLean – focus on some of the tools and approaches that can be utilised to improve, or radically change, how research excellence or research quality can be interpreted and operationalised. This involves leapfrogging and leading the way from the Global South through innovative new platforms, policies and performance indicators. Through a re-examination of conventional research evaluation systems, Chavarro proposes putting 'sustainability' at the forefront of research evaluation systems, with a view to better tackling 'grand challenges'. Building on concrete examples of indicator development in Latin America, Barrere proposes broadening research excellence through the use of new assessment tools to measure the impact of research within and beyond the scientific community. Allen and Marincola focus on the scholarly publishing space as a means to offer powerful alternatives for research in the Global South to develop and utilise new tools to promote relevant and high-quality research. Finally, Lebel and McLean revisit the notion of research quality, using a flexible and holistic approach to assessing research for development, providing an alternative to 'conventional' views of research excellence.

A call to action, written by all contributors, concludes the book. It proposes a path forward, including how the term 'research excellence' should, and should not, be used, as well as how we might more broadly begin to develop and implement new ways of recognising high-quality, impactful scholarship from the Global South.

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