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<a> Research Evaluation in China: Policy, Practice and Prospects <a>

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<b> Introduction <b>

Over the past decades, China has become increasingly noticeable among the rising powerhouses in global research. For instance, China is now the second-largest country in terms of its R&D expenditure, with a reducing gap with the United States of America (USA) (OECD 2020). From 1991 to 2017, China's national R&D expenditure increased approximately thirtyfold, from 13 billion US dollars to 445 billion US dollars (OECD 2020). In terms of the number of international publications (primarily measured as publications in the English language), China shares 23 per cent of global science and engineering publications, ranking first globally regarding the total number, and second in terms of highly-cited publications. In comparison, the USA shares the second largest number of total publications (16%) and most highly-cited publications (US National Science Foundation, 2022). The total number of triadic patent families held by China is 5,597 in 2022, ranking third in the world, following Japan and the USA (OECD 2022).

China's research is widely connected to the world. For many countries, China is among their top collaborators in terms of scientific publications. For example, China is the largest collaborator for the USA, Singapore, Saudi Arabia and many other countries; the second largest collaborator for South Korea, Japan, Australia, Canada, Morocco, United Arab Emirates and other countries; the third largest collaborator for the UK, Germany, Sweden, Egypt, Thailand and other countries (Nature Index 2022).

The growth of China's science was powered by its extensive internationalisation of higher education and research, the de-politicisation of science, and the expansion of open networks in global science (Marginson 2018). The growth is also related to its expansion of higher education, particularly doctoral education. As of 2018, China hosts the largest number of doctoral students in the world, followed by the USA, Germany, India and Iran (UNESCO 2021). The visibility and recognition of Chinese research universities and research institutions have been growing in the world, making China increasingly attractive to international students and academics (Wen & Hu, 2018; Xu et al., 2022).

However, China's rise in global research needs to be critically scrutinised. As noted, the measurement of growth is mainly against 'Western' yardsticks and quantitative metrics,

such as the number of publications in English, and in Euro-American dominated publication channels – like journals indexed by the *Web of Science* or *Scopus* (Marginson & Xu, 2023). Furthermore, it is worth noting disciplinary differences. Chinese humanities and social sciences research, while gradually demonstrating global visibility, is not as visible as the science disciplines in the world. For instance, the social sciences publications from China only accounted for 1.04 per cent of its international publications, in contrast to the high-performing science disciplines such as engineering (25.47 per cent of its international publications) (US National Science Foundation 2020). Chinese humanities and social sciences research is so culturally-embedded and ideologically-attached, that it can hardly escape from the tensions between endogenous knowledge, national agenda, political correctness, and Western imprints (X. (Andy) Gao & Zheng, 2018; Xu, 2021; Yang et al., 2019). This makes the internationalisation of Chinese humanities and social sciences research more complicated than STEMM (science, technology, engineering, mathematics and medicine) research.

Against the backdrop of a changing research landscape, how is research evaluated in China? How have the evaluation criteria changed over the years? What might the future of research evaluation look like in China? This chapter addresses these questions with a review of research evaluation in China. The chapter first reviews important policy shifts in research evaluation in China since the early 2000s. It then provides an overview of five major forms of research evaluation at the institutional and individual levels, and concludes with a summary of the main debates about research evaluation in China.

<b> Changing national policies on research evaluation <b>

In Chinese higher education, policy papers such as *decisions*, *instructions, opinions, regulations, notices* and *explanations* issued by the Central Committee of the Communist Party of China (CPC), the State Council and other state agencies all have a law-binding effect (Law, 2002). Since the early 2000s, several policy papers issued by state ministries, the CPC Central Committee, and the State Council have served as guidance for higher education institutions on research evaluation. This section introduces major national policies published

in the past two decades. The implications of those policies will be discussed further in Section 4 of this chapter.

In 2003, the Ministry of Science and Technology, together with the Ministry of Education (MoE), Chinese Academy of Sciences, Chinese Academy of Engineering, and National Natural Science Foundation of China, published the *Decision on Improving the Evaluation of Science and Technology*. The document pointed out several problems in the previous evaluation of science and technology research, such as using unified criteria to evaluate various types of scientific works; focusing on the superficial format and quantity rather than on quality, resulting in utilitarian and short-term behaviours; the fact that expert reviews are influenced by subjective factors such as personal relationships; and a lack of suitable standards for selecting innovative projects.

The policy therefore mandated that (1) the evaluation of scientific research should be differentiated across various research projects, institutions, and disciplines; (2) expert reviews should become more objective, by involving international peer reviewers and establishing a credit system; (3) research evaluation should prioritise quality rather than quantity, emphasise the actual academic impacts of research outputs, use indices like SCI (Science Citation Index) rationally, and not treat the number of publications as equivalent to academic quality and contributions; (4) the process of research evaluation should be optimised to reduce the paperwork for researchers, thus creating a stable research environment for long-term academic works; and (5) innovation, social responsibility, and academic integrity should be promoted in the evaluation to enhance the overall research environment (Ministry of Science and Technology et al., 2003).

A decade later, the MoE issued another policy paper, *Opinions on deepening the reform of evaluating science and technology in higher education institutions*, stating that several problems still existed in scientific evaluation, such as emphasising formats and quantity, using unified criteria to evaluate different research, and a tendency towards utilitarianism in using evaluation outcomes. In addition, the policy pointed out two further problems in research evaluation: one was the lack of acknowledgement that research should support teaching and cultivating innovative talents, and the other was a lack of an open and long-term research evaluation system (Ministry of Education, 2013). Similar problems were also

raised in an earlier counterpart policy paper on humanities and social sciences research evaluation (Ministry of Education, 2011). Both policy documents advocated for differentiating evaluation criteria, emphasising quality and impacts rather than quantity, and improving the objectivity and integrity of research evaluation (Ministry of Education, 2011, 2013).

Since 2018, national policies articulated stronger signals for shifting from quantity to quality, and from international to Chinese research. In 2018, the General Office of the CPC Central Committee and the General Office of the State Council pointed out four principles for the evaluation of research projects, academics, and institutions: (1) to respect the norms of research and researchers, (2) to conduct reforms on the basis of solving previous problems, (3) to differentiate evaluation criteria, and (4) to maintain the objectivity and fairness of research evaluation (General Office of the CPC Central Committee & General Office of the State Council, 2018). In the same year, the Ministry of Science, Ministry of Education and Ministry of Human Resources and Social Security (2018) initiated actions to 'clean up' four types of behaviours in research evaluation, which were termed as 'four-only' (*si wei*, 四唯). The 'four-only' refers to the phenomena of *only* valuing papers, *only* valuing titles, *only* valuing diplomas, and *only* valuing prizes in research evaluation. One month later, the Ministry of Education (2018) issued an action plan to 'clean up five-only'. It added 'hats-only' (*wei maozi*, 唯帽子), meaning *only* valuing those who are part of talent programs (such as the Thousand Talents Program) and thus having 'talent hats'. Since then, *po wu wei* (破五唯), meaning to 'break down the five-only', has become an important term used frequently in policy and academic discussions about research evaluation in China.

In 2019, the General Office of the CPC Central Committee and the General Office of the State Council published another policy to address a variety of issues in Chinese academia. It advocated for promoting 'the spirit of scientists', creating 'a clean research environment' highlighting academic integrity, building 'a good research ecology' where *po wu wei* needs to be implemented and problems of bureaucracy need to be addressed, and 'creating a nice environment in the society to respect science and talents'. The policy strongly opposed various forms of academic misconduct and misbehaviours, such as 'money worship', the 'culture of circles' (*quan zi wen hua*, 圈子文化) characterised by nepotistic ties and personal

relationships, and being 'pompous and opportunistic' (General Office of the Central Committee of the Communist Party of China & General Office of the State Council, 2019).

In 2020, the central government issued a series of policies to continue the '*po wu wei*' actions. Additionally, the 2020 policy firmly abolished the 'supremacy of SCI' (*SCI zhi shang*, SCI 至上), requiring universities not to use metrics related to the SCI, SSCI (Social Sciences Citation Index) or CSSCI (Chinese Social Sciences Citation Index) as the direct basis for research evaluation, and not to use monetary incentives for publications (Ministry of Education, 2020a; Ministry of Education & Ministry of Science and Technology, 2020). Policies emphasised publications in domestic scientific journals and the support for developing high-quality scientific journals in China; and underscored that research should have impacts on Chinese society, economy and national security (Ministry of Education, 2020a; Ministry of Science and Technology, 2020a). The policies were published around the same time as when COVID-19 pandemic emerged. In a concurrent policy published by the Ministry of Science and Technology (2020b) about research on COVID-19, it stressed that Chinese researchers should 'prioritise the interest of the nation and of its people', and to 'write papers on the homeland' – quoting President Xi Jinping's words in a 2016 speech (ScienceNet, 2016). For humanities and social sciences research, the Ministry of Education's 2020 policy explicitly maintained that Chinese researchers should not 'deliberately dwarf or vilify China' (*ke yi ai hua chou hua Zhong guo*, 刻意矮化丑化中国) or 'damage national sovereignty security and national interests' for the sake of publishing internationally. The policy also stressed the need to establish a credible peer review system, and urged peer reviewers to 'abide by academic ethics, provide responsible review comments' and follow the principle of avoidance in cases of conflict of interests (Ministry of Education & Ministry of Science and Technology, 2020).

<b> Research evaluation practices <b>

In China, major research evaluation practices in tertiary and higher education can be categorised into two types: the evaluation of research at the institutional level, and the evaluation of research at the individual level. The institutional-level evaluation includes two major types: centralised governmental evaluation of higher education and research

institutions, and the ranking of Chinese universities conducted by third-party organisations. The individual-level evaluation includes three types: evaluation of individual grant proposals, evaluation of individuals for career progression and honorary titles, and peer review and editorial review of academic manuscripts prior to publication. The following sub-sections introduce the context, evaluation methods, criteria and outcomes of each type of evaluation. Their influences and implications will be unpacked further in Section 4 of this chapter.

<c> Governmental evaluation of institutions <c>

Two forms of governmental evaluation of higher education institutions are highly influential in China: the evaluation for the 'Double First Class University Programme' (*shuang yi liu ji hua,* 双一流计划), and the 'China University Subject Rankings' (CUSR) (*xue ke ping gu,* 学科评估; the previous official English translation was 'China Discipline Ranking').

<d> Double First Class University Programme 双一流计划 <d>

Double First Class University Programme (hereafter *the Programme*) is the latest and most influential national academic excellence programme for universities in China. Launched in the late 2010s (Ministry of Education et al., 2017), the Programme has two targets, as indicated by the term 'double': building first-class universities and building first-class disciplines. It designated 42 universities as Double First-Class Universities (DFCUs) and 465 Double First-Class Disciplines (DFCDs) at a further 95 universities (Ministry of Education et al., 2017). Universities are stratified in terms of funding, resources, reputation, and status: universities selected to join the Programme enjoy more privileges and higher prestige than those excluded from the Programme; DFCUs are allocated more resources and considered of higher status than DFCDs. Of the 42 DFCUs, 36 of them were included in an A-list, and the other six were in a lower rank of a B-list.

The Double First Class University Programme replaced the previous governmental academic excellence programmes, namely the '985' and '211' programmes initiated in the 1990s. The

Programme has two significant distinctions from the '985' and '211' programmes: the change from focusing on the building of world-class universities to focusing on both universities and disciplines (China Academic Degrees & Graduate Education Information, 2009, 2012), and the change from ex-ante assessment to performance-based funding.

Universities selected to join the Programme are evaluated every few years, and the latest round of evaluation was carried out between 2021 and 2022. The evaluation combined universities' self-evaluation, expert review and third-party evaluation, and focused on six dimensions: students' cultivation, teaching team building, research, social service, the inheritance and innovation of Chinese culture, international exchange and collaborations. For the evaluation of research, it re-emphasised originality and quality, and an evaluation approach based on 'representative works' rather than 'only on quantity, papers, or awards' (Ministry of Education et al., 2020).

Evaluation results were announced in 2022, with three changes worth noting. Firstly, seven additional universities were added to the Programme after the evaluation. Secondly, the distinction between DFCU and DFCD, as well as between the A-list and B-list were removed after the evaluation. All universities selected to join the Programme now have equal status, but each university has a separate list of selected disciplines, which were equivalent to the DFCDs. Finally, a total of 16 disciplines at 15 universities were either removed from the Programme, or given public warnings for improvement in the next round of evaluation (Ministry of Education et al., 2022).

<d> China University Subject Rankings 学科评估 <d>

The China University Subject Rankings (hereafter *the Rankings*) is an evaluation conducted by the Degrees and Graduate Education Development Centre (hereafter *the Centre*). Although the Centre was established as a non-profit organisation and an independent legal entity, it has been under the administration of MoE (China Academic Degrees & Graduate Education Information, n.d.-b). Consequently, the Rankings have been considered an 'official' or 'semi-official' evaluation by many higher education institutions in China (X. Chen et al., 2016).

The Rankings predate the Double First Class University Programme, and evaluate the performance of disciplines in Chinese higher education institutions. Universities could participate in the evaluation voluntarily. The aim of the Rankings, as stated by the Centre, is to assist participating institutions to identify the strengths and weaknesses of their disciplines, provide information for relevant governmental offices, and serve as a reference for students and the public in choosing universities and understanding the performance of certain disciplines and institutions (China Academic Degrees & Graduate Education Information, n.d.-a). Research revealed that the Rankings were closely connected with apportioning resources in Chinese higher education (X. Chen et al., 2016). Particularly, academics pointed out the close association between universities' rankings in the fourth round of Rankings and the possibility of them entering the Double First Class Programme. Due to the considerable benefits (funding, reputation, and other resources) attached to the Rankings, universities tended to treat them seriously (X. Chen et al., 2016).

Since its initiation in 2002, there have been five rounds of evaluation: 2002-2004 (involving 1366 disciplines from 229 institutions), 2006-2008 (involving 2369 disciplines from 331 institutions), 2012 (involving 4235 disciplines from 391 institutions), and 2016-2017 (involving 7449 disciplines from 513 institutions) (China Academic Degrees & Graduate Education Information, n.d.-b). The fifth round of evaluation was conducted between 2020 and 2022. No official result has been published by the Centre as of December 2022.

The evaluation methods changed for each round of assessment. In the fifth round of evaluation, the protocol was generated with references to five sources: more than 20 workshops with around 400 experts from 100 universities; focus groups and research about the evaluation of humanities and social sciences research; consultation with relevant government ministries and offices; commissioned research projects; and written feedback from universities and disciplinary experts. Each discipline was evaluated based on four groups of indicators: student cultivation, teaching, research, and social services and academic reputation (Ministry of Education, 2020b).

Similar to the evaluation for the Programme, research evaluation by the Rankings emphasised 'quality rather than quantity', highlighting outcomes that are 'original, frontier, breakthrough'. Only 'representative works' were submitted for the evaluation. The

evaluation was based on ‘a combination of bibliometric evaluation and expert review’, and ‘a combination of Chinese journals and foreign journals’. It ‘de-emphasised the use of the number of indices and citations, not to use SCI and EI relevant indicators as the direct judgment criteria, and regulates that the representative works must include a certain ratio of Chinese journal articles, highlight the innovative quality and academic contribution of the representative works’ (Ministry of Education, 2020b).

<c> University rankings <c>

University rankings play an increasingly central role in higher education worldwide (Hazelkorn, 2017). Some of the influential world university rankings include the Times Higher Education ranking, QS ranking, and Leiden Ranking. Chinese universities are no exception to the influence of rankings.

The methodologies, impact and limitations of university rankings have been critically examined in detail (e.g. Hazelkorn, 2017; Shahjahan et al., 2017). This section does not intend to expand such discussions. It introduces a China-based world university ranking, the Academic Ranking of World Universities (ARWU, also known as Shanghai Jiaotong University Ranking, or Shanghai Ranking) and its evaluation methods. The role of ARWU and other rankings in shaping research evaluation, culture and practices in China will be elaborated in Section 4 of this chapter.

Many consider the ARWU as the forerunner of world university rankings, which was first published in 2003 (Aguillo et al., 2010). It was initially designed by Professor Niancai Liu at Shanghai Jiaotong University, to ‘benchmark top Chinese universities with world-class universities’ outside China (N. Liu, 2015, p. 2). Since its creation, its focus on ‘academic ranking’ – namely academic research – distinguishes it from some other world university rankings that include other dimensions like teaching.

The ARWU evaluation is purely metric-based, which includes six indicators: the number of alumni winning Nobel Prizes and top disciplinary awards, the number of staff winning Nobel Prizes and top disciplinary awards, the number of highly cited researchers selected by Clarivate, the number of papers published in *Nature* and *Science*, the number of papers

indexed in SCI and SSCI, and the weighted scores of the five indicators divided by the number of full-time academic staff (Shanghai Ranking, 2022b). While ARWU shares similar criteria with other rankings as using the number of publications in international indices as one important proxy for research quality, its reliance on Nobel Prize and field award winners as an indicator is distinctive.

The ARWU publishes its results annually. In the 2003 ARWU, the highest ranked university in mainland China was Tsinghua University, which took the position of 201-250 among world universities (Shanghai Ranking, 2003). Chinese universities' positions on ARWU and other world university rankings have been rising over the past decades. In the latest round of ARWU, the highest ranked university in China was still Tsinghua University, but it was positioned as the 26th in the world this time. Another seven universities in mainland China were among the top 100 in the world (Shanghai Ranking, 2022a).

<c> Evaluation of individual grant proposals <c>

There are mainly two types of research grants in China, namely 'vertical grants' (*zong xiang ke ti*, 纵向课题) and 'horizontal grants' (*heng xiang ke xi*, 横向课题). The difference lies in the funding sources and research aims. 'Vertical grants' receive allocated or commissioned funding from the government and public sectors. 'Horizontal grants' receive funding from both the public and private sectors, and are mainly for knowledge transfer, technology services, and industry cooperation (Z. Gao, 2013). Hierarchies of prestige exist across the funding sources: nationally funded grants receive more prestige than locally funded ones; vertical grants are considered as more rigorously reviewed and more competitive than horizontal ones, thus generally receiving more prestige than the latter (Z. Gao, 2013).

Respective funding bodies evaluate individual grant proposals, and the main evaluation method is expert peer review. In China, the National Natural Science Foundation of China and the National Social Sciences Foundation of China are the most important and prestigious funding bodies. Therefore, this section uses the review process at the National Natural Science Foundation of China as an illustrative example. Grant applications are reviewed by peer experts, who are invited to join a college of reviewers if they '(a) have high

academic standards, sharp scientific insights and strong a capability to make academic judgements; (b) have good scientific ethics, rigour, objectivity, justice, integrity, and self-discipline; and (c) have the time and energy to participate in the evaluation' (National Natural Science Foundation of China, 2015). While applicants are not anonymous to reviewers, reviewers remain anonymous to the applicants. Reviewers must report and withdraw from assessing an application if there are any conflicts of interests (National Natural Science Foundation of China, 2015).

Criteria for the peer review include: scientific value, originality, social impact, the feasibility of the research plan, applicants' research experience, the rationality of the budget plan, other funding sources for the proposed research, applicants' implementation of past funded projects, and the necessity for continuous funding (National Natural Science Foundation of China, 2007). The review has three stages: initial review to check eligibility; and if eligible, the proposal goes to 'correspondence review', meaning reviews are conducted individually and comments are sent back via correspondence; and if the review marks pass certain thresholds, the proposal goes to 'conference review', when reviewers meet and make funding decisions through voting (National Natural Science Foundation of China, 2015). In 2022, the award rate was 16.4% (48,317 out of 294,396) (National Natural Science Foundation of China, 2022).

<c> Institutionalised evaluation of individual researchers <c>

Institutionalised evaluation of individual researchers can take place during academic job appointments, tenure promotions, annual research reviews, honorary title applications, and talent programme selections. Some of these evaluation processes happen simultaneously. For instance, the selection for talent programmes can be combined with academic job appointments (Shi et al., 2022). Over the past few years, one important trend has been the decentralisation of tenure evaluation. The evaluation and decision-making happened originally at the national and provincial levels, then gradually decentralised to the institutional level (J. Liu, 2017).

Meanwhile, the evaluation methods have also undergone changes. Between the early 1990s early 2020s, the dominant evaluation methods were a combination of peer review and bibliometric indicators. In addition to expert peer review, many institutions have been using bibliometric indicators – particularly the number of publications, citation count, and impact factors – as a proxy of research quality and academic performance (Shu et al., 2020; Xu et al., 2019). In addition, 'international research' has been valued more than 'Chinese research'. This is reflected in the fact that journals indexed by international indices, such as SCI and SSCI, were given higher weights in research evaluation (Shu et al., 2020; Xu et al., 2019). In addition to career-related incentives, many Chinese universities were also providing monetary bonuses for publications in international journals, which were based on the publication number, citation count, which index the journal is in, and the impact factors of journals (Xu et al., 2019).

As discussed in the previous sections, the latest *po wu wei* policies explicitly halted the over-reliance on bibliometric indicators in research evaluation. The assessment of individual academics' research performance has been shifting towards more reliance on expert peer review of 'representative works' – meaning researchers can select and submit a certain number of academic works that can best represent their academic performance in research assessments (Cao, 2022). The aim has been to shift the focus from the quantity of research outputs, to the quality of research (Cao, 2022). Although indicators related to international indices started to play less important roles under the new evaluation framework, the highlight on international research did not disappear. This is because an increasing number of Chinese universities are trying to expand their expert review pools to academics outside mainland China, to reduce potential nepotism within domestic academia in the peer review process (S. Wang & Zhao, 2021). This reflected the policy regulations back in the early 2000s, to expand the pool of peer reviewers to international academics (Ministry of Science and Technology et al., 2003). Since not all international academics have the language capacity to review publications in Chinese, and English is the *lingua franca* in 'international academia', English-language publications continue to play an important role in individual academic evaluations that involve international peer reviewers.

<c> Peer review and editorial review of academic publications <c>

In China, academic publications like journal articles, academic monologues, and edited books all go through editorial review and/or peer review. Research reported that one major difference between peer review process for 'Chinese journals' and 'international journals', is that peer review for 'international journals' is perceived as more rigorous than 'Chinese journals' (Chang et al., 2016; He, 2020). To explain this phenomenon, it is important to first clarify some definitions.

To begin with, what are 'Chinese journals'? A prototype of a 'Chinese journal' would be an academic journal published in the Chinese language, with China-based editors, and by a publisher based in mainland China. For those journals, the review process varies across journals and publishers. Some of them solely rely on editorial review without peer review, and some of them have more rigorous peer review than others. Similar to the peer review for grants and career development, research also reported that the peer review for 'Chinese journals' can be fraught with bias and non-academic factors like *guan xi* (interpersonal relationship) and nepotism (He, 2020; Jiang & Shi, 2022; Xu et al., 2021).

Then, what are 'international journals'? A literal definition would be an academic journal published in non-Chinese languages, with editors based outside mainland China, and by a publisher based outside mainland China. If applying this definition, not all 'international journals' have a rigorous peer review process, and peer review is not exempt from biases (see, for instance: Lee et al., 2013).

However, for many Chinese policymakers, institutions and researchers, 'international' is not equivalent to the rest of the world; rather, it refers largely to 'the West'. 'The West' is not solely defined in geographical terms, since it refers to not only North America and Western Europe, but also other parts of the world like Australia. 'The West' is also related to the language (mainly English-speaking), culture and ideologies (Marginson & Xu, 2022) . Following this logic, 'international journals' are commonly perceived as journals published in 'Western' countries, by reputable 'global' publishers (mainly 'Western') and in the English language (Xu et al., 2019). At times, 'international' also refers to neighbouring East Asian regions and countries outside mainland China, such as Hong Kong SAR, Macau SAR, Taiwan, Japan and South Korea (Social Sciences Academic Press (China), 2023). But for many years,

all ‘international journals’ need to be indexed by SCI and SSCI to be counted into research evaluation. Although those journals are not exempt from academic misconduct, the review process is in general more standardised and perceived as more rigorous than other journals, including ‘Chinese journals’ (He, 2020).

Nonetheless, the line between ‘Chinese’ and ‘international’ journals has become increasingly blurry. Along with the national ‘going out’ (*zou chu qu*, 走出去) strategy of Chinese research, a growing number of journals and publishers based in China are entering the international publishing market (M. Li & Yang, 2020). Some journals are edited mainly by researchers based in mainland China, but published in English and by publishers outside China. Some are published in China, using Chinese or English languages, but involve an international editorial board and are indexed by international indices (M. Li & Yang, 2020). All these journals fall between the spectrum of ‘Chinese’ and ‘international’. The peer review processes for those journals thus vary, but the general trend is moving towards the more standardised approach used by ‘international journals’. Some research also associated this trend with a more internationalised research culture, environment and workforce, and academic publishing industry in China (Zhu et al., 2022).

<b> Main debates about research evaluation in China <b>

The following section reviews main focuses of discussion about research evaluation in China, building on the review of policy and practice. Topics summarised in the following section are long-standing debates central to policy and academic discussions in China about research evaluation.

<c> Oscillations between Chinese and international research <c>

The tension between pushes for internationalisation and cautions against Westernisation is a recuring discussion topic about Chinese research. As noted, Chinese research has been moving towards internationalisation since the national Reform and Opening-Up in the late

1970s. Consequently, as discussed in the Introduction, China has now become an unneglectable player in global research.

However, as Section 2 of this chapter shows, national policies have been expressing an ongoing concern over undesirable implications of internationalisation, and more specifically, the 'Westernisation' of Chinese research. In addition, Chinese academics also cautioned against the 'self-colonisation' of Chinese research through the internationalisation process (Dang, 2005, p. 68). They argued that by emphasising too much international research and publications, Chinese research risks being Westernised in terms of the epistemologies, language, paradigms, questions and theories (Dang, 2005; Deng, 2010). This is seen as particularly true to humanities and social sciences research, which is more rooted in local contexts, traditions and cultures than in other science disciplines (B. Chen, 2020; Deng, 2010).

Furthermore, as section 2 reveals, there have been long-standing policy concerns over using 'Western' metrics as the 'yardstick' in research evaluation in all disciplines. The 2020 policy to firmly abolish the 'SCI worship' was thus the pinnacle of those accumulative concerns. The background of the policy was that at the outset of the COVID-19 pandemic, many Chinese researchers prioritised publishing research findings on COVID-19 in English language journals, rather than making the findings more accessible to local Chinese communities (Shu et al., 2022). The urge for Chinese researchers to 'write papers on the homeland' can thus be seen as a response to these practices.

Some scholars considered the 2020 policy as a turning point for Chinese research, which will shift from being open to internationalisation to becoming more localised. They suspected whether Chinese researchers in certain fields would switch to Chinese publications and collaborations, thus publishing and collaborating less internationally (Huang, 2020; Shu et al., 2022). A relevant concern was that since the number of international publications still plays an important role in world university rankings, a decrease of international publications from China may also negatively impact Chinese universities' rankings on global league tables (Huang, 2020). A study found that 'no immediate changes to Chinese researchers' dissemination practices have been noticed over the last eighteen months', since 'Chinese scholars published 590,649 papers indexed by WoS (Web of Science) in 2020, reaching its

historical high' (Shu et al., 2022, p. 337). Although considering the lag between conducting research and getting it published, it is worth following the impacts of this policy on Chinese researchers' publication behaviours.

Nonetheless, as the review in Section 2 and other literature reveal (L. Zhang & Sivertsen, 2020), the 2020 policy aimed not at halting the internationalisation of Chinese research, but at balancing the internationalisation and indigenisation of Chinese research, and moving away from focusing on quantity to the promotion of quality. The support for the development of Chinese journals also demonstrated an intention to develop a China-oriented internationalisation model. As discussed in the earlier section, many new Chinese journals sit on the spectrum between 'international' and 'Chinese', thus can reach both domestic and international academia and make double contributions. This chapter thus argues that the latest policy may not stop China's research from engaging with international academia, but may contribute to striking a balance between international and Chinese research.

<c> Tensions between quality and quantity <c>

Whether to focus on quality and quantity is one central theme in discussing Chinese research evaluation. As discussed in earlier sections of this chapter, in all forms of research evaluation in China, there have been constant tensions between them, and a general trend has been to move away from relying on the quantity of research to valuing the quality of research. Research revealed that in Chinese academia, quantifiable indicators were initially perceived as more objective than peer review, since the latter had been influenced by non-academic factors like *guan xi* (interpersonal relationship) or administrative power (Y. Li, 2021). However, many studies discussed how the increasing over-reliance on quantity in evaluation can lead to instrumentalism, utilitarianism, and opportunism – thus resulting in lower research quality, academic misconduct, and unhealthy research culture and environment (e.g. Y. Li, 2021; Xu et al., 2021; Y. Zhang, 2015).

This has been coupled with changes in research evaluation methods. The use of quantifiable metrics like publication numbers, citation counts, and impact factors is increasingly replaced

by peer reviews of representative works. The only exception is the Shanghai Jiaotong Academic Ranking of World Universities, which continues to use solely bibliometric indicators and the number of field prize winners as their criteria to judge academic performance. Proposals to *po wu wei* (break down the five-only) in research evaluation shares similarities with other international initiatives like the Declaration on Research Assessment (DORA) (American Society for Cell Biology, 2012) and the Leiden Manifesto for Research Metrics (Hicks et al., 2015). They all underscore not only the responsible uses of quantifiable and international indicators, but also the responsible uses of research evaluation overall.

<c> Issues around equality, justice and integrity <c>

Another key topic about China's research evaluation is around equality and justice issues. Many studies revealed the 'Matthew Effects' created and reproduced during the evaluation process, when institutions and individuals with more resources, higher prestige and better research recycle the hierarchical positions via the validation of research evaluation. For instance, in the Double-First Class Universities assessment, *China University Subject Rankings* and university rankings, those performing well receive additional resources and attract better researchers and students, thus keep performing well in the following round of evaluation; on the contrary, 'weak' disciplines or universities risk being closed down or merged based on their performance in the research assessments (Song et al., 2021). The stratification of institutions is thus reproduced and reinforced through research assessments.

At the individual level, inequalities and practices of injustice happen at the intersections of various personal identities (Crenshaw, 1989). In Chinese academia, the most researched and discussed individual identities that lead to inequalities in research evaluation include gender, disciplines, and institutional affiliation (Xu et al., 2021; Yue, 2020). The commonly disadvantaged or marginalised groups include women researchers, researchers from the humanities and social sciences research (including arts), and researchers based at less prestigious institutions (Xu et al., 2021; Yue, 2020). Some other features are contextual. For instance, whether researchers with an overseas educational background have an advantage

in research evaluation depends largely on the weight given to international publications and the fairness in the peer review, since returnee researchers tend to publish more internationally but lack professional ties in domestic academia (Xu et al., 2021). On top of all the personal features, the 'culture of circles' (*quan zi wen hua*, 圈子文化) characterised by nepotistic ties and the influence of administrative power create further layers of injustice (Cao, 2022). Some disadvantages can be cancelled out if one sits in the 'right' circle. Consequently, many scholars worried that the reliance on peer review could be fraught with bias, prejudice, protectionism and exclusionism rooted in the culture of circles (Cao, 2022).

Facing these challenges, another noticeable trend in China has been to promote academic integrity in research evaluation. In national policies, this is reflected not only in the proposals to create 'a clean research environment' that highlights academic integrity (General Office of the Central Committee of the Communist Party of China & General Office of the State Council, 2019), and the suggestions for peer reviewers to 'abide by academic ethics, provide responsible review comments' (Ministry of Education & Ministry of Science and Technology, 2020). In addition, two policies targeted at tackling academic misconduct and promoting academic integrity were published in 2016 and 2018, marking strong policy signals to promote academic integrity (General Office of the Central Committee of the Communist Party of China; General Office of the State Council, 2018; Ministry of Education, 2016). The increasing attention to ethical issues and responsible research is also associated with international influence and exchanges. For instance, Zhu and colleagues (2022) pointed out that more than 450 Chinese journals had been members of the Committee on Publication Ethics (COPE) by 2021.

A notable and relevant trend is the gradually rising attention on open research, including open assess publishing, open peer review, open data, etc. (Scopus China Academic Committee Office, 2021; Zhu et al., 2022). An increasing number of newly established 'international journals' from China are open access journals. In 2020, 20 per cent of 'Chinese journals' indexed by Scopus were open access journals. The number increased from 31 in 2011 to 170 in 2020 (Scopus China Academic Committee Office, 2021). Many of these open access journals are not registered with DOAJ/ROAD, but are sponsored by Chinese institutions to cover the Article Processing Charges (APCs) (Scopus China Academic Committee Office, 2021). Although open research in China is in the initial stage and still

faces challenges (Zhu et al., 2022), it is worth following its future development and implications on research evaluation.

<c> Gaps between policy and practice <c>

Same as many other countries, research evaluation in China plays an important role in guiding and influencing institutional and individual research practices. Different forms of evaluation also reach and impact individuals differently. Research evaluation at individual levels, such as grant application reviews, tenure reviews and reviews for academic publications, directly influence researchers' careers and development. Some Chinese academics also described research evaluation and incentivisation as the 'conductor's baton' used by the national government and institutions, to signal priorities and directions of research for individual researchers (Xu, 2019).

As for the centralised evaluation of institutions and third-party university rankings, although not all individual researchers are directly involved in the process, no one can escape from the shadows of those assessments. Some researchers have relevant leadership, management and administrative roles that involve preparing for those research assessments. Research revealed that since the assessment demanded a huge amount of paperwork, many researchers and administrative staff had to sacrifice their time and energy dealing with the bureaucracy involved (X. Chen et al., 2016). Research found growing anxiety among universities towards institutional assessments. Some universities withdrew some of the 'underprivileged' disciplines or merged several disciplines to create a 'stronger' discipline for evaluation, thus affecting the careers of researchers affiliated with the disciplines (X. Chen et al., 2016). Another study also found that facing the Double-First Class University assessments, some institutions tried to recruit high performing researchers to improve their research profile; and that universities are employing an increasing number of 'shadow academics', who are non-tenured and precarious postdoctoral researchers or adjunct fellows, employed mainly to increase institutional research productivity (Song et al., 2021).

Despite the power of research evaluation, national policies are not always practised as intended at the institutional and individual levels. Mismatches, discrepancies and delays exist between governmental policy discourses, institutional practices, and individual behaviours. As earlier sections reveal, governmental policies could demonstrate farsightedness and balance, but the proposals are not always implemented or followed as intended. The gaps between policy and practice reflect tensions between institutional academic autonomy, individual academic freedom, and the accountability or 'arbitrariness' reflected by research evaluation (J. Wang, 2012). For instance, as discussed in earlier sections, despite the series of policy warnings issued by the central government over the past decade, many Chinese universities have been incentivising and prioritising international publications mainly in a tokenistic way, and relying on quantifiable metrics as the proxy for research quality.

<b> Conclusions <b>

This chapter discussed major policies and practices of research evaluation in China. It reviewed key directions of policy change in research evaluation, introduced the most common forms of research evaluation, and discussed some of the central themes of research evaluation in China. Based on the review, this chapter concludes that in the near future, we are likely to continue witnessing four major direction of changes in China's research evaluation:

1. The movement from valuing quantity to more focuses on quality;
2. The movement from relying on bibliometric indicators to extending the use of peer reviews;
3. The movement from over-emphasising international research towards an equilibrium between international and Chinese research;
4. The movement towards more awareness and emphasis on academic integrity.

Meanwhile, two major phenomena seem to persist in research evaluation. The first one is the inequalities, injustice and stratification of institutions and individuals created by different forms of research evaluation, which are further fortified through the evaluation.

Noticeably, the attention to open research has been gradually increasing and is worth following. The second concerns the gaps between policy and practice, and the constant tensions between accountability and autonomy. Future developments in these dimensions need to be followed closely to fully understand the changing landscape of research evaluation in China.

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