How GDP spread to China: the Experimental Diffusion of Macroeconomic Measurement


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ABSTRACT. Gross Domestic Product (GDP), one of the world’s most influential economic indicators, did not become truly global until it was implemented by China. China officially adopted GDP as an indicator of economic performance in 1993 when the country abandoned its Marxist-inspired national accounting system and joined the internationally harmonized System of National Accounts. As such, it was the last major country to begin producing GDP figures according to international standards. Since then, GDP has become deeply ingrained in China’s economic governance. Yet, GDP’s arrival in China was not a smooth process. Unlike in most other countries, where implementation of statistical standards was met with little resistance, GDP adoption in China was slow, difficult, and highly politicized. International standards clashed with domestic institutions and the ideologies guiding economic reform. This article explains the process and identifies the drivers of GDP diffusion in this crucial case. We find that the adoption of GDP was largely shaped by domestic debates about economic reforms and state ideology. As a result, the process was incremental and experimental. Moreover, we demonstrate that the diffusion of economic indicators runs into limitations when receiving countries have already developed indigenous indicators and measurement practices, as was the case in China.

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Introduction

Gross domestic product (GDP) has taken root worldwide as a powerful tool for economic policy and analysis. Nearly all countries, with very few exceptions, produce GDP figures based on a common set of international standards. More than any other economic indicator, its influence casts a wide net. It shapes perceptions and decisions in domains as diverse as elections, development policy and international investment. GDP enables countries to be ranked and classified by size, growth rate or per capita income, and it is often conflated with well-being (cf. Stiglitz, Sen, & Fitoussi, 2009). Despite the technocratic appearance of GDP, its measurement – for instance its neoclassical conceptualization of prices and value added (Smith 2012) – is infused with ideology. In short, it is a capitalist measure of national income that takes a marketized ‘money economy’ as a theoretical starting point (Ady, 1962; Herrera, 2010; DeRock, 2019; Mügge, 2019; Smith, 2012). Nonetheless, GDP has become thoroughly institutionalized even in countries that differ from the highly industrialized market economies from which it originated.

An explanation of the global spread of GDP is incomplete without understanding how it reached China. China was the last major holdout, having used an alternative indicator of national income until the 1990s. This Soviet-inspired indicator persisted in China even after Russia and other former Soviet states embraced GDP. In the time since this late adoption, GDP has taken on enormous political and social significance for governance by the Chinese Communist Party (CCP) (Wallace, 2016; van Heijster, 2019), notably in the form of the GDP target, as well as for the rest of the world’s perception of ‘the rise of China’ (Ambrosio, 2012; Hopewell, 2015; Nölke, 2015). GDP growth, for example, led to an increase of IMF voting shares, elevating China’s position vis-à-vis other (developed) countries (Truman, 2006). Yet the adoption of GDP by China was not a foregone conclusion. China adopted GDP even
though the country’s economic structures still differed decidedly from capitalist ones, the statistical bureaucracy was ill-equipped to produce coherent GDP figures, and Chinese economic power was likely big enough to resist outside pressures for statistical reform. Against this backdrop, how did GDP come to conquer China?

Standard accounts of the global spread of GDP offer various explanations for why and how countries have adopted the indicator. Several authors (e.g. Fioramonti, 2013; Masood 2016; Philipsen, 2015; Schmelzer, 2016) suggest that GDP was imposed around the world by Western countries and international organizations (IOs). After all, GDP was developed by economists in the United States and the United Kingdom and built into the mandates of the United Nations and Bretton Woods Institutions (Ward, 2004). Others suggest a functionalist explanation (e.g. Bos, 2009, pp. 31-48; Kendrick, 1970, pp. 306-311; Vanoli, 2005) wherein the spread of GDP flowed naturally from the need for harmonized and comparable macroeconomic data. The wider literature on the global diffusion of institutions and norms suggests two broad routes. The first is an external dynamic in which states are coerced or pressured into compliance with international standards by actors with a high degree of structural power (Barnett & Duvall, 2005). The second is a domestic dynamic that highlights the agency of actors on the receiving end of diffusion to localize (Acharya, 2004) or translate (Ban, 2016) foreign practices.

We find that both domestic and international factors influenced GDP adoption in China. Chinese officials and technocrats relied on foreign expertise to build the skills and institutions necessary to produce GDP figures. However, the process was heavily shaped by ideological debates over economic reform taking place within the Communist Party over more than a decade. Initial attempts to implement GDP ran up against roadblocks resulting from inconsistencies between the economic theories underpinning GDP measurement and the existing statistical infrastructure in place in China. In response, statisticians, directed by Communist Party mandate, attempted to implement a ‘hybrid system’ that embedded aspects of international standards in the local framework in a manner consistent with CCP ideology. Ultimately, China abandoned its experiment with a localized statistical framework and adopted the international standards. We support this argument with qualitative data collected from one month of fieldwork in Beijing, analysis of documents from World Bank archives, extensive document analysis, and interviews with statisticians in China and at the World Bank.

China’s late adoption of GDP, coupled with the country’s size and political-economic influence, make it a crucial case to study. The findings add empirical and theoretical clarity.
about the global diffusion of GDP and its emergence as ‘the world’s most powerful number’ (Fioramonti, 2013; Phillipsen, 2015). Our analysis critically engages with International Relations and International Political Economy (IPE) literature on the diffusion and localization of policies and norms (Ban, 2016; Bell & Feng, 2019; Eimer, Lütz, & Schüren, 2016; Lai, Rethel, & Steiner, 2017). The article also contributes to the substantial scholarship on China’s reform and opening up process by shedding light on an aspect of reform that has received little attention by political scientists. These insights are key for understanding the current institutional set-up and data gathering methods within the Chinese statistical system that influences GDP measurement up until today. The paper thereby contributes to the debate on the accuracy of China’s GDP figures. The article proceeds with a theoretical discussion about the diffusion of GDP. We address plausible arguments for GDP diffusion drawn from the wider IPE and International Relations literature. A brief third section provides background information on the System of National Accounts (SNA) and the Material Product System (MPS), given their relative unfamiliarity. The main body of the paper is the empirical section and analysis in which we trace the adoption of GDP measurement in China over time. A final section concludes.

Theorizing the Diffusion of GDP

GDP is the most prominent indicator derived from the System of National Accounts. Since the first publication in 1953, the SNA quickly spread around the globe (Kendrick, 1970; Ward, 2004). It was eventually taken up by the Communist (if only in name) and centrally planned countries. Little is known about drivers of GDP diffusion or about variation in the way it was implemented in different national contexts. Studies of diffusion deal with a wide range of issues, from norms (e.g. Acharya, 2004; Finnemore & Sikkink, 1998; Price, 1998), to ideas (e.g. Ban, 2016; Sell & Prakash, 2004), to policies and formal institutions (e.g. Chwieroth, 2014; Thomassen, 2017). These studies ask how and why transnational norms and policies are implemented at the national level. Whether diffusion is primarily driven by international or domestic processes could depend on several factors, including: the degree of fit between foreign institutions and domestic norms (Acharya, 2004); the salience of the issue for the relevant actors (Foot & Walter, 2013); the ability of domestic actors to contest or shape compliance (Lai, Rethel, & Steiner, 2017); and the incentives for implementing international norms or standards (Mattli & Buthe, 2003). By and large, social science literature on GDP assumes that diffusion is a top-down process driven by external factors.
Several authors take a critical view of GDP’s dominance with an emphasis on its biases and misuses in policymaking (Fioramonti, 2013; Phillipsen, 2015; Pilling, 2018; Schmelzer 2016). These studies argue that powerful states and international organizations – particularly the United States and the United Kingdom, as well as the Bretton Woods Institutions – have historically been the drivers of GDP diffusion (Fioramonti, 2013, pp. 40-45; Phillipsen, 2015, pp. 131-135; Schmelzer, 2016, pp. 23-24). Fioramonti (2013, pp. 42-43), for example, suggests that GDP ‘colonized the very lexicon of global governance’ and that ‘the GDP mantra was imposed on poorer nations.’ These arguments suggest that the global spread of GDP has taken the form of ‘coercive diffusion’ (Lai et al. 2017, p. 961).

Other historical accounts focus on the harmonization of GDP among industrialized countries (Bos, 2009, pp. 31-48; Kendrick, 1970, pp. 306-311; Vanoli, 2005). These accounts assume a functionalist logic (Mitrany, 1971; Ovodenko & Keohane, 2012) in which harmonized economic statistics offer an optimal outcome for all stakeholders. This is an external dynamic, albeit one that does not rely on coercion. Functionalist IPE scholars expect states to comply with international standards because they have an interest in facilitating international economic integration. These studies often focus on standards relevant for cross-border trade (e.g. Abbott & Snidal, 2001; Mattli & Buthe, 2003). When applied to economic statistics including GDP, this argument suggests that standards reduce information asymmetry, and thereby transaction costs, for trading partners and foreign investors.

Domestic arguments, in contrast, underscore the friction that can arise between international practices and local contexts. International Relations literature on localization emphasizes that external norms are frequently contested or modified (Acharya, 2004; Eimer et al., 2016; Heilmann & Schulte-Kulkmann, 2011). Acharya (2004) describes localization as ‘...the active construction ... of foreign ideas by local actors, which results in the former developing significant congruence with local beliefs and practices’ (ibid., p. 245). Countries on the receiving end are viewed as agents, and implementation does not necessarily lead to full harmonization (Lai et al., 2017, p. 963). Ban (2013, 2016) suggests a similar argument with the concept of translation: ‘rather than “copy and paste” ideas developed in foreign “labs,” receivers tend to actively filter and even reshape these ideas before “adoption”’ (Ban, 2016, p. 18). In a case study with many parallels to China, Herrera (2010) attributes the rapid adoption of GDP in Russia to professional norms of government statisticians. Her constructivist argument also emphasizes domestically-driven diffusion. Given the uncertain political and economic climate following the collapse of the Soviet Union, Herrera (ibid., p. 3) asks why Soviet bureaucrats ‘[embarked] on comprehensive institutional reorganization of their statistical system when they might reasonably have taken a much
slower, less substantive approach’. She argues that for statisticians, the perceived appropriateness of a statistical system was derived from economic structure, a view that is consistent with Marxist structural determinism (ibid.).

On the whole, the argument we develop in the following sections is driven by domestic, rather than external, dynamics. However, the ability of Chinese policymakers and statisticians to ‘localize’ or ‘translate’ the SNA was limited. This was a result of unique challenges posed by importing a foreign national accounting system to a domestic setting in which an alternative system already existed, and in which national ideology clashed with the economic ideas underpinning the SNA. And in contrast to the Russian case, as argued by Herrera, statisticians in China were constrained by political mandates. In China, two different frameworks for national accounts have been employed and were relevant to the early GDP measurement process. The following section provides a short overview of the differences between the two frameworks as background to understanding the piecemeal process of implementation.

**National Accounts Frameworks: MPS & SNA**

National accounts provide an overview of the structure and evolution of a national economy (Eurostat, 2014, pp. 21-22). National accounting systems ‘give specific meaning to the economy and provide factual data for users’ (ibid., p. 21). As Herrera (2010, p. 4) summarizes, national accounts tackle four fundamental questions: 1) What counts as productive economic activity? 2) How should activity be generally categorized and aggregated? 3) How should activity be defined and measured? And 4) how should or how might the necessary data be collected and disseminated? Historically, there have been two internationally-accepted national accounting frameworks: the System of National Accounts (SNA) and the Material Product System (MPS). GDP is an indicator of aggregate economic production derived from the SNA (Lequiller & Blades, 2014, p.15).

The SNA was developed in the late 1940s by economic statisticians in the newly formed United Nations Statistical Office (Ward, 2004). It quickly spread around the globe in the postwar period (Kendrick, 1970, p. 285). The global implementation of the SNA framework has been an ongoing project for roughly seventy years, spearheaded by international

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Lequiller & Blades (2014) provide a comprehensive description of how the System of National Accounts (SNA) addresses these questions.
organizations such as the United Nations Statistics Division, the International Monetary Fund (IMF), and the World Bank. Although weak statistical capacity in many countries and differences in national priorities continue to stand in the way of full harmonization (Jerven, 2013), the SNA is now the only internationally accepted national accounting framework.

Until the 1990s, the Soviet Union and Eastern Bloc countries, Cuba, and China (as well as a few other Asian countries for shorter periods of time) employed the Material Product System. The MPS originated in the USSR in the 1920s and spread through the Council for Mutual Economic Assistance (CMEA)-countries4 and other communist countries in the 1960s. It was formalized in 1969 and published as an international standard in 1971 (Herrera, 2010, p. 23). The analogous indicator to GDP from the MPS is Net Material Product (NMP). From 1949 until the mid-1980s the Chinese statistical system provided statistics solely on the basis of the MPS framework.

The MPS differed quite radically from the SNA. There are three fundamental differences between the two systems. First, the MPS framework only considers material production as economic activity and thereby excludes a large part of the economy, particularly the service sector (Árvay, 1994, p. 225). Second, the MPS uses administered prices instead of market prices to estimate the value of economic activity (Árvay, 1994, p. 225; World Bank, 1992, pp. 6-7, 104). MPS valuation is therefore skewed toward centrally set prices and does not reflect market dynamics. Third, MPS data collection methods report physical output numbers instead of financial and income flows, prioritizing information about the production side of the economy (Herrera, 2010, p. 27; Holz, 2004, p. 385). These differences between the SNA and MPS reflect variation in economic theory and ideology. There are also practical differences between the two systems. For one, the SNA makes use of a wide range of data sources, including sampling data, while the MPS primarily gathered data through total enumeration.

As a result of these differences, indicators derived from the SNA and MPS were not directly comparable. And attempting to measure GDP within the MPS framework was technically challenging. Therefore, properly measuring GDP in China entailed far more than converting existing indicators or collecting new data. It required an overhaul of the national statistical system, which was closely linked to the larger central planning apparatus (Xu, 2009, p.447; Herrera, 2010, p. 20). The following section analyzes this process.

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4 Member countries were: Bulgaria, Cuba, Czechoslovakia, East Germany, Hungary, Mongolia, Poland, Romania, Soviet Union and Vietnam.
The Winding Road to GDP Implementation in China

Engaging with Foreign Expertise – Producing a GDP Figure in China

GDP was not on the radar of statisticians and policymakers before China’s reforms began in the late 1970s. In general, centralized economic planning involved physical targets for agricultural and industrial production more than statistical indicators and economic models (World Bank, 1983, 4.16 Annex A). Net Material Product was in use as an indicator of national income, but it was considerably different from Gross Domestic Product (GDP). With the start of China’s opening up in 1978, policymakers and statisticians gained knowledge about GDP measurement through interactions with foreign economists, academics and international organizations. Chinese policymakers and economists actively sought out foreign economic ideas and practices, including GDP measurement. They studied the development models of foreign economies and conducted fieldwork trips, including to the United States (Gewirtz, 2017, p. 52, 54, 56, 62). From 1980 onwards, international interactions increased, largely due to China’s outreach to the World Bank. China became a World Bank member in that year, and through reports and expert meetings the Bank began to provide policymakers with an outside analysis of the Chinese economy (ibid., p. 75). World Bank staff conducted several missions with an emphasis on exchanging knowledge about economic reforms and development (Bottelier, 2007, pp. 242-243). The World Bank emphasized the use of statistics in economic policymaking. Its first mission report stressed that economic policymaking in China lacked quantitative foundations and that in order to improve economic planning, the statistical system would have to be reformed (World Bank, 1983, p. 166, 168-169). The Bank advised paying more attention to income statistics and less to the direct physical gross output numbers (ibid.). GDP in particular offered Chinese policymakers the possibility to track newly emerging sectors of economic activity and compare growth rates cross-nationally. The Bank presented China’s economic position relative to other developing countries by comparing China’s estimated GDP with that of India and Indonesia.

The GDP figures provided by the World Bank demonstrated that China’s service sector was underdeveloped compared to other low- and middle income countries (World Bank, 1983, p. 73). This information was not conveyed by Net Material Product (NMP), which did not cover the service sector. Another World Bank report prepared in 1983 made projections of China’s GDP growth and stressed the development of the service sector (Naughton, 1990, pp. 750-751):
Policymakers took these analyses seriously (Gewirtz, 2017, p. 75). The government widely circulated the report internally and, based on the findings, started working together with the World Bank to implement new planning techniques in preparation for the Sixth Five Year Plan (ibid.; Naughton, 1990, p. 750). These early interactions with the World Bank brought policymakers in China face to face with potentially useful applications of GDP statistics.

Along with policymakers, government statisticians also gained knowledge about the measurement and uses of GDP through increased international engagement. The State Statistical Bureau (SSB) actively reached out to the UN Statistical Office to learn about alternative statistical practices and methodologies. Consultants visited China and statisticians participated in international conferences to gather knowledge about international statistical practices (World Bank, 1983, Annex A: 4.14; Ferdinand & Wang, 2013, p. 900). In 1985, China became a member of the United Nations Statistical Commission for the first time (United Nations Statistical Commission, 2019). The Statistical Commission is the highest international governing body of official statistics. Membership involves participation in bi-yearly (now yearly, since 2000) meetings in which the development and implementation of international statistical standards are discussed by representatives of the participating national statistical offices.

In addition to experts from the UN Statistical Commission, the World Bank report prepared in 1981 paid specific attention to the appropriate measurement of GDP statistics. The report describes in detail how GDP figures could be derived from NMP (World Bank, 1983, pp. 220-263). Leading up to China’s first official GDP measurement, both policymakers and statisticians became familiar with the value of GDP statistics for economic management and the internationally accepted methodology. The first official GDP measurement in 1985 was made possible because of these international interactions. Chinese statisticians calculated GDP in a similar way that the World Bank estimates were made, as an indirect measure derived from NMP. Crude estimates of concepts that were missing in NMP, but crucial to measure GDP, were added. To account for the service sector, the SSB added 13% of the aggregate NMP to the official NMP figure, producing China’s first official GDP figure in 1985.

In the 1980s, the SNA was undergoing a revision process led by the Intersecretariat Working Group on National Accounts (ISWAGNA). The ISWAGNA is composed of experts from the UN Statistics Division, World Bank, IMF, OECD, and Eurostat. Expert group meetings include statisticians from member states on a rotating basis. A Chinese representative, Liu Xiaofah, attended one ISWAGNA expert group meeting during the 1993 revision: a meeting on the topic of ‘Reconciliation of SNA and MPS’ in Moscow in December, 1989 (Harrison, 2005, p. iv).
(World Bank, 1992, p.17). Even though the output suggested an internationally comparable GDP statistic, this first official estimate was still far removed from SNA methodology.

The motivation to engage with international counterparts, particularly at the World Bank, came from within the Chinese government. The CCP initiated dialogue with international organizations around economic development issues and encouraged civil servants to take up foreign ideas, concepts and policies. Gathering such knowledge was understood by politicians as contributing to China’s primary political aim, achieving economic growth and development (Gewirtz, 2017, p. 31, 39). Politicians were especially interested in comparing China’s development trajectory to other countries. They actively encouraged policymakers, economists and other experts to study other countries’ economic development and initiated international exchanges on their own request (Brodsgaard & Rutten, 2017, p. 53; Ferdinand & Wang, 2013, p. 901; Gewirtz, 2017, p. 31).

Political support for making international comparisons created room for policymakers and statisticians to gain knowledge about foreign national accounting practices. Notably, Deng Xiaoping formulated China’s development goals in comparative terms, explicitly using the GDP indicator. He proposed a GNP target of $1,000 per capita in 2000 as China’s primary development goal (Deng, 1979). He communicated the target to international actors, most importantly the World Bank. These domestic ‘pull’ factors contributed to facilitating international engagement on the topic of GDP measurement.

**Resisting Outside Imposition**

The process of international engagement that led to China’s first official GDP measurement was characterized by a high degree of agency from the Chinese side. Chinese representatives successfully positioned their ownership over the terms of cooperation with international organizations. Chinese policymakers made clear that they wished to exchange ideas and become part of the international community, but not at all costs. In 1980, Deng Xiaoping announced to World Bank officials: ‘We are very poor. We have lost touch with the world. We need the World Bank to catch up. We can do it without you, but we can do it quicker and better with you’ (Bottelier, 2007, p. 242). Their position vis-à-vis international organizations allowed them to negotiate estimates of official statistics. In 1980, Chinese statisticians disputed World Bank estimations of Chinese GNP per capita. They argued that their GNP per capita was US$150, while according to World Bank estimates China’s GNP per capita was US$250. The two settled on a GDP per capita of US$180, which became the base for further
calculations (Interview 04). Additionally, China refused to take part in the World Bank’s International Comparison Program (ICP), an international price survey used to obtain purchasing power parity income (ppp), until 2002 (Wade, 2012, p.18; World Bank, 2018). Chinese policymakers were able to selectively respond to international demands for statistical harmonization.

The World Bank approached China as an equal partner and tried to take into account the preferences of policymakers in the reform process. Edwin R. Lim, former chief of the World Bank mission in Beijing between 1985 and 1990, confirms the supportive attitude towards a pragmatic reform process and said: ‘… we were also never very heavy-handed. We never questioned socialist systems. We always tried to work within the envelope that they set for us. ... We always work within their political parameters’ (Lim, 1993, p. 12). The Bank even invited Eastern European experts, from non-World Bank member countries, to share their views on economic reforms with Chinese policymakers (ibid., pp. 9-11). It suggests that international organizations such as the World Bank provided at least a variety of (ideological and practical) options on economic reform to Chinese policymakers and statisticians.

This approach is considerably different from the one adopted in other developing countries, where the World Bank and other IOs pushed for a rapid adoption of free market policies through structural adjustment (ibid., p. 15). Similar to other developing countries, China’s statistical system had limited resources and capacity to adopt changes (Interview 04). However, in China the World Bank applied a more cautious and pragmatic approach that accommodated local preferences (Lim, 1993, pp.9-12; 16; Interview 04). This approach provided Chinese policymakers with room to adopt those elements of reform they were interested in and set the pace for reform (Lim, 1993, p. 10). Measuring GDP was not forced upon China, but came out of their own interest in the measure.

**Ideological Constraints and the Hybrid System Experiment**

Domestic ownership over statistical reform is especially evident in the second step of adopting GDP. From 1987 to 1993, Chinese policymakers and statisticians chose to accommodate GDP measurement in a hybrid statistical system. The core idea behind the hybrid system was to provide national accounts summary statistics compatible with both the Material Product System (MPS) and System of National Accounts (SNA) (World Bank, 1992, p.1). The statistical system thus continued to produce MPS aggregates, based on Marxist-Leninist economic concepts, while also producing SNA indicators with a focus on
GDP in particular (World Bank, 1992, pp. 102-103). Such an approach was uncommon and, with the exception of Hungary, not seen in the rest of the world. The hybrid system was a local solution to accommodate GDP into the Chinese context.

Choosing the hybrid system was a political choice, shaped by the domestic political constraints with which Chinese policymakers and statisticians had to work. Statistical reform had become a political issue in which Party officials set the limits. Instead of leaving choices about reform up to statisticians, politicians were directly involved in discussions about the statistical system. In 1984, the State Council established a Leading Group on National Accounts Reform. This group was tasked with providing recommendations for a new statistical framework (World Bank, 1992, p. 102). It consisted of a broad range of stakeholders, from economists, financial experts and statisticians to bureaucrats from the State Planning Commission, Ministry of Finance and other departments (NBS, 1984; World Bank, 1992, p. 102). The diversity of stakeholders and attendance of important Chinese authorities shows that these discussions were of political relevance (Interview 02). Furthermore, the State Council put political pressure on the Leading Group when it urged the Group to separate theoretical debates and practical work to avoid delays in the reform process (Yue, 1989).

In addition to this pressure and the range of political actors involved, the specific task set out by the State Council suggests that discussions about statistical reform were driven by domestic politics. The Leading Group had to come up with a national accounting framework that (1): served the needs of the government in relation to its economic reform policy (2); was in line with the actual situation in China (3); was guided by Marxist doctrine, as interpreted by the central government (4); and took up the strengths of foreign national accounting systems (Yue, 1989). The ambiguous task reflected the political ideology that was officially propagated by the CCP at that time. The CCP established an official ‘operational ideology’ that aimed to ideologically justify choices for economic reform and determine the appropriate course of political evolution (White, 1988, p. 191). This ideology was derived from an interpretation of Marxist economic theory and set the frame in which policies were made (ibid.).

The stakeholders in the Leading Group had to work with a complex operational ideology, namely the ‘socialist planned commodity economy’. The CCP Central Committee formally endorsed it on the 20th October 1984 (Gewirtz, 2017, p. 126). The term captured the ambiguous status of the Chinese economy in transition: still guided by state planning, but open to the introduction of capitalist market mechanisms. The task of the Leading Group reflected these
tensions. It had to accommodate GDP measurement in a system that did not break from the socialist foundations of the Chinese political economy, while at the same time taking into account concrete changes in economic structure. This task entailed not only methodological and institutional difficulties but, more importantly, possibly conflicting ideological elements.

Even though the CCP officially propagated this operational ideology, the implications for concrete economic reforms and statistical reforms were unclear. The slogan needed further interpretation by politicians, policymakers and other bureaucrats who were responsible for the development of new policies and implementation of reforms (Gewirtz, 2017, p. 126). The Leading Group interpreted the operational ideology and the corresponding task for statistical reform in its choice for the hybrid system. In 1986, after two years of discussions, the Leading Group recommended this system. Along with the hybrid system they had discussed alternative options, namely continuing with the MPS framework or a gradual switch from MPS to SNA, concluding in a full adoption of the SNA framework. Neither option was seen as viable according to the operational ideology; only the hybrid system would fit appropriately. Several stakeholders involved in the decision-making process legitimized the choice in light of the operational ideology. The State Council endorsed the recommendation and regarded the implementation of the hybrid system as a first step in national accounts reform that would serve the needs of the socialist planned commodity economy (World Bank, 1992, pp. 101-103). According to Chinese authorities, adopting the full SNA framework did not correspond with national circumstances and needs (ibid.). In 1986, when justifying the choice for the hybrid system, the State Council made clear that ‘during a period of transition the economy will change, but even in the post-reform evolved state, central planning will coexist with a large market-oriented dimension’ (ibid., p. 103). SSB statisticians stressed this point and explained to World Bank officials that the production of MPS aggregates was justifiable given that economic planning would continue to play a role during economic transition (ibid., p. 101).

The emphasis on the remaining role of economic planning follows from the ‘operational ideology’. This slogan represented not a practical description of the Chinese political economy but a symbolic and political term which implied a commitment to centralized economic planning. The ideological stamp on the specific task made it hard for the Leading Group to deviate from the official political line set out by the CCP. Thus, a full adoption of the SNA was not viable. The politicization of statistical reform and national accounting in combination with the official ideology pushed the Leading Group to make a decision in line with the appropriate domestic political preferences. As these preferences deviated from the
old MPS framework but were not fully aligned with the international standards, the Leading Group chose a local solution in the form of the hybrid system. The domestic political conditions constrained the room for statistical reform, and instead facilitated the selective adoption of international standards.

**A Local Solution or Harmonizing International Standards?**

The implementation of the hybrid system shows that China accommodated GDP measurement considerably differently than Western industrialized countries. Unlike in Western economies, interest in measuring GDP did not immediately go hand in hand with a desire for harmonization. Instead, only certain aspects of international standards were borrowed. For example, depreciation rates were set centrally, which means that unlike the SNA guidelines, China did not measure the concept of economic depreciation (World Bank, 1992, pp. 18-20). Because Chinese statisticians did not use economic depreciation rates to measure GDP, they did not follow the international standards. Furthermore, theoretically the valuation of the Input-Output (I-O) table, from which NMP and GDP figures were derived, was supposed to be in terms of meaningful producer prices, but the Chinese table in 1987 confounded implicit subsidies, taxes and prices (World Bank, 1992, pp. 20-21). MPS concepts and methods thus were predominant in the hybrid framework, supplemented by GDP measurement. For example, to produce GDP figures, statisticians used a production-side estimation that measured the value of output and distinguished material and non-material production and the primary, secondary and tertiary sector from each other.

Several elements of the SNA framework were included in the hybrid system, but slightly adjusted to fit the Chinese statistical system. In 1987 a transition Input-Output (IO) table was developed (Qi & Chen, 2007, p. 1). The table was not entirely designed according to MPS conventions, nor to SNA conventions. It distinguished between material and non-material production, but also aimed to capture SNA concepts such as household consumption, business investments, and government spending (ibid.; Guo, Sonis & Hewings, 1999, p. 318; World Bank, 1992, p. 2; Xu, 2009, p. 450). Despite these changes, the basis of the hybrid system remained the MPS framework. ‘Statisticians used the old measures and data collection methods to produce new indicators (Interview 05).’ GDP was still mostly derived from NMP data, and missing variables required for GDP were only measured through ad-hoc surveys rather than consistently applying the same data collection methods and concepts (World Bank, 1992b, p. 7). In this way, the Chinese essentially adopted a façade of the SNA, not the
International standards only selectively diffused to the Chinese context. The initial intention was not so much to fully adopt international standards as to develop an unique framework in which two national accounts systems could be aligned in a way that suited the domestic economic and political conditions at the time.

**Adopting the SNA: the Influence of increasingly Serious Measurement Mismatches**

Despite political support for the hybrid system, it only provided a temporary solution for accommodating GDP measurement. Several dynamics caused the hybrid to become less relevant and contributed to switching to the SNA. These dynamics are threefold and each comprise a different type of measurement mismatch, namely practical, international, and ideological. These measurement mismatches not only show how China incrementally abandoned the Hybrid System, they also provide insight into how China’s adoption of GDP measurement differs from other cases.

The first dynamic that caused instability to the hybrid is the practical measurement mismatch. This refers to the problems caused by the set-up of the hybrid statistical system. National accounts systems are highly complex technical objects of diffusion. To produce meaningful and interpretable (aggregate) statistics, conceptual categories need to be applied consistently and systematically and data input needs to suit the categories accordingly. For example, for each product distinguished in national accounts, total supply (imports and national production) must equal total use (intermediary and final consumption, export, capital formation and change of stocks). This applies to the volume and the price of the products. The systematic approach on which national accounting depends makes it difficult to mix conceptual or practical principles from different types of national accounts frameworks. For example, when some products are valued differently, one by collecting the market price while others are measured according to administered or set prices, this can cause discrepancies between the supply and total use value of different products.

The Chinese hybrid statistical system however did show characteristics of such a mixed approach. Therefore, the system itself caused heavily skewed GDP figures for two reasons. First, the data collection methods in the hybrid system were responsible for the most serious shortcomings (World Bank, 1992, p. 16). The data reporting system was almost entirely based on the MPS framework and did not correspond with the scope and concepts from the SNA framework (Holz, 2004, p. 395; World Bank, 1992, p. 16). The direct reporting system was
unable to cover large parts of the economy, especially the service sector, private sector and rural economic activities (World Bank, 1992, p. 14). Economic output by new small- and medium sized and private companies as well as by self-employed citizens was not reflected in official statistics (ibid., pp. vi, 14, 32-33). As a result, the fast-growing service sector was heavily underestimated in GDP figures (World Bank, 1992, pp. vi, 45-47). Additionally, there were multiple conceptual definitions for the service sector. Authorities had to convert MPS data to meaningful concepts in the SNA framework, but often interpreted the data differently (World Bank, 1992, p. 42). This caused conceptual inconsistencies in GDP figures, creating ambiguous information about the size and composition of the service sector (ibid., pp. 42, 47).

Second, the valuation of prices according to MPS conventions also caused problems to GDP measurement. The MPS values economic activity according to actual transactions in the form of physical outputs or according to administered prices instead of value-added according to (market) prices (World Bank, 1992, pp. 7, 12, 14, 104). Valuation problems caused discrepancies to China’s GDP measurement in three ways. First, many transactions in the service sector were priced too low relative to market prices in general or compared to products in the primary and secondary sector (World Bank, 1992, pp. 13, 47; Xu, 1991). This caused another downward bias estimating the service sector within GDP, underreporting of the total GDP aggregate and systematically understating real income flows (World Bank, 1992, pp. 13, 47; Xu, 1991). Second, government subsidies counted as compensation for enterprise losses in the MPS framework, rather than government demand for output as in the SNA (World Bank, 1992, p. vi). This distorts the structure of GDP and confuses the value added of each sector including the government to the economy. Third, industrial enterprises and other reporting units often reported data in actual government-regulated prices, rather than converting them to market-price values. As a result, GDP figures misrepresent the true extent of economic activity (World Bank, 1992, p. 13; Xu, 1991). In sum, price data did not correspond to the actual value of market prices. This leads to practical measurement mismatches because GDP is measured in terms of market prices. Valuation problems in the hybrid system led to underestimating the total value of GDP, confusing the structure of GDP figures and overestimating the GDP growth rate, because it underestimated the degree of inflation (World Bank, 1992, p. 49).

The practical measurement mismatch shows how difficult it is to selectively diffuse international statistical standards. The measurement problems that came forth out of the selective diffusion caused concern with Chinese authorities and statisticians (World Bank, 1992, pp. 16, 21). They were aware of the problems and worried about the accuracy of service
sector and consumption statistics, validity of price statistics and whether GDP statistics reflected the economic structure (ibid., pp. 16, 21, 23, 54). The Chinese authorities realized that the hybrid system was not suitable to develop accurate and reliable GDP figures. The practical measurement mismatch hampered the relevance of the GDP statistics obtained from the hybrid system. However, despite the mismatch, Chinese policymakers expressed their commitment to the hybrid system until the early 1990s (NBS, 1996, 2017; World Bank, 1992, p. iv; Zhi, 1992). The measurement problems alone were not sufficient to drastically change the pace of reform, meaning abandoning the hybrid system and fully adopt the SNA.

The fact that policymakers remained committed to the hybrid system despite these measurement problems stands in stark contrast to the adoption of GDP in Western industrialized countries decades earlier. In Western Europe and the United States, beginning roughly in the 1930s, GDP provided policymakers with new, detailed information about the macro economy – information that was instrumental in economic planning (Lepenies, 2016, p. 63; Fogel, Fogel, Guglielmo & Grotte, 2013, pp. 49, 55). The quality and reliability of GDP statistics was important in this respect. In China, the quality of early GDP estimates was of secondary importance. Measurement problems resulting from the hybrid system did limit the usefulness of the system. However, this alone did not spur immediate action to fundamentally overhaul the national accounting system.

In addition to the practical measurement mismatch, an international measurement mismatch also affected the relevance of the hybrid system. In a short time period, the MPS disappeared as an alternative to the SNA framework for national accounts on the international level. In 1990 most former Soviet states rapidly and quite unexpectedly stopped using the MPS framework and switched to the SNA (Herrera, 2010, p. 88). Before 1989, the Soviet states had no interest in pursuing a SNA-based framework for national accounts. They were not interested in adjusting price indices, nor were there any significant reforms underway regarding data collection methods (ibid.). However, the CMEA-countries abandoned the MPS framework and indicators and started the transition to the SNA in 1990 and 1991 (ibid.). They rapidly made significant changes to their statistical system and were fully committed to changing their statistical practices (ibid.). As a result, the level of implementation of SNA standards was actually higher in the former Soviet states than in other regions (ibid., pp. 6-7). By convincingly embracing the SNA, the former Soviet countries contributed to the hegemonic status of the market-oriented SNA framework (ibid., p. 88).

The disappearance of the MPS on the international level affected the status of the MPS concepts within the hybrid system. First, the indicator NMP became less relevant for making
international comparisons once most of the former Communist countries abandoned it. Second, international organizations increasingly shifted their focus to the SNA framework, which affected China’s cooperation with these organizations as well. Even though the World Bank had no power to force China to adopt the SNA, the aim of the mission was ‘assisting China to publish statistics in SNA-consistent categories’ (Interview 05). Chinese policymakers and statisticians realized that the rest of the world adopted a different system, and tried to do what was necessary to compare themselves with others (ibid.; NBS, 2003). They started to incrementally adjust the hybrid system, giving the SNA a larger role in the statistical system. In August 1992 the State Council implemented the ‘Chinese System of National Accounts (pilot program)’ (State Council, 1992; Xu, 2014). In this framework, GDP became the primary indicator (Interview 01). China did not officially switch to the SNA framework. NMP figures were still produced, and MPS data collection methods were still widely used. Nevertheless, the incremental changes elevated the importance of SNA aggregates vis-à-vis MPS aggregates within the system.

The changes in China’s hybrid system due to the international measurement mismatch show how the Chinese case differs from the adoption of GDP in former Soviet countries. First, unlike the rapid disappearance of the MPS in former Soviet countries, the Chinese adoption of GDP measurement was very incremental, taking almost a decade before switching to the SNA framework. Second, in Russia, statisticians only discussed the possibility of a hybrid system; implementing it never became a concrete option (Herrera, 2010, p. 184). Once statistical reform took place, Russian statisticians convincingly chose to fully adopt the SNA and implement international standards. The Chinese on the other hand were committed to the hybrid system and only made changes within this system, even when the hybrid became less and less useful. Statistical reform in China followed a different pace and there was more room to experiment with local solutions and selective diffusion of international standards. The practical and international measurement mismatch did not trigger abandonment of the MPS in favor of the SNA. As with earlier phases, changes on the domestic political level were ultimately necessary before switching to the SNA.

Changes in domestic politics caused a third measurement mismatch, namely an ideological mismatch. The Chinese operational ideology ‘socialist commodity economy’ had been providing the ideological underpinning for the hybrid system since 1986. It was well-aligned with the mixed set-up of the statistical system, combining socialist centralized planning statistics with market aggregates like GDP. However, an ideological measurement mismatch appeared when the Fourteenth Party Congress redefined the underlying ‘operational ideology’ to a ‘socialist market economy’ in October 1992 (Gewirtz, 2017, pp. 251.
254, 258). The constraints that the ideology posed on statistical system reform were lifted. Chinese politicians presented the new operational ideology without making reference to communist planning (ibid., p. 254). This suggested that producing traditional planning techniques and statistics was no longer a political mandate. This ideological mismatch made it politically acceptable to abandon the MPS, which was intrinsically tied to centralized economic planning. Additionally, the term entailed that the market would be the primary form of economic organization, which required indirect macroeconomic management by the state (ibid., pp. 251, 254, 258). Fully switching to a market-oriented national accounting framework was therefore not contradictory to the new ideology. The new codification implied that the statistical ‘language’ of the SNA was the appropriate language to describe the Chinese economy.

The ideological mismatch could be fully solved by switching to the SNA, which happened in 1993. The statistical bureau stopped measuring the MPS-based national income indicator NMP in October 1993 and thereby officially switched to SNA as its official national accounts framework (Xu, 2009, p. 447). To legitimize this change, the former deputy director of the NBS stressed the link between the operational ideology and the switch to the SNA. He indicated that China being a ‘socialist market economy’ after the 14th Party Congress led to eliminating NMP measurement and other MPS aggregates (Xu, 2001). Thereby, the new operational ideology laid the foundation for officially adopting the SNA (Min & Xu, 1997). Together with the two other measurement mismatches, the ideological mismatch affected the relevance of the hybrid system to the Chinese context. These mismatches made it reasonable and politically acceptable for Chinese policymakers and statisticians to switch to the SNA as the official national accounts framework. Almost 10 years after it first adopted GDP measurement, as the last major holdout, China committed to measuring GDP according to international standards and completed the hegemonic status of the SNA.

Conclusion

Much attention goes out to China’s GDP, whether it is to assess China’s economic performance in light of the US-China trade war, analyze the CCP’s enduring performance legitimacy by discussing the internally stated GDP target or to evaluate the accuracy of Chinese GDP figures by addressing the manipulation of GDP data by local governments. The ubiquity with which we use the indicator to debate China’s political economy makes it remarkable that this indicator arrived in the country quite late and with serious challenges.
This article showed how the diffusion of international statistical standards is a dynamic and stepwise process. The choice of indicators and how they are measured, moreover, is inherently political.

The adoption of GDP measurement in China took place through an incremental process in which both domestic and international factors were of influence. International factors, however, merely enabled the initiation of GDP measurement, while domestic factors shaped the unique process. First, China started to measure GDP figures in 1985 as part of a process of international engagement in which Chinese policymakers, statisticians and international organizations exchanged knowledge about GDP. This dynamic was not solely externally driven, but guided by Chinese domestic political actors, who expressed their interest in GDP figures and encouraged bureaucrats to take up foreign concepts as a basis for new economic policies. Second, due to domestic political ideological constraints, GDP was measured in a hybrid system, which was a local solution that accommodated elements of two different frameworks of national accounts. China chose to selectively adopt international standards, as fully adopting these standards was inappropriate to the Chinese political context. Only when the hybrid statistical system was confronted with three types of mismatches – practical, international, and ideological – China officially switched to the SNA, and began to comply with international standards.

The Chinese case differs markedly from other examples of the global diffusion of GDP measurement. Changes on the international and domestic levels, and challenges within the statistical reform itself, forced policymakers to rethink the strategy of adopting international standards for GDP measurement. The Chinese case also highlights that domestic political constraints can influence the degree of implementation of statistical standards considerably. In relation to the diffusion studies literature, this case study is a reminder that different kinds of diffusion involve different kinds of dynamics. Norms, for example, are far more fluid and adaptable to local contexts compared to statistical practices. This is especially true in this case study, where China not only adopted a new indicator but reformed the entire statistical system. Although SNA methodology is flexible enough to accommodate different types of national economies, it cannot bend as far as accommodating centrally administered prices or a statistical bureaucracy not equipped to collect survey data on economic activity.

Even though China has adopted the SNA as the official national accounts framework, there are still legacies from the past that influence GDP measurement up until today. The incremental process of adopting SNA has given room for MPS data collection methods to
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Persist. The Chinese statistical system is biased towards production measures, and service sector statistics were responsible for the biggest GDP revisions. Understanding the process through which GDP traveled to China is therefore valuable in current discussions about the accuracy of China’s GDP figures. While a few scholars have acknowledged the influence of MPS legacies, most discussions revolve around suspected data manipulation. As China is becoming increasingly active in global politics and gaining a more assertive and active position in international organizations, ideological and political preferences on the domestic level are likely to influence discussions about new international statistical standards. On the domestic level, Chinese policymakers are already proposing and discussing innovations to GDP measurement. They were close to implementing an alternative to GDP which accounted for environmental degradation, Green GDP, and discussed the options of including the ‘sharing economy’ into its GDP measurement (Cheng Wee, 2015; World Finance, 2016). As China increasingly engages on the international level these domestic discussions about GDP measurement may transfer to the international level, influencing GDP measurement across the globe. Whether China turns from the last major holdout to the innovator on GDP measurement remains to be seen.
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