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, the adoption of GDP was complicated by mismatches between the ideology guiding China’s reform process and the economic ideas underpinning international statistical standards. The Chinese government’s translation of the standards into the domestic political-economic context lasted nearly a decade. This process was not foisted upon China from the outside, but rather was driven by domestic factors in an experimental fashion. This is best characterized as an atypical case of diffusion and an unsuccessful case of translation. It makes clear that macroeconomic measurement is inherently political, not a set of neutral ‘best practices’. The findings also point to the characteristics of the diffusion object as an underexplored but important factor that can undermine domestic attempts to translate or localize global policy ideas.

KEYWORDS

Political economy of statistics; China; international standards; diffusion; GDP; national accounts

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.1 Despite the neutral appearance of GDP, it is rooted in neoclassical economics and is poorly suited to capture non-market economic activity (Herrera, 2010; Mügge, 2020; 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. In the time since this late adoption, GDP has taken on enormous political and social significance for governance by the Chinese Communist Party (CCP) (van Heijster, 2020; Wallace, 2016), 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). 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. How and why did China adopt GDP despite these unfavorable conditions? We aim to identify the drivers of diffusion in order to explain why the process took the trajectory that it did.

International political economy (IPE) literature has studied the diffusion and adoption of a wide range of norms, ideas, policies, and institutions, but little is known about the global spread of GDP measurement. In line with coercive or top-down accounts of diffusion, GDP is often portrayed as having been imposed around the world by Western countries and international organizations (IOs) (Fioramonti, 2013; Philipsen, 2015; Schmelzer, 2016). Sociological approaches focus on socialization, learning, and emulation as drivers of diffusion (e.g. Chwieroth, 2014; Marsh & Sharman, 2009). These dynamics shed light on the ways that statisticians and policymakers, through transnational interactions, seek out foreign ideas to solve problems in domestic statistical practices. Neither of these approaches fully explain how GDP measurement was adopted in China.

We find that GDP adoption in China was an experimental – and ultimately unsuccessful – process of translation (Ban, 2016) driven by domestic actors. GDP measurement is governed by the System of National Accounts (SNA), an international standard designed to capture aggregate economic activity in capitalist economies. When China first attempted to calculate GDP, the country already had a national accounting system in place appropriate for centrally planned economies: the Soviet-inspired Material Product System (MPS). On the one hand, it became apparent in the early 1980s that GDP and other concepts from the SNA were becoming relevant in the context of economic reforms. On the other hand, domestic political debates and compromises over opposing blueprints for economic reform set the parameters for statistical reform. This resulted first in a hybrid system of national accounting, an experiment based on grafting selected ideas from the SNA onto the MPS framework, and later contributed to abandoning the graft and adopting the SNA framework. The translation of GDP into this transforming domestic setting took nearly a decade, while the Communist Party rhetorically justified these statistical reforms as consistent with national ideology, and the complexity of national accounting systems and their foundations in economic theory complicated the smooth adoption of GDP measurement. We support this argument with qualitative data collected from one month of fieldwork in Beijing, analysis of official government documents and from World Bank archives, 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; Philipsen, 2015). As part of this special issue, the article reflects on how statistical standards spread globally, specifically how they translate into statistical practices on the ground. While Aragão and Linsi (this issue) show that there is a great deal of leeway in statistical standards, this case demonstrates that standards can nonetheless impose rigid constraints when they clash with domestic statistical institutions.

Our analysis also critically engages with IPE literature on the diffusion and translation and localization of policies and norms (e.g. Ban, 2016; Bell & Feng, 2019; Eimer et al., 2016; Lai et al., 2017). This is an atypical case that can be considered as a failed instance of translation. It points to the unique features of an object of diffusion as a currently underexplored but important factor that shapes the diffusion process and its (temporary) outcomes, to such an extent that it can undermine domestic attempts to localize global policy ideas. 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.

The article proceeds with an overview of the functions of national accounting systems and the ideas and norms embedded in international standards. This is followed by a discussion of diffusion theories and the theoretical approach that we apply. 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.

**National accounting systems: international standards and economic ideas**

National accounting systems provide an overview of the structure and evolution of a national economy (Eurostat, 2014, pp. 21–22). They ‘give specific meaning to the economy and provide factual data for users’ (Eurostat, 2014, p. 21). 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 and quickly spread around the globe in the postwar period (Kendrick, 1970, p. 285; Ward, 2004). The global implementation of the SNA has been an ongoing project for roughly seventy years, spearheaded by international organizations such as the United Nations Statistics Division, the International Monetary Fund (IMF), and the World Bank. Although weak statistical capacity in many countries continues 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)-countries\(^3\) 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.

China’s adoption of the SNA (and thus GDP) was an atypical case of diffusion, as we argue below. Diffusion is ‘a process through which ideas, normative standards, or … policies and institutions spread across time and space’ (Börzel & Risse, 2012, p. 5). The literature on diffusion investigates the spread of norms (e.g. Acharya, 2004; Finnemore & Sikkink, 1998; Price, 1998), ideas (e.g. Ban, 2016; Sell & Prakash, 2004), policies (e.g. Bell & Feng, 2019; Röper, 2020), and institutions (e.g. Thomassen, 2017).

The SNA is neither a norm, idea, or policy. It is a national accounting framework made up of ‘a set of concepts, definitions, classifications and accounting rules that comprise the internationally agreed standard for measuring such items as gross domestic product …’ (ISWGNA, 2008, p. 1). As a ‘collection of practices and rules’ (Finnemore & Sikkink 1998, p. 891), the SNA and MPS can be considered institutions, albeit complex ones. And, as institutions, they are embedded with norms and ideas.

National accounts tackle four fundamental questions, as Herrera (2010, p. 4) summarizes: 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?\(^4\) The internationally ‘agreed-upon’ (although contested) answers to these questions are formalized in the SNA. In this sense, the SNA is embedded with norms, defined as ‘standard[s] of appropriate behavior for actors with a given identity’ (Finnemore & Sikkink 1998, p. 891). In addition, the notion that ‘the SNA was appropriate for capitalist economies and the MPS for centrally planned economies’ (Herrera, 2010, p. 3) is itself a norm.

There are also economic ideas embedded in the SNA and the MPS, both of which are grounded in economic theory. These concrete economic ideas, cause friction between the SNA and the MPS. National accounts indicators such as GDP are ‘transformations of primary data with the aid of statistical techniques and conceptual conventions’ (Bos, 1995, p. 4). The concepts defined in the SNA – such as financial assets, the production boundary, or capital formation, to name just a few – are particularly influenced by economic theory. For example, ‘The definition of changes in prices and volumes include references to various index number formulæ, e.g. Paasche, Laspeyres, Fischer and Tornquist’ (Bos, 1995, p. 7).

The ideas embedded in the SNA clash with those of the MPS in three ways in particular. 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; Jefferies, 2015, pp. 14–17; World Bank, 1992a, pp. 6–7, 104). Valuation in the SNA is based on the concept of current exchange value (Bos, 1995, p. 18). In Bos’s (1995, p. 4) words, ‘Valuation is at the heart of both economic theory and national accounting’. 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 gathers data through total enumeration.

As a result, indicators derived from the SNA and MPS are not directly comparable. And attempting to measure GDP – an SNA indicator – within the MPS framework is technically challenging. Therefore, properly measuring GDP within an MPS framework entails far more than converting existing indicators or collecting new data. It requires an overhaul of the national statistical system, which in China was closely linked to the larger central planning apparatus (Herrera, 2010, p. 20; Xu, 2009, p. 447).

Theorizing the diffusion of the system of national accounts and GDP measurement

Despite the unique challenges of replacing one national accounting system with another, as described above, previous literature on diffusion offers several suggestions as to how this happened and what drove the process. The literature proposes a few plausible mechanisms of diffusion, namely coercion, socialization, localization and translation.

Coercive diffusion occurs when host societies are confronted with external pressure to conform to an idea or practice (Lai et al., 2017, p. 961). Coercion is a direct diffusion mechanism, meaning ‘An agent of diffusion actively promotes certain policies or institutional models in her interactions with a receiving actor or group of actors’ (Börzel & Risse, 2012, p. 5). Literature on the political history of GDP (e.g. Fioramonti, 2013, pp. 40–43; Philipsen, 2015, pp. 131–135) and economic growth as a policy goal (Schmelzer, 2016) tends to portray the diffusion of GDP measurement as a coercive process. 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’ by IOs and powerful states.

Socialization involves learning from, mimicking, or emulating other actors or practices. Socialized diffusion takes place ‘when actors attempt to solve problems or policy challenges in an environment that is rooted in uncertainty and bounded rationality’ (Lai et al., 2017, pp. 961–962). Domestic actors use emulation to ‘solve a problem or to overcome a crisis and look around for ‘best practices’ and institutional solutions …’ (Börzel & Risse, 2012, p. 5). Emulation can be based on an instrumental rationality, or it can follow a (normative) logic of appropriateness (Börzel & Risse, 2012, p. 9; Marsh & Sharman, 2009, pp. 271–272). Chwieroth (2014) suggests that states might emulate policies because they are ‘fashionable’ among other states with similar characteristics.

Localization and translation emphasize the ways that domestic actors contest foreign norms, ideas, or policies and modify them in accordance with local contexts (Acharya, 2004; Dafe, 2020; Eimer et al., 2016; Van Kersbergen & Verbeek, 2007). 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’ (Acharya, 2004, p. 245). Domestic actors are agents rather than passive recipients (Lai et al., 2017, p. 963).

Grafting is a particular strategy sometimes employed in localization wherein a new norm is framed in a way that resonates with an already existing and accepted local norm (Acharya, 2004, p. 244; Price, 1998). The process of grafting ‘creates composite products in which alternative ideas (or norms or policies or practices) comingle’ (Lai et al., 2017, p. 963). Grafting is often portrayed as a way to successfully introduce norms that might otherwise be rejected. But, as Lai et al. (2017, p. 963) argue, the product of a graft might be unstable and contain ‘[i]ncompatible component parts’ that cause it to fall apart after some time.

In 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). One of the main limits on faithfully replicating foreign ideas, according to Ban (2016, p. 19), is the degree of local translators’ knowledge of those ideas. Actors who have access to transnational networks will be better acquainted with foreign ideas than those who do not, and the latter will rely more on competing local ideas (Ban, 2016, p. 22). In the case of German pension policies, Röper (2020) argues that foreign ideas had little effect on domestic preferences but were used symbolically to advance an agenda already preferred by local agents.

In the mechanisms discussed above, localization and translation emphasize domestic factors in explaining diffusion outcomes. Socialization involves both external and domestic drivers, while coercion is a top-down process. Studies of China’s economic transition tend to emphasize domestic rather than external mechanisms, ‘with a range of studies finding China to be a difficult arena for external policy diffusion influences’ (Bell & Feng, 2019, p. 1). However, processes of domestic-driven diffusion can lead to a wide range of outcomes. As Zimmermann (2016) summarizes, the outcomes of diffusion are often presented in existing research either as dichotomous (between rejection or full adoption) or in a continuum between these extremes (Zimmermann, 2016, pp. 102–103). The steps on this scale are: rhetorical adoption; legal adoption; implementation in policy or practice; and individual internalization of the norm or idea (Zimmermann, 2016). These steps are depicted in Figure 1, excluding individual internalization for parsimony.

This ‘typical model’ assumes that foreign ideas or norms are first embraced superficially in the discourse of local actors; then formally adopted, but not necessarily put into practice; and finally implemented in practice. Intuitively, the degree of adoption increases at each step.

**Our approach: tracing diffusion of national accounting practices in China**

This article takes the sequence of diffusion less as an indication of the degree of adoption, but more as a means of tracing why and how actors have attempted to
influence the outcome. We combine a political economy perspective with a diffusion lens to understand how actors attempt to translate foreign practices, and where they face obstacles and change direction. This approach allows for the possibility that diffusion outcomes are only temporary, and gives insight into the constant process of (re)negotiating foreign norms and ideas.

We identify a sequence of diffusion that ends in full implementation despite attempts by domestic actors to initially resist this outcome through translation and hybridization. This sequence differs from the model described above in important ways (see Figure 2). First, the Chinese government attempted to measure GDP but did not adopt the SNA (partial indicator implementation). Second, hybridization was attempted by blending two national accounting standards. Finally, only when the SNA was adopted, GDP was fully (albeit still imperfectly) implemented. This process also differs from many previous cases of diffusion (Figure 1) in that it does not begin with rhetorical adoption. Rather, discursive embrace of the SNA by the CCP was ongoing throughout the entire process and adapted to changing circumstances. This discursive component, which we call ‘rhetorical adaptation’, allowed the Chinese government to justify (to a domestic audience) the dilution and eventual abandonment of its hybrid system.

Each of these steps is driven by different mechanisms (see Table 1). Partial indicator implementation was enabled by socialization, in which Chinese statisticians and policy members reached out to international experts for advice on statistical reform. Hybridization was an experimental process of translating selected ideas from the SNA into the domestic political-economic context, and thus grafting foreign ideas onto the foundation of the MPS. Finally, adoption of the SNA and full implementation of GDP was driven by the CCP’s recognition of growing mismatches, particularly between the MPS and the increasingly prevailing commitment to market-oriented economic ideas and macroeconomic management within the CCP. At each of these steps, rhetorical adaptation took place as the CCP justified statistical reforms to domestic audiences. Statistical reforms were framed as necessary to support economic reforms, in line with changes in the ‘operational ideology’ (defined in the following paragraphs).

In China during the period of reform and opening up, local ideas were changing rapidly. To trace (changes in) the prevailing local ideas in China in the early reform period and analyze the extent to which they are in competition with the economic ideas of the SNA, we focus on state-sanctioned operational ideology. Ideology in this case does not refer to an individual belief system. The operational ideology of the CCP was a well-defined set of ideas used as top-down legitimization for the political direction taken by the Central Leadership. Here we follow Gewirtz’s (2020, p. 2, footnote 2) definition: The CCP’s ideology was explicit and official; ideology was ‘the ideas, theory or doctrine endorsed by the leadership, which are an expression of [its] interests that shape its perception of the world’.

Figure 2. Step-wise model of GDP diffusion to China.
This definition allows us to make a distinction between a fundamental (which refers to the core values) and operational (which refers to the practical application) dimension of ideology. This distinction is often made in studies of communist or socialist countries (Chen, 1995). The operational ideology is thus also a political tool that enables political actors to maneuver policy processes and create room for policy choices that would otherwise be in tension with ‘fundamental’ ideology (Chen, 1995, p. 12). The operational ideology is therefore a reflection of the political debates and power constellations about the appropriate political direction. For the period studied in this case, the operational ideology mainly reflected power constellations between conservative and reformist camps over their ideas about the direction of economic reform. These camps consisted of high-level politicians, policymakers and economists (Gewirtz, 2017, p. 371–375; Naughton, 1995: 177). We trace these dynamics in the following section.

The winding road to GDP implementation in China

Partial implementation through international socialization (1978–1985)

GDP was introduced in China through a process of socialization initialized and steered by Chinese policymakers themselves. Starting from China’s opening up in 1978, policymakers and statisticians learned about GDP measurement through interactions with foreign economists, academics and international organizations. The State Statistical Bureau (SSB) actively reached out to the UN Statistical Office to learn about alternative statistical practices and methodologies, other than the Material Product System (MPS) on which China’s statistical system was based (Ferdinand & Wang, 2013, p. 900; World Bank, 1983, Annex A: 4.14). Also the World Bank, which China joined in 1980, exchanged knowledge about statistics and GDP measurement with Chinese policymakers and statisticians. The World Bank’s 1981 report paid specific attention to the appropriate measurement of GDP statistics. It described in detail how GDP figures could be derived from Net Material Product (NMP) (World Bank, 1983, pp. 220–263). World Bank staff also provided information about the use of statistics in economic policymaking and stressed that China lacked quantitative foundations for successful economic planning. They advised Chinese policymakers to reform the statistical system and pay more attention to income statistics and less to direct physical gross output numbers (World Bank, 1983, pp. 166, 168–169). Additionally, World Bank reports made projections of China’s GDP growth and used (estimated) GDP statistics to present China’s economic position relative to developing countries such as Indonesia and India (Naughton, 1990, pp. 750–751; World Bank, 1983, p. 73; World Bank, 1985, p. 21). The figures stressed the underdevelopment of China’s service sector compared to other low- and middle income countries (World Bank, 1983, p. 73).
Through these exchanges, both policymakers and statisticians became familiar with the internationally accepted methodology of GDP and its value for economic policymaking.

Changes in domestic political debates about economic policy-making enabled the socialized diffusion of GDP. From the late 1970s reformists within the Chinese Communist Party (CCP) called for a pragmatic approach to economic policy-making, and Chinese officials and economists became increasingly willing to engage with alternative models to find ‘best practices’ facilitating China’s economic development (Gewirtz, 2017, pp. 31, 34). In line with this move away from dogmatic policymaking, reform-minded Chinese politicians initiated the learning process through which diffusion of (foreign) economic ideas and tools, including knowledge about statistics such as GDP, took place. Economists, policymakers and other experts were sent abroad to conduct fieldwork trips and study the development models of foreign economies, including the US (Gewirtz, 2017, pp. 52–56, 62). They increased their interaction with the World Bank and invited experts and foreign officials to conduct missions and exchange knowledge about economic reforms and development (Bottelier, 2007, pp. 242–243).

Policymakers took the analyses resulting from these interactions seriously. They widely circulated World Bank reports throughout the bureaucratic apparatus and, based on the findings, started working with the World Bank to implement new planning techniques (Bottelier, 2007; Naughton, 1990, p. 750). The World Bank’s GDP calculations provided insight into the service sector, which had grown as a result of economic reforms in 1978 and 1984 (Brødsgaard & Rutten, 2017, p. 87; World Bank, 1992a, p. 43). Diffusion of economic ideas and practices through learning thereby contributed to the reformists’ goal of accomplishing economic growth and development with new economic policies while opening up to the outside world. Reformists on the highest political level explicitly used GDP to increase their interaction with international organizations and facilitate debates about economic reform. Most notably, Deng Xiaoping formulated China’s development goals in terms of GDP. He proposed a GNP5 target of US$1,000 per capita in 2000 as China’s primary development goal (Deng, 1979), and communicated this goal internationally.

Despite outside interference in policy debates by international stakeholders, Chinese policymakers kept ownership over the interactions and were able to steer processes of diffusion, only selectively taking up the ideas and policies suiting them best. The World Bank applied a cautious and pragmatic approach to intervening in China’s internal policy debates, and accommodated local preferences and ideas about reform (Lim, 1993, pp. 9–12, 16; Interview 04, Mr. Ramesh Chander, Former World Bank official, Statistical Department, April 11, 2018). It presented a variety of (practical and ideological) options which were within the Chinese political parameters (Lim, 1993, p. 12). The World Bank even invited Eastern European experts, from non-World Bank member countries, to share views on economic reforms with their Chinese counterparts (Lim, 1993, pp. 9–11). This non-coercive approach provided Chinese policymakers room to set the pace of economic reform and adopt only those elements they were interested in (Lim, 1993, p. 10).

As a result, Chinese policymakers were able to selectively respond to international demands for statistical harmonization. First, they negotiated specific official statistical estimates. In 1980, Chinese policymakers disputed the World Bank
estimates of Chinese GNP per capita. China argued it was US$150, while the World Bank estimated a figure of US$250. They settled on a GNP per capita of US$180, which became the basis for further calculations (Interview 04, Mr. Ramesh Chander, Former World Bank official, Statistical Department, April 11, 2018).

Additionally, until 2002, 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) (Wade, 2012, p. 18; World Bank, 2018). Even then, it only entered eleven cities into the survey, leading to an overestimation of price levels (Wade, 2012, p. 18).

In the case of GDP adoption, the outcome of this non-coercive, socialized diffusion process was the rhetorical adaptation to GDP and partial implementation of the measure in China. In 1985, the State Council acknowledged that, conceptually, GDP could fully reflect ‘the scale and level of national economic and social development’ (State Council, 1985), a comment that in the pre-reform period would have caused ideological debates because it seriously conflicted with the prevailing Marxist conception of the economic production boundary (Jiang, 2002, p. 28; Qiu & Song, 2010, p. 30). Nevertheless, by mentioning that GDP and service sector statistics could also reflect social development, the State Council rhetorically adapted the concepts to the Chinese context, making it appropriate for the statistical bureau to produce it.

In 1985, Chinese statisticians produced China’s first official GDP measurement based on the instructions from the World Bank report. They derived GDP from NMP and made crude estimates of concepts which were missing in this communist measure of national income, but crucial to measure GDP. To produce a GDP figure, the SSB accounted for the service sector, adding 13% of aggregate NMP to the official NMP figure (World Bank, 1992a, p. 17). Even though the output suggested an internationally comparable GDP statistic, this first official estimate was still far removed from SNA methodology, let alone constituting the rhetorical adoption, legal adoption or implementation of a new national accounts framework. Instead, the diffusion of SNA to China took off with rhetorical adaptation and partial implementation of GDP.

Translating statistical reform and the hybrid system experiment (1984–1986)

After adopting an ad-hoc version of GDP measurement, the next step in the diffusion process was a debate about the adoption of the SNA resulting in the decision to develop a hybrid statistical system in 1986. The core idea behind the hybrid system was to provide national accounts summary statistics compatible with both the Material Product System (MPS) and the System of National Accounts (SNA) (World Bank, 1992a, p. 1). The system would continue producing MPS aggregates, based on Marxist-Leninist economic concepts, while also producing SNA indicators, focusing on GDP in particular (World Bank, 1992a, pp. 102–103). Such a framework for national accounts was uncommon, and with the exception of Hungary (Árvay, 1971), unseen in the rest of the world. It was a local solution which translated domestic political settlements into statistical system reform.

The hybrid statistical system was the result of a process of translation. Statistical reforms were adapted to reflect political compromises about the direction of economic reform within the Chinese bureaucracy. Broadly, two competing visions on
economic reforms existed: a conservative camp which advocated continuing economic planning and only allowing market forces to enter some (less important) sections of the economy, and a reformist camp which wanted to abolish mandatory economic planning and shift state control to economic tools implying reforms on prices, taxes and interests rates (Naughton, 1995, pp. 176–177). Statistical reforms were a fraction of the general economic reforms, and thus not at the forefront of political debates. The implications of reforms for statistics were discussed in the slipstream of other more prominent decisions about price reform, inflation and industrial reform. Statistical system reform however did not neatly mirror actual changes in the economy. Instead, decisions about statistical system reform were taken only when the direction of economic reforms was officially agreed upon between the camps. It would reflect the distribution of power and ideological compromises reached between the groups. A new operational ideology reflected changes in power relations and direction of reforms and therefore functioned as a filter for translating statistical reform to the Chinese context.

A new operational ideology under the slogan ‘socialist planned commodity economy’, endorsed by the CCP Central Committee on 20 October, 1984, shaped the diffusion process in two ways. First, as it gave a new impetus to further economic reforms, it set statistical system reform in motion. Directly after launching the slogan, the State Council established a Leading Group on National Accounts Reform in November 1984 which was tasked with providing recommendations for a new statistical framework (World Bank, 1992a, p. 102). It urged the Leading Group to separate theoretical debates and practical work to avoid delays in the reform process (Yue, 1989). The diversity of the stakeholders in the group, ranging from economists and financial experts to bureaucrats and statisticians, and attendance of important Chinese authorities such as the State Planning Commission and Ministry of Finance, shows that these discussions were of high political importance (Interview 02, Academic statistician Beijing, September 8, 2017; NBS, 1984; World Bank, 1992a, p. 102).

Second, the new operational ideology facilitated the translation of national accounting practices. Because the slogan was ambiguously formulated, the degree to which foreign statistical practices could be introduced was left to the Leading Group for interpretation. The operational ideology purposefully contained contradictory elements of planned and market economies. Premier Zhao Ziyang carefully constructed the slogan combining elements of competing economic models – ‘commodity economy’ alongside ‘planned economy’ – to gain acquiescence from both the reformist and conservative camp (Naughton, 1995, p. 177). The State Council asked the Leading Group to design a national accounting framework consistent with this operational ideology. The parameters were that the framework should: (1) serve the needs of the government in carrying out economic reform policy (2); be in line with the actual economic situation in China (3); be guided by Marxist doctrine (4); and borrow from strengths of foreign national accounting systems (Yue, 1989).

The Leading Group discussed three options, but only the option for a hybrid statistical system was seen as appropriate. The two other options were ruled out because they would only partially address the scope of the new operational ideology or stretch beyond its limits. These options were: continuing with the MPS framework, or a gradual switch from MPS to SNA concluding in the full adoption of the
foreign accounting framework. Sticking to an MPS framework corresponded with the idea that the Chinese economy was guided by economic planning only, neglecting market-driven elements such as market prices or free allocation of goods and services. It implied only gathering material output statistics for the purposes of tracking output targets and drafting economic plans. Full adoption of the SNA meant committing to the idea that the economy was driven by the market and economic planning would completely disappear. It implied abandoning material output statistics and developing statistics measuring new concepts as market prices and interest rates. Both options would contradict the political compromise of the operational ideology and fail to satisfy both the reformists and conservatives.

In 1986, after two years of discussion, the Leading Group recommended the hybrid system. The State Council endorsed the recommendation, emphasizing that the hybrid system would serve the needs of the socialist planned commodity economy (World Bank, 1992a, pp. 101–103). When justifying the hybrid system as appropriate to the operational ideology, the State Council stated 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’ (World Bank, 1992a, p. 103). SSB statisticians also stressed this point, and explained that the production of MPS aggregates was justifiable given that in a planned commodity economy, economic planning would continue to play a role during economic transition (World Bank, 1992a, p. 101).

Furthermore, the SSB and reformers argued that adding elements of the SNA to China’s national accounts framework provided information about new market activities and useful indicators for economic management (World Bank, 1992a, p. 103). Thus, the hybrid system was a compromise that pleased both the conservative and reformist camps while sticking to the operational ideology. The domestic political conditions facilitated the experimental introduction of limited aspects of the SNA.

**Implementing the hybrid system – grafting statistical frameworks (1987–1992)**

After the rhetorical adaptation of the SNA by the Leading Group, SSB statisticians started to implement the hybrid system by grafting elements of the SNA into its MPS-dominated framework. The hybrid system aimed to capture SNA concepts including household consumption, business investments, government spending, and GDP. It initially calculated only the annual production-side estimation of GDP. In 1989 it added annual expenditure-side estimation, and in 1992 it introduced the first quarterly GDP estimates (Xu, 2009, p. 447; see Table 2). To measure SNA indicators, in 1987 the SSB developed a transition Input-Output (I-O) table from which these concepts could be derived (Qi & Chen, 2007, p. 1; World Bank, 1992a, p. 2). However, the table was not entirely designed according to MPS conventions, nor to SNA conventions. It distinguished between material and non-material production, reflecting a theoretical distinction based on MPS conventions (Guo, Sonis & Hewings, 1999, p. 318; Qi & Chen, 2007, p. 1; Xu, 2009, p. 450). Furthermore, the table was supposed to be constructed based on meaningful producer prices, but instead confounded implicit subsidies, taxes and prices (World Bank, 1992a, pp. 20–21). As a result, the hybrid graft deviated from SNA
Table 2. Timeline of GDP/SNA diffusion process China.

| Phase                      | Date     | Events                                                                                                                                                                                                 | National accounting practice & metrics (blank cell indicates no change)                                                                 |
|----------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Partial Implementation     | 1980     | China joins World Bank                                                                                                                  | Net Material Product (NMP) calculated within Material Product System (MPS)                                                        |
|                            | 1981     | SSB resumes national income estimations                                                                                                  |                                                                                                                                       |
|                            | 1981–1983| World Bank & international advisors train statisticians & policymakers                                                                   |                                                                                                                                       |
|                            | 1983     | World Bank report published                                                                                                             |                                                                                                                                       |
|                            | October 1984 | CCP Central Committee formally endorses ‘socialist planned commodity economy’                                                        |                                                                                                                                       |
|                            | November 1984 | State Council establishes Leading Group on National Accounts reform                                                                  |                                                                                                                                       |
| Hybridization of standards | 1985     | SSB measures China’s first official GDP figure                                                                                           | MPS & NMP + Ad-hoc GDP (derived from MPS statistics)                                                                                   |
|                            | 1986     | Leading Group chooses Hybrid System; State Council endorses Hybrid System                                                                |                                                                                                                                       |
|                            | 1987     | SSB develops transition Input-Output (I-O) table                                                                                          | MPS & NMP; GDP; Other SNA concepts derived from I-O table: household consumption; business investment; government spending             |
|                            | 1989     | SSB measures first GDP annual expenditure-side estimation                                                                               | MPS & NMP; GDP (annual production-side estimation & annual expenditure-side estimation); Other SNA concepts                             |
|                            | November 1990 | World Bank statistical mission China –SSB expresses support for Hybrid System                                                            |                                                                                                                                       |
|                            | 1990–1991 | CMEA-states stop using MPS & switch to SNA                                                                                            |                                                                                                                                       |
|                            | January–February 1992 | Deng’s ‘Southern Tour’ – reformists regain power                                                                                   |                                                                                                                                       |
|                            | August 1992 | State Council approves China National Economic Accounting System (trial version)                                                         | GDP primary indicator; GDP quarterly production-side estimation; Continuation of NMP from MPS; Additional SNA concepts: flow of funds compilation |
|                            | October 1992 | 14th Party Congress introduces ‘Socialist Market Economy’                                                                             |                                                                                                                                       |
| Standards & full indicator adoption | October 1993 | China officially adopts SNA as national accounts framework - SSB stops measuring NMP                                                 | GDP calculated within SNA                                                                                                             |
guidelines, as did GDP measurement. GDP was still mostly derived from NMP data; missing variables were measured through ad-hoc surveys rather than consistently applying the same data collection methods and concepts (World Bank, 1992b, p. 7), and some concepts were not measured at all or presented according to MPS conventions. For example, depreciation rates were set centrally by the government and therefore did not correspond to the concept of economic depreciation according to the SNA standards (World Bank, 1992a, pp. 18–20).

The outcome of the translation process was a unique graft of two national accounts frameworks in which China essentially adopted a façade of the SNA, not the details (Interview 04, Mr. Ramesh Chander, Former World Bank official, Statistical Department, April 11, 2018). Statisticians used old measures and data collection methods to produce new indicators (Interview 05, Mr. Albert Keidel, Former statistical consultant World Bank, April 11, 2018). The original intention was not so much to fully adopt international standards as to develop a framework that suited domestic economic and political conditions at the time. Contrary to the ‘typical model’ of diffusion (Figure 1) in which legal adoption follows rhetorical adoption and precedes implementation, the hybridization phase did not signal commitment to legal adoption of the SNA. Instead, the hybrid system was rhetorically framed as a domestic solution, only taking up foreign ideas that could be interpreted as consistent with the operational ideology. As a result, the SSB proceeded to the implementation of a limited range of SNA concepts, following an atypical diffusion sequence. While this process was intuitive from an ideological and state planning perspective, it caused significant technical problems in the production of economic statistics. The next section zooms in on the instabilities of the graft and how these contributed to its eventual disappearance.

**Adopting the SNA: the influence of increasingly serious measurement mismatches (1987–1993)**

The hybrid statistical system was only a temporary institutional solution. Several dynamics caused the hybrid to lose relevance and increased the appeal of the SNA. These dynamics are threefold and each comprise a different type of measurement mismatch, namely: practical, comparability, and ideological. These measurement mismatches provide insight into the dynamic (internal and external) challenges to a graft that influence the composition of the graft or lead to its disappearance. Which of the instabilities to the graft lead to changes in the outcome depends on the drivers of the diffusion process.

**Practical mismatch – national accounts frameworks unsuitable for grafting (1987–1992)**

The first dynamic that caused instability to the hybrid is the practicality measurement mismatch. The graft, and its competing ideas about the economy within, had been rhetorically justified in light of domestic political debates, but domestic discussions about whether the national accounts frameworks were actually suitable for grafting took place only in the background. National accounts systems are highly technical objects of diffusion. To produce meaningful and interpretable statistics, conceptual categories need to be applied consistently and systematically and data
inputs need to suit the categories accordingly. For example, for each product distinguished in the national accounts, total supply (imports and national production) must equal total use (intermediary and final consumption, export, capital formation and change of stocks) in both volume and price (Nijmeijer & Hiemstra, 2008, p. 5). This systematic approach prohibits mixing concepts from different national accounts frameworks. For instance, when products are valued differently, through market or administered prices, this causes discrepancies between the total supply and use value of different products, causing serious measurement biases.

As a result, when Chinese statisticians started to implement the hybrid system in 1987, practical measurement mismatches caused problems to the graft. The system 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, 1992a, 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, 1992a, p. 16). It was unable to cover large parts of the economy, especially the service sector, private sector and rural economic activities (World Bank, 1992a, p. 14). Official statistics did not reflect economic output by self-employed citizens and new small- and medium sized and private companies (World Bank, 1992a, pp. vi, 14, 32–33). 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, causing conceptual inconsistencies within the framework (World Bank, 1992a, p. 42).

Second, the valuation of prices according to MPS conventions also caused problems. The MPS values economic activity according to transactions in the form of physical outputs or according to administered prices, not through the principle of value-added according to (market) prices (World Bank, 1992a, pp. 7, 12, 14, 104). This caused various evident valuation issues in practice. 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, 1992a, pp. 13, 47; Xu, 1991). As a result, real income flows and inflation were underestimated (World Bank, 1992a, pp. 13, 46–47; Xu, 1991). Additionally, government subsidies counted as compensation for enterprise losses in the MPS framework, rather than government demand as in the SNA (World Bank, 1992a, p. vi). Furthermore, industrial enterprises and other reporting units often reported data in actual government-regulated prices, rather than converting them to market-price values (World Bank, 1992a, p. 13; Xu, 1991). In sum, price data did not correspond to the actual value of market prices, which led to practical measurement mismatches with measures such as GDP that are based on market prices.

The data collection and valuation issues caused serious biases to GDP statistics. Aggregate GDP statistics were underestimated and did not reflect the true extent of economic activity (World Bank, 1992a, p. 13; Wu, 2000; Xu, 1991). It also distorted the structure of GDP and conflated the values added of different sectors. The value-added to the whole economy of rural services was underestimated and that of industry was overestimated (Wu, 2000). GDP growth figures, on the other hand, were overestimated mainly because of valuation problems and the underestimation of inflation (World Bank, 1992a, p. 49; Wu, 2000).
These problems were cause for concern with Chinese authorities and statisticians (World Bank, 1992a, pp. 16, 21). They were aware of the problems and worried about the accuracy of service sector and consumption statistics, the validity of price statistics and whether GDP statistics reflected the economic structure (World Bank, 1992a, pp. 16, 21, 23, 54). The Chinese authorities realized that the hybrid system was not capable of producing accurate and reliable GDP figures. Although these concerns were not outspoken issues in debates about economic reform, reformists presumably had more interests in solving GDP’s biases by adopting the SNA framework than conservative policymakers. General biases in the data were problematic because they left reformers with less information to evaluate or draft new market-driven reforms. More specifically, due to the biases, ‘successful’ outcomes of key reforms such as the growth of the service sector were not visible. At the same time, conservatives could use exaggerated GDP growth rates to point to negative consequences of economic reforms such as the ‘overheating’ of the economy.

However, despite the practical measurement mismatch and incentives for reformists to tackle biases in the system, Chinese policymakers continued to express their commitment to the hybrid system in the early 1990s (NBS, 1996, 2017; World Bank, 1992a, p. iv; Zhi, 1992). Practical measurement mismatches did hamper the usefulness of the system, but this dynamic alone was insufficient to alter the direction of the diffusion process and abandon the hybrid system for the adoption of the SNA.

Comparability mismatch – international abandonment of the MPS (1990–1991)
In addition to the practical measurement mismatch, a comparability mismatch also damaged the relevance of the hybrid system. Within a short time period the MPS disappeared as an alternative to the SNA framework 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). They made significant changes to their statistical systems in 1990 and 1991 and fundamentally altered their statistical practices (Herrera, 2010). By convincingly embracing the SNA, the former Soviet countries contributed to the hegemonic status of the market-oriented SNA framework (Herrera, 2010).

This external event further reduced the international comparability of hybrid system statistics. First, the indicator NMP became less relevant for making comparisons once former Communist countries abandoned it. Second, international organizations shifted their focus fully to the SNA framework, which affected China’s statistical cooperation with these organizations. The aim of the World Bank’s mission in 1990 was ‘assisting China to publish statistics in SNA-consistent categories’ (Interview 05, Mr. Albert Keidel, Former statistical consultant World Bank, April 11, 2018). 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 (Interview 05, Mr. Albert Keidel, Former statistical consultant World Bank, April 11, 2018; NBS, 2003). They adjusted the hybrid system to give the SNA, and particularly GDP, a larger role in the statistical system.

In August 1992 the State Council implemented the ‘Chinese System of National Accounts (pilot program)’, essentially an extended hybrid system (State Council,
In this framework GDP became the primary indicator (Interview 01, Former statistician National Bureau of Statistics China, September 1, 2017). However, China did not yet officially switch to the SNA. It still produced NMP figures and widely used MPS data collection methods. China was still committed to the hybrid system and made small changes within it. The practical and comparability measurement mismatches did not trigger the abandonment of the MPS in favor of the SNA. As with earlier phases, changes on the domestic political level ultimately drove changes in the diffusion outcome.

**Ideological mismatch – adopting the SNA (1992–1993)**

Although Chinese stakeholders were aware and concerned about the practical and comparability mismatches, these instabilities of the graft did not trigger an official switch to the SNA. It did not happen until 1993 when Chinese political stakeholders settled on a new operational ideology. Until 1992, there was no political space to deviate from the ‘socialist planned commodity economy’ that justified the choice for the hybrid statistical system. In 1988, the conservative camp under guidance of Chen Yun won ground compared to the reformist group of Deng Xiaoping. The conservative policymakers opposed further (price) reforms and wanted to consolidate central control to stabilize the economy (Gewirtz, 2017, pp. 198, 209). They gained control over key reform institutions in the State Council and downgraded the role of the System Reform Commission (Gewirtz, 2017, pp. 202–206). In response to conservatives’ criticisms on inflation and overheating of the economy, economic policies moved toward ‘rectification’ and retrenchment which recentralized planning as opposed to further market reforms (Gewirtz, 2017, pp. 214, 228).

These domestic political developments strengthened the justification for a hybrid system and the production of planning statistics, despite the incentives provided by the practical measurement mismatch to alter the statistical system.

However, when power shifted back to the economic reformists in 1992, the hybrid system graft came under serious pressure, leading to an ideological measurement mismatch. From 1991 onwards, calls by reformists to give the market a bigger role and return to market-oriented growth policies started to gain ground again in policy debates (Gewirtz, 2017, pp. 240–247). High-level politicians also resumed encouraging the adoption of ideas from abroad, capitalist countries in particular (Gewirtz, 2017, p. 251).

Moreover, politicians discussed the redefinition of the operational ideology to a ‘socialist market economy’. The term corresponded to the idea that (indirect) macro-economic management and new market-oriented reforms were the appropriate direction of economic policymaking (Gewirtz, 2017, pp. 245, 251, 254, 258). The Fourteenth Party Congress officially labeled China a ‘socialist market economy’ in October 1992 and the concept was codified into the Chinese constitution in March 1993. This created an ideological mismatch with the hybrid statistical system that was in place.

The new operational ideology made no reference to centralized planning (Gewirtz, 2017, p. 254). As a result, the political mandate for producing traditional planning statistics disappeared. Therefore, it became acceptable to abandon the MPS, a system intrinsically tied to the idea of centralized economic planning. Additionally, the new operational ideology emphasized the importance of the
market as the primary form of economic organization and indirect economic management by the state (Gewirtz, 2017, pp. 251, 254, 258). Fully switching to a market-oriented national accounting framework was therefore not contradictory to the new ideology, but actually an appropriate translation of it.

In October 1993, the statistical bureau solved the ideological mismatch when it stopped measuring the MPS-based national income indicator NMP. Thereby it officially switched to SNA as its national accounts framework and abandoned the hybrid graft (Xu, 2009, p. 447). Several Chinese accounts of this step in the diffusion process justify the choice of adopting SNA in light of the new operational ideology. The former deputy director of the NBS stresses that China being a socialist market economy led to eliminating NMP measurement and other MPS aggregates and that the operational ideology laid the theoretical foundation for adopting the SNA (Min & Xu, 1997; Xu, 2001). Almost 10 years after it first adopted GDP measurement, China adopted the SNA and committed to measuring GDP according to international standards.

**Conclusion**

China’s GDP receives much attention, whether it is to assess economic performance in light of the US-China trade war or COVID-19 outbreak, compare the CCP’s performance against its internal GDP targets, or to evaluate the accuracy of Chinese GDP figures in light of suspected data manipulation. The ubiquity with which we now use GDP to debate China’s political economy makes it remarkable that this indicator arrived quite late and with serious challenges.

Top-down coercion is an intuitive explanation for GDP’s spread to developing countries and non-capitalist economies, especially since GDP was designed with industrialized market economies in mind, and the statisticians responsible for developing and revising the SNA have struggled for decades to increase its relevance for countries that do not fit this mold. However, this is not what happened in the case of China, as our analysis shows. On the contrary, China’s adoption of GDP was driven at every step by domestic actors. While IOs and foreign experts were instrumental in introducing new ideas about national accounting to Chinese statisticians, these instances of international socialization were initiated and controlled by domestic actors.

The diffusion process differs in key ways from existing notions of how norms, ideas or institutions spread across the globe. Whereas existing diffusion literature (as summarized by Zimmerman, 2016) expects adoption to increase in a more or less linear fashion – from rhetorical embrace to full implementation – the Chinese case was more experimental. It was a nearly ten-year process of translating international national accounting ideas to the changing domestic political-economic context. The earliest attempts to calculate GDP within the MPS framework only signal a very limited adoption of the indicator. Overcoming these problems by switching to the SNA as the ‘appropriate’ framework was not an option, because national accounting was subject to ideological constraints. Statistical reforms reflected political debates and compromises over opposing blueprints for economic reform. The result was a hybrid system of national accounting, an experiment based on grafting selected ideas from the SNA onto the MPS framework. The graft that resulted was ideologically balanced but technically unstable. Yet even the
pathologies of this experiment did not lead to abandonment of the MPS in favor of the SNA. This happened only when the operational ideology – which set the parameters for economic reform – progressed enough to openly accept and prioritize the market dynamics that characterize the SNA. And, finally, GDP was only fully implemented when the SNA was in place.

Our findings also speak to IPE literature about the translation and localization of transnational ideas and policies (e.g. Ban, 2016; Dafe, 2020; Eimer et al., 2016; Röper, 2020). Modified or hybridized versions of foreign norms and ideas are often assumed to be the outcomes of localization or translation by domestic actors (e.g. Acharya, 2004; Eimer et al., 2016). This case, however, points attention to an unsuccessful case of translation – hybridization (through grafting) was only a temporary outcome that eventually led to full implementation. Through engagement with foreign experts statisticians gained access to relevant knowledge, but politicians attempted to ensure that local ideas were not supplanted by foreign ones. Despite this deliberate attempt at translation, the process still ended in convergence. We identify the relative inflexibility of national accounting practices as a barrier to translation in this case. In addition to the importance of the domestic setting for the process of diffusion and translation, the unique features of national accounting standards undermined domestic attempts to localize foreign national accounts frameworks. Norms, ideas, policies, and institutions are sometimes used interchangeably in IPE diffusion literature. Our findings demonstrate that the object of diffusion – its type and features – is a crucial factor that shapes diffusion mechanisms and outcomes.

Whereas ambiguously defined norms and ideas are highly amenable to interpretation and translation, and policies can be implemented differently across legal systems, international statistical standards are more rigid. National accounting standards in particular are rooted in economic theory and closely linked to a country’s economic policy institutions. In China, where ideology clashed with the SNA and another national accounting system was already in place, translation was highly constrained. 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.

This brings us to the broader implications of this paper for the politics of statistics. GDP’s spread to China shows how the choice of indicators and how they are measured is inherently political. Nevertheless, the pathologies that arise from these political choices point out that to understand the spread of international statistical standards, insight into the process and challenges of translating standards into statistical practices is crucial. It shows that not only political interests and ideas matter, but potential clashes with existing statistical institutions and practices as well.

Notes

1. North Korea is the only country that has not formally adopted the System of National Accounts (SNA), which prescribes the international standards for GDP measurement. Cuba follows the SNA 1968, an earlier version that is partially compatible with the most recent standard (Lequiller & Blades, 2014, p. 443).
2. This article includes four interviews with Chinese statisticians and statistical consultants in international organizations (see reference list for more information),
which covered a range of topics such as the interaction between World Bank and Chinese statisticians in the 1980s and early 1990s, the drivers and challenges for China’s early statistical reform and the adoption of GDP measurement.

3. Member countries were: Bulgaria, Cuba, Czechoslovakia, East Germany, Hungary, Mongolia, Poland, Romania, Soviet Union and Vietnam.

4. Lequiller and Blades (2014) provide a comprehensive description of how the System of National Accounts (SNA) addresses these questions.

5. In the 1980s and early 1990s China’s GDP and Gross National Product (GNP) were virtually identical (World Bank, 1994, p. v). Although in the time period researched in this paper, the World Bank and Chinese politicians generally referred to GNP in the Chinese case, Chinese sector and Input-Output statistics were all in GDP terms. Therefore we consistently refer to GDP instead of GNP, since the statistical difference was very small, and currently GDP is mostly used over GNP. The main difference between the measures is that GDP measures the total production within a country regardless of ownership, whereas GNP only counts the production and income produced by the country’s citizens, regardless their place of residence.

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