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Models of Co-operation
between Local
Governments and Social
Organizations –
Migration: Challenges
and Solutions

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Measuring the economic scope of NPOs in China – 2016 Report

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The Research Project

Models of Co-operation between Local Governments and Social Organizations in Germany and China– Migration: Challenges and Solutions (LoGoSO Germany China) is a comparative research project of the Freie Universität Berlin, the Westfälische Wilhelms-Universität Münster and the Chinese Academy of Governance, funded by Stiftung Mercator.

This comparative research project looks at the co-operation between state and social organizations (SOs) in China and Germany. It focusses on social service delivery in the area of integration of migrating populations with special attention to the fields of education, employment, vulnerable groups and social assistance (incl. legal aid) as a crosscutting issue to all of the fields. Within this subject area, the project wants to identify different models of state-SO co-operation and analyze which models are successful and why and where this co-operation is problematic. It aims to capture the different models of co-operation in Germany and China, to analyze and compare the underlying structures and to show potentialities for development.

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Summary

A project team, made up of scholars and experts from the Chinese Academy of Governance, Central University of Finance and Economics, Beijing Normal University, and Chongqing Academy of Governance, has studied the economic reach of the nonprofit sector in China, in response to calls from peers in the field and entrusted by the Narada Foundation. Under the leadership of Professor Ma Qingyu from the Chinese Academy of Governance, the project team measured the economic scope of China's nonprofit sector to the end of 2016, using a stratified systematic sampling method. The project has obtained important findings over the past two years of research.

- In 2016, the total added value of NPOs in China was about 278.9 billion yuan, surpassing the total GDP of Qinghai province of 21.7 billion yuan registered in the same year. This accounted for 0.37% of the total GDP of China, and 0.73% of the added value of the tertiary sector in the same year. Breaking down the total added value of NPOs, added value from social service agencies reached around 227.2 billion yuan, social groups contributed 35.6 billion yuan, and foundations totaled about 16.1 billion yuan;
- The top five provinces and municipalities in China registering NPOs with the highest added value in 2016 were Guangdong, Jiangsu, Shandong, Shanghai and Beijing, while in terms of per capita added value of NPOs, Beijing, Shanghai, Guangdong, Jiangsu, and Zhejiang topped the list;
- Total expenditure of NPOs in China in 2016 was about 637.3 billion yuan, which accounted for 0.86% of total GDP and 1.66% of the added value of the tertiary sector for the same year. With regards to total expenditure per NPO type, social service agencies spent about 514 billion yuan, social groups spent about 97.2 billion yuan, and foundations spent around 26.1 billion yuan;
- China's top five provinces and municipalities registering NPOs with the highest expenditure in 2016 were Guangdong, Jiangsu, Sichuan, Shandong and Shanghai, while Shanghai and Beijing (with similar values), Guangdong, Jiangsu, Sichuan, and Zhejiang topped the list of NPOs with the highest per capita expenditure;
- There were approximately 49,380 "non-active and suspected non-active organizations" providing social services in 2016, accounting for 13.68% of the total number of social service agencies;
- There were also approximately 48,580 "non-active and suspected non-active" social groups in 2016, accounting for 14.46% of the total number of social groups;
- Excluding "non-active and suspected non-active" social service agencies and social groups, there were about 604,000 established and active NPOs in 2016;
- During the data collection process, though several achievements were noted, there were also areas that required significant improvement, in particular regarding the development of a digitalized information sharing platform to unify the entire NPO data management system, the availability of equipment and amenities, and the standardization and scientific management of data statistics.

This project has created a precedent for the comprehensive and standardized measurement of the economic scope of NPOs by social experts and professionals. Compared to previously published official data, the total added value of NPOs has nearly doubled and total expenditure has risen by over 50%. Adding to statistics on the tertiary sector, this project provides a new angle for people to understand how NPOs have developed over the past 40 years since China's reform and opening up in 1978 and their role in China's economic and social development.

1 Definition of the “Economic Scope of NPOs” and Reasons for Initiating the Project¹

1.1 Definition

The “economic scope of NPOs”, in its narrow sense, refers to the sum of newly-added products, services and their relevant values produced by registered NPOs over a certain period of time (normally within one year); while in a broader sense it refers to the sum of the value of products and services that registered NPOs produced through their own activities, plus the value of newly added products and services of other social entities created by nonprofit activities.

The economic scope of NPOs in its narrow sense can be measured by indices, including the added value of NPOs (also known as “N-GDP” or “NPO-GDP”), their total expenditure, total number of active NPOs, and the number of employees etc. Of these, the added value of NPOs is a core index, total expenditure of NPOs indicates their service capacity and expenditure level, the total number of active NPOs indicates the number of NPOs with actual capacity to survive, and the number of employees indicates the contribution that NPOs make to employment.

This project focuses mainly on the measurement of the economic scope of registered NPOs in China in its narrow sense.

1.2 Reasons for Initiating the Project

The measurement of the economic scope of NPOs is necessary, because:

1) It forms a crucial part of the basic information on China’s nonprofit sector (also known as “the third sector” or “NPOs”). A nonprofit organization, or NPO, is a non-business, non-governmental entity that advocates a particular social cause. NPOs participate in social governance in their own way and contribute to the economic and social development of a country, bringing not only social but also economic benefits. Though NPOs are included in China's national economic statistics, the national accounting system does not provide for nonprofits, instead they are included in statistics for the public administration sector (Li, 2014), thus their economic contributions are not clearly known. Since 2006, several government departments in China began to use a sectorial accounting method as an attempt to disclose the added value of NPOs. This was halted in 2015 however, since experts could not agree on the accounting results. Nonetheless, government-related policy management departments and experts in the field of NPOs have expressed their desire to fill the data gap regarding the economic scope of NPOs, and re-establish an observation point to track China’s nonprofit sector development.

2) It is a measurement reflecting the overall development of NPOs and their contributions to social services. The social benefits that NPOs bring are regularly stressed by government departments and society in general, yet their economic benefits are often overlooked. It is true that due to their nonprofit nature, and the fact that some educational and medical institutions in China are considered public institutions, the economic scope or economic aggregate of NPOs is relatively small, and cannot be compared with that of private enterprises. However, whether big or small, it is necessary to have a

¹ This project was funded by the Narada Foundation. I would like to thank the members of the research team: XIE Ju, Chongqing Academy of Governance; CAO Tangzhe, Central University of Finance and Economics; SHI Junyi, Beijing Normal University; YANG Ying, National Development and Reform Commission; FU Hu, Chongqing Academy of Governance; LI Ying, Hebei Academy of Governance; SHAN Miaomiao, China National Academy of Governance; LI Nan, China National Academy of Governance.

general idea of the extent of the economic and service capacity of nonprofits. It is also necessary to understand the positive development NPOs have in China and their contribution in terms of social services, as this is an indispensable gauge for economic and social development.

3) It is the backbone to supply-side structural reform. The basic objective of supply-side structural reform is to eliminate outdated production capacity through economic restructuring, to form a supply-demand balance that matches green healthy living and sustainable development. Strengthening production and the supply of social services has become an important task for economic restructuring. According to some research institutions and competent authorities, during the 13th Five-Year Plan period, the elderly care service industry will reach 3 trillion yuan, the medical health service industry will reach 8 trillion yuan, private education including pre-school education will total 3 trillion yuan, and the environmental and ecological industry will reach a total of 17 trillion yuan (Ma, 2016). Moreover, care and services for vulnerable groups such as the disabled, people with behavioral issues, drug addicts, orphans, widows and the lonely, HIV/AIDs carriers, and the poor population in rural areas, will release huge growth potentials for the tertiary sector. These enormous consumption demands will lead to the adjustment of the main structure of the supply side, i.e., NPOs will become a new social service provider in addition to government departments, mass organizations, public institutions and market entities. It is therefore necessary to provide an objective conclusion as to the economic scope and capability of this new provider, which will help to improve the efficiency and allocation of China's social service resources and provide an important basis for the adjustment of supply-side structural reform.

4) It provides a reference for the government to adjust relevant policies and improve its management functions. This project adopted a stratified systematic sampling method to collect data, covering the full range of NPOs in China at all levels. During the data collection process, the team obtained a general idea on how complete and efficient the NPO data information management system is; understanding the design of data categories, the standardization of data definitions, the format and quality of data filing, the methods of data transfer used, the cost of data management, the degree of informatization of data at provincial and local level, and the interconnectivity between administrative hierarchies. Moreover, the team researched the challenges that data management departments and their staff face in the workplace as well as their professional qualifications across the different regions, the actual activities and economic capacity of NPOs, as well as exploring the information gap in calculating the economic scope of NPOs across the country. The team conducted an in-depth analysis providing corresponding suggestions in this report, which provide constructive solutions for the competent authorities to design policies specific to NPO development and to further improve the quality and efficiency of NPO information management.

2 Research Targets, Objectives and Characteristics of the Project

2.1 Research Targets

This project targets NPOs that are registered in the civil affairs system as of the end of 2016. According to the “2016 Statistical Report on Social Service Development” issued by the Ministry of Civil Affairs, by the end of 2016, there were a total of 702,000 NPOs in China, including 336,000 social groups, 361,000 social service agencies and 5559 foundations.

2.2 Project Objectives

Using a stratified systematic sampling method to measure the economic scope of NPOs, the team aimed to obtain the maximum results possible, using limited resources available, in a systematic and standardized manner.

Direct Objectives:

- Measure the total added value of NPOs in China as well as added value per category of NPO (i.e., social groups, social service agencies and foundations);
- Measure the total expenditure of NPOs in China as well as expenditure per category of NPO (i.e., social groups, social service agencies and foundations);
- Measure the activity level of NPOs in China as well as the activity level per category of NPO (i.e., social groups, social service agencies and foundations);
- Measure the actual scale of employment of all NPOs in China as well as the scale of employment per category of NPO (i.e., social groups, social service agencies and foundations);

Indirect Objectives:

- Measure the total added value of NPOs and added value per category of NPO in the different provinces;
- Measure the total expenditure of NPOs and expenditure per category of NPO in the different provinces;
- Conduct a correlation analysis between the economic scope of NPOs and the related economic and social indicators by province/municipality;
- Provide suggestions for improvement of existing issues such as defining indices, data filing formats, data filing quality, data transfer procedures, and the cost of data management;
- With a further objective to promote the alignment of China's method of measurement of the economic scope of its nonprofit sector with the System of National Accounts 2008 (SNA 2008) and the Handbook on Nonprofit Institutions in The System Of National Accounts generally issued by the United Nations, so as to further improve the standardization of China's NPO data recording and statistics.

Due to a lack of resources the team mainly focused on direct objectives, whilst not neglecting other indirect objectives, and made appropriate adjustments throughout the course of the research in line with actual conditions.

2.3 Characteristics of the Project

This project follows a systematic and standardized approach, encompassing a large-scale sampling survey, with the following characteristics:

1) It is a pioneering study. This is the first time that social research experts carry out such a comprehensive, systematic and standardized measurement of economic data to calculate the added value of NPOs in China. The project will fill the data gaps that exist since competent authorities decided to suspend the disclosure of added value of NPOs due to calculation disagreements in the past, and due to inconsistent data within national statistical departments not making it possible to reflect the total economic aggregate of NPOs.

2) It adopts scientific research methods. There have been results related to the economic scope of NPOs in China disclosed in the past, however these results were either obtained through different methods from those specified in the SNA 2008 and with the omission of undetected NPOs (NPOs which exist but are undetected during accounting), or obtained based on subjective and rough estimates, either way, such results require further verification. The team adopted a stratified systematic sampling method to select samples from all strata of NPOs, and held repeated discussions with top experts and government statistical management departments in China presenting the whole sampling process, from sampling design, data collection and processing, to verification of the results. This standardized and practical approach guaranteed the quality of the whole project.

3) It uses regional samples for corroboration. In order to verify the quality of the NPO sampling survey, the team selected Beijing and Chongqing as representative municipalities for separate measurements of the economic scope of NPOs. Relying on high quality data in Beijing in particular, the team simultaneously conducted full-sample calculations and sampling measurements in Beijing, with an aim to verifying the margin of error of the sampling design. The results obtained through independent sampling surveys and measurements in Beijing and Chongqing provide a reference for correcting the margin of error in sampling and measurement at national-level, which improves the accuracy of the overall measurement results.

4) It processes a large quantity of data which poses great challenges. A sample of 5134 NPOs was selected, of which, 2214 were social service agencies, 1980 were social groups, and 940 were foundations. The sample size made up 0.73% of the total number of NPOs in China as registered at the end of 2006. The team collected four basic information sheets and 12 data points for each sample unit design, totaling 20,536 basic information sheets and 61,608 data points covering all samples of the three categories of NPOs. This was a huge and complicated task, as all the data had to be collected, sorted, recorded, processed, interpolated and calculated. The data collection and processing work was tedious and led to high working costs, also taking into account the inconsistency in data, in particular the electronic information system not connecting to all regions, the various forms in which the data was presented, in some cases electronically, in paper hard-copy or even manual copy versions.

5) It requires the free support of administrative resources. The project conducted three rounds of data collection. With very limited funds, it would have been impossible for any research group to conduct such a systematic, complete and large-scale sample survey covering each province and municipality in China alone. To achieve the objectives of this project, it required not only the enthusiasm and dedication of the team, but also the team's unique administrative resources. The measurement of the economic scope of NPOs nationwide was an arduous task that required cooperation between government and academia. For the team, this project was not only a test of its professional research skills, but also a test of its capacity to integrate administrative resources, as it had to overcome constraints in funding and establish a huge network of data collection covering all administrative hierarchy from the central government to the provincial level and below. As required by the sample survey, the team asked for free support with organizational resources from all competent authorities at the central and provincial level, and established data collection channels at the provincial level to ensure the efficiency of data collection.

3 Development of Theory and Practice

Research into the scale of social services or economic scope of NPOs is a new angle in which to study and analyze nonprofits, and represents a brand-new field of NPO related research.

3.1 Initiation and Progress in Measuring the Economic Scope of NPOs

3.1.1 Initiation

The System of National Accounts (SNA) is an internationally recognized accounting framework and standard for measuring macro-economic activity, prepared and enacted by the United Nations (UN), International Monetary Fund (IMF), World Bank (WB), Organization for Economic Co-operation and Development (OECD), and other international organizations (Li, 2016). The SNA sets strict accounting rules based on economic principles, and provides a comprehensive and detailed record of the complex economic activities taking place within an economy. It is an important basis for economic decision-making and evaluating, and is also an important source of data for the economic comparison and cooperation of all countries. Over the past 60 years of development and evolution since its first release by the United Nations in 1953, the SNA underwent major updates in 1968, 1993 and 2008. It is now a comprehensive, flexible and highly efficient national accounting system with clear definitions and complete sectors and accounts. Gao Minyue pointed out that each revision of the SNA was done to meet the demands of economic accounting and to expand its coverage to allow for more detailed accounting, so as to better describe the economic activities of different sectors. Past revisions have strengthened the flexibility of the accounting system, providing more diversified information to meet a variety of data needs (Gao, 2013).

Some experts in China have stated that the measurement of the economic scope of NPOs is an important part of the SNA. Though the SNA has gone through several revisions and updates, the measurement of NPO economic performance remains a weakness in the SNA system with slow progress in this regard; there are still no detailed classifications, descriptions or discussions on nonprofits as there are concerning enterprises (Yang, 2008). From the outset in 1953, the SNA consisted of six standard accounts based on the three basic sectors – business enterprises, general government, and households and the private sector. There was no separate accounting for nonprofits; the economic scope of NPOs was combined with the households sector. Updates of the SNA in 1968 fine-tuned the national accounting framework and expanded the accounting structure. Government and nonprofit economic activities were added in 1968 as well as the five following sectors, non-financial corporations, financial corporations, general government, households and nonprofit institutions serving households, which continue to be applied today. Ever since 1968, the nonprofit institutions serving households (NPISH) category was listed as a separate sector for accounting, with individual economic flow and stock including output and added value (Yang, 2008). However, NPISH comprise only part of the nonprofit sector, hence the accounting of NPOs in the SNA is not complete.

3.1.2 Shortcomings in Measuring the Economic Performance of NPOs

From the outset, the SNA did not foresee the development trend of nonprofits nor their significant economic status, so NPO accounting was overlooked, leading to obvious errors which need to be addressed and improved.

1) The SNA “split up” the nonprofit sector. In the 1993 revision of the SNA, the total economy was defined as the entire set of resident institutional units. The resident institutional units that make up the total economy were grouped into five mutually exclusive sectors, namely non-financial corporations sector, financial corporations sector, general government sector, nonprofit institutions serving households sector, and households. The conceptual basis for the allocation of a unit to the

appropriate sector is to set aside non-resident units and households first and then determine if the unit is a market or non-market producer depending on whether the majority of the unit's production is offered at economically significant prices or not. In the case of market units, they can be either allocated to the non-financial corporations sector or to financial corporations. In the case of non-market units, they can be allocated either to the general government sector or to NPISH, with the determining factor of whether the unit is part of, or controlled by, government (UN, 2009). Anheier pointed out that the allocation of nonprofit institutions followed similar rules, thus NPOs were allocated to the above five sectors accordingly. However, since NPISH was the only sector to have "nonprofit" in its name, it was rather misleading as many people associated NPISH accounts with NPO accounting, which in turn led to missing and erroneous information. In fact, the 1993 revisions of the SNA did not allocate a separate sector for NPOs, and there was no separate economic accounting data for the entire nonprofit sector (Anheier and Salamon, 1998).

2) The classification system is not applicable. According to Professor Salamon, the 1993 revision of the SNA identified two methods for classifying NPIs—one according to the economic activity in which they engage and the other in terms of their function or purpose. Neither of these two classifications are applicable to NPOs however (Salamon and Anheier, 1992). The classification by economic activity is in line with the International Standard Industrial Classification (ISIC), which was set by the United Nations to ensure the consistency of economic statistics of countries around the world. Classification by economic activity is more general. According to ISIC, almost all NPOs are categorized into three sections. However, the divisions, groups and classes under these three sections are all quite general, and not as specific as those of the manufacturing, wholesale and retail trade sections; the level of detail is very limited. Due to the small number of categories and the numerous types of activities that they encompass, many categories fail in being homogeneous and fail in being distinct from other groups, thus there is a lack of significance to the statistics (Li, 2007). Classification according to function or purpose is more specific and relates to the "objectives that institutional units aim to achieve through various kinds of outlays". NPOs allocated to different entities must use sector-specific purpose codes, which results in inconsistent indices, standards and methods for NPO accounting.

3.1.3 Preliminary Improvements

Professor Salamon of the Center for Civil Society Studies at the John Hopkins Center launched the Johns Hopkins Comparative Nonprofit Sector Project (CNP) in the 1990s to address the problems existing in the accounting of NPOs in the SNA system. The project took over ten years and involved nearly 150 researchers and over 300 consultants from 42 countries, publishing two empirical publications titled "Global Civil Society" in 1999 and 2004. This project is the largest systematic and pioneering effort ever undertaken to analyze the scope, structure, financing, and role of the private nonprofit sector worldwide. The project made three major achievements:

- a. It came up with a clear definition of non-profit institutions;
 - b. It established an international classification system for non-profit institutions;
 - c. It proved the scope, structure, financing, and role of the civil society sector in solid empirical terms.
- All these efforts have made a big step in improving NPO accounting.

1) It came up with a clear definition of non-profit institutions.

Five crucial features of nonprofit organizations have been identified in the Johns Hopkins Comparative Nonprofit Sector Project (CNP), which gives NPIs a “structural-operational” definition. These features provided the basis for the definition of the nonprofit sector, which are:

- Organized, i.e., institutionalized to some extent;
- Private, i.e., institutionally separate from government;
- Non-profit-distributing, i.e., not distributing profits generated to their owners or directors;
- Self-governing, i.e., equipped to control their own activities;
- Voluntary, i.e., involving some meaningful degree of voluntary participation.

These five features fully describe the basic characteristics of NPOs and embody all NPOs listed in the 1993 revisions of the SNA. This definition makes it easy to distinguish between NPOs and government, and between corporations and households, and is more practical (Salamon and Sokolowski, 2004).

2) It established an international classification system for non-profit institutions.

Since the classification methods incorporated in the SNA are not widely applicable, the International Classification of Nonprofit Organizations (ICNPO) was developed through a collaborative process involving the team of scholars working on the Johns Hopkins Comparative Nonprofit Sector Project. The ICNPO provided further classifications, supplemented or regrouped the units related to NPO activities on the basis of previous classifications, enabling it to describe all elements of nonprofits in a more detailed and comprehensive manner. The ICNPO has been successfully applied by researchers in a broad cross-section of countries that vary by level of economic development; by political, cultural, and legal system; and by the size, scope and role of their nonprofit sector (Salamon, 2010).

3) It demonstrated the economic scope of NPOs.

The Johns Hopkins Comparative Nonprofit Sector Project (CNP) gathered a wide-range of data and information on NPOs in 36 countries, which presented the general scenario of NPOs from an international comparison perspective. As the project set a unified definition and classification system, data of all countries encompassed in the study were incorporated under a unified framework for analysis and processing, providing a consistent and comparable basis for cross-nation comparison. One observation of the CNP was that NPIs were found to have a much larger economic impact than previously understood. Looking at the financial data available from dozens of countries, the nonprofit sector reached a total expenditure of \$2.2 trillion, employed nearly 56 million full-time employees – equivalent to an average of 5.6% of the economically active population – and surpassed employment contributions by large industries such as public utilities, transportation, and architecture. The CNP was the very first project in the world to establish a standardized and systematic data system for NPOs, gathering indices including economic performance, scale of employment, type of activity, income structure and volunteers, allowing for in-depth cross-national comparison. This project made it possible to conduct separate economic accounting of NPIs and laid a solid foundation for the incorporation of NPO accounting into the system of national accounts.

3.1.4 The Handbook on Nonprofit Institutions in the National Accounts System

The Johns Hopkins Comparative Nonprofit Sector Project attracted the attention of academia and NPOs alike, and people began to understand that it was necessary and feasible to obtain all data concerning NPOs to better understand the development of nonprofits. However, it is impossible for the CNP to provide continuous data on NPOs in all countries on a regular basis. It would be far better

to establish a lasting mechanism to provide data and information on a regular basis so as to monitor, analyze and evaluate the changes in the economic activities of this sector. Experts represented by Professor Salamon approached the United Nations Statistics Division to propose establishing a satellite account for NPIs within the SNA system. The United Nations Statistics Division accepted this proposal and later published the Handbook on Nonprofit Institutions in the System of National Accounts in 2003. The Handbook, in essence, was to design an NPI satellite account to ensure the complete accounting of NPOs, without changing the representation of data in the SNA accounts (United Nations, 2003). Jiang Ping and her fellow scholars believe that the NPI satellite account concept is based on the principle of the SNA satellite account which reutilizes official statistical data without changing the central SNA framework. The NPI satellite account gathers all data concerning NPIs by identifying nonprofits allocated to other sectors to create a new accounting system, and is an important supplement to the central SNA framework (Jiang et al, 2013).

The United Nations Statistics Division and the Center for Civil Society Studies in Johns Hopkins University have jointly carried out a series of promotional activities on the Handbook on Nonprofit Institutions in the System of National Accounts after its publication, and have established partnerships with many international organizations, such as the European Commission and the UN's regional Economic Commissions. As of today, 33 countries have committed to implement the UN NPI Handbook, 16 countries have produced their NPI satellite accounts, and countries such as Australia, Belgium and Canada have produced updates (Salamon and Sokolowski, 2013).

Based on data collected from countries with NPI satellite accounts, NPOs contribute greatly to the economy in these countries, accounting for 5% of their GDP, and over 7% in the case of Canada and the US. NPO contributions to GDP surpass many major industries in these countries, such as utilities (natural gas, water supply and power supply), construction, and financial intermediation, and are even higher in social services, health care, sports and recreation, etc. In Belgium, for instance, NPO contribution to GDP in the field of health care is 42%, and 66% in the field of social services (Salamon, 2010).

3.1.5 Continuous Improvements in the 2008 SNA

To promote the integration of NPO accounting in the system of national accounts, the United Nations introduced significant changes and improvements on NPIs in the 2008 SNA, which laid down the technical basis for the establishment of satellite accounts and made a big step forward in NPO accounting.

1) Subsectors for nonprofit institutions introduced

Like in the 1993 revisions, the 2008 revised SNA assigned NPIs to different sectors, regardless of motivation, tax status, types of employee or the activity they were engaged in. Previously, NPIs were not separately listed but were mixed with other industries. In order to separate NPIs from corporations and government sectors, the 2008 revision of the SNA recommended that NPIs within financial corporations, non-financial corporations and government sectors be identified in distinct subsectors so that supplementary tables summarizing all NPI activities could be separately derived in a straightforward manner as and when required, and that NPIs providing public services in NPISHs could be identified as a separate subsector with further classifications (UN, 2009). With these improvements, the account variables of all NPIs listed in each sector could be summed up to represent the overall

accounting of NPIs, solving the issue that the SNA was unable to provide relevant general economic accounting data.

2) Redefined Standards to Allocate NPIs in Government Sectors

According to the 1993 revisions, NPIs that engaged in nonmarket production and were “controlled and mainly financed by government” should be allocated to the government sector. In practice however, these criteria were open to interpretation, as governments in different countries had different levels of control and management of their NPIs. In the 2008 revisions of the SNA, the wording “controlled and mainly financed by government” was changed instead to “controlled by government”, so NPIs were allocated to the government sector, and the phrase “mainly financed by government” was taken out. This improvement further detailed and clarified the classification standards of NPIs, which helped to reduce subjectivity in the classification system and made NPI accounting more accurate.

3.2 Case Studies Measuring the Economic Scope of NPOs

3.2.1 Australia’s NPI Accounting

Australia has always taken the lead in NPO accounting. Prior to the publication of the Handbook on Nonprofit Institutions in the System of National Accounts (UN NPI Handbook), Australia participated in the testing of the SNA Handbook organized by the United Nations in 1999, and delivered its verdict in a report. The year chosen for compiling the NPI accounting in the test report was 1998-99. This corresponded with the most recent data available from the ABS annual Economic Activity Survey (EAS), used as the principal data source in compiling tables for economic variables (ABS, 2001). In 2007, Australia compiled the first NPI satellite account (2006-07) with more data, which contained all tables for economic variables based on the UN NPI Handbook and formed a comprehensive statistical account in the SNA system. On the basis of the 2006-07 NPI satellite account, Australia issued the second version of its NPO satellite accounts (2012-13) in 2013 with more detailed tables containing even more economic variables. With accounting on national accounts basis, plus non-market output of market NPOs, plus non-market output of market NPIs and volunteer services, the NPI satellite account (2012-13) is more in line with the Handbook (ABS, 2012-13).

According to the Australia Handbook Test Report published in 1999, NPI’s contribution to GDP in 1998-1999 was \$23.2 billion, accounting for 4.35% of total GDP (SNA data), and with production boundary expanded to include volunteer services, its contribution accounted for 5.5% of total GDP. It also indicated that the added value of NPISH accounted for 64.7% of the gross added value of NPIs, further testifying what is identified as the “nonprofit sector” in the 1993 SNA is really a residual and that the NPISH sector contains only a portion of all NPIs in any economy, thus leading to a gap in coverage in the overall SNA system.

While the three satellite accounts are generally based on the same underlying conceptual framework and have been produced in accordance with UN NPI Handbook recommendations, there are significant differences in the 1999–2000 compilation methods and classifications which make it difficult to conduct any comparisons between the accounts. Therefore, the 2012-13 satellite account did not include data from the first NPI satellite account for 1999–2000, and is comparable to the 2006–07 satellite account. According to the 2007 satellite account, there were 58,779 NPIs registered in Australia’s Bureau of Statistics (ABS), and the added value of NPIs with national accounts basis calculations was \$34.662 billion, accounting for 3.19% of GDP. By calculating the non-market output of market NPIs of \$5.758 billion and volunteer services of \$14.598 billion, the added value of NPIs

reached \$52.911 billion, accounting for 4.87% of GDP. In 2013, there were 56,894 NPIs, a drop of 3.2% compared with the year 2007, yet the added value of NPIs in 2013 was \$57.71billion, which was \$23.048 billion more than that of 2007, up by 66.49%. Its contribution to GDP also increased from 3.19% in 2007 to 3.79% in 2013.

3.2.2 Japan's NPI Accounting

Japan issued its "Making Nonprofit Satellite Account: Japanese Experience" in 2006. Unlike other countries whose satellite accounts were compiled by the Bureau of Statistics, Japan's satellite account was compiled by Mitsubishi UFJ Research & Consulting and commissioned by the Economic and Social Research Institute, on the basis of SNA statistics by combining all available data and surveys. It examined the time series variation (1990, 1995, 2000 and 2003), and incorporated major economic variables including output and added value, presenting relevant data concerning NPIs in different categories (Yamauchi, 2006).

In terms of the scale of Japan's NPIs (SNA-standards, NPIs including non-market output of market NPIs) for 2003, its NPO output was 36.3 trillion yen, and gross added value was 20.8 trillion yen, accounting for 4.24% of GDP. If the added value of volunteer services was included, NPI's GDP contribution would reach 22.65 trillion yen, accounting for 4.62% of GDP. Based on a time-series comparison from 2000 to 2003, there was a 25.9% increase in output from 28.8 trillion yen in 2000 to 36.3 trillion yen in 2003. Looking at gross added value, there was an increase of 19.6% from 17.43 trillion yen in 2000 to 20.84 trillion yen in 2003. Nominal GDP (expenditure) which indicates Japan's economic scope for the same period shows a growth rate of 1.8%, indicating that the growth rate of the country's NPOs was significantly faster than that of its economy.

3.2.3 Canada's NPI Accounting

Canada participated in the testing of the UN NPI Handbook organized by the United Nations in 2000, and delivered its findings in a report. Canada compiled its first NPI satellite account in 2004, becoming one of the few countries that was committed to implementing the UN NPI Handbook. Faced with limited basic information, the 2004 satellite account only provided estimated data on NPO economic contribution, which, nonetheless, was a critical milestone in Canada's statistical work and NPO development. Since 2004, Canada published its satellite account on a yearly basis improving tables and including more economic variables along the years. The 2007 satellite account developed into a standard satellite account comprising production accounts, income and outlay accounts, capital and financial accounts and balance sheets, which was able to provide reliable information on the size, scope and nature of NPOs and constituted an important component of Canada's official statistics.

In macro-economic terms, the added value of NPOs amounted to \$100.7 billion in 2007, accounting for 7% of total GDP. From 1997 to 2007, NPO's contribution to GDP grew with an average yearly growth rate of 7.1%, outpacing that of the overall Canadian economy (5.7%) and its growth in NPO economic activities nearly doubled, with economic contributions higher than many other industries (Statistics Canada, 2009).

3.3 Measuring the Economic Scope of China's NPOs in Theory and in Practice

3.3.1 Status quo and Issues in Measuring the Economic Scope of the Service Industry

In the course of development around the world, the service industry never got much attention until industrial development reached a certain level. The measurement of the economic scope of the service industry was at first too small and insignificant, but later scaled up and became more standardized. Studying the added value of the service industry, Yue Xiuming and Zhang Shuguang compared the accounting of gross industrial added value to that of the service industry, and came to the conclusion that the calculation of gross industrial added value is more complete than that of the service industry which still has a lot of intricate problems. One of the reasons is that more attention is paid to industrial statistics, and because experts pushed for the standardization of gross industrial added value accounting (Yue and Zhang, 2002). Moreover, in previous reviews of the undervaluation of the service industry, it was found that a lack of the most basic data for such a calculation was one of the main reasons why it was difficult to provide a better estimate than official statistics. With sustained and rapid economic development, the service industry, especially the emerging service industry, has experienced rapid development. Through accounting and analysis of the added value of the emerging service industry, Feng Lijing stated that existing statistics on the emerging service industry cannot meet actual data needs, since they only reflect certain aspects rather than giving the overall picture, and without scientific and effective statistical methods, the authenticity of the statistical data is doubtful (Feng, 2016).

3.3.2 Arguments for Measuring the Economic Scope of NPOs

Since NPOs are an important element of the value-added accounting of the emerging service industry, and because there are similar issues in the value-added accounting of the service industry, many scholars and experts doubt the authenticity of officially published data. Official data should indicate the actual conditions of social development, thus reflecting reality. The status quo is that the government discloses the added value of NPOs in its statistics on a yearly basis, but the statistics show that the contribution to GDP of NPO added value has remained stagnant for years, to the point of showing a tendency to decline, which contradicts the actual trend of NPO development. According to some scholars, China's NPO contribution to GDP should be over 400 billion yuan, and government published data severely underestimates the true economic scope of NPOs (Xu, 2015). Some scholars believe that the official data is too low because the added value of social service agencies such as private schools and hospitals are not included by civil affairs departments. In short, current arguments on the measurement of the economic scope of NPOs focus mainly on two aspects: 1) The current data severely underestimates the true scope of NPOs; 2) The current published data is incomplete due to differences in statistical standards and indices.

3.3.3 Problems in Measuring the Economic Scope of NPOs

In terms of overlooking economic contributions by the nonprofit sector, Yang Wenxue points out that in China's System of National Accounts (CSNA) enacted in 1992, NPOs are mixed with government public service departments, thus NPO added value is considered part of the added value of government public service departments. On the one hand this underestimates the contribution of NPOs to the national economy, and, on the other hand, exaggerates the contribution made by government departments (Yang, 2003). Therefore, it is imperative to work out a solution for the separate accounting of NPOs. By measuring the performance of NPOs, it can be seen that the social and economic benefits brought by nonprofits in China cannot be ignored and that they play an important

role in the social and economic development of the country (Wang and Li, 2017). In accordance with statistics published by the Ministry of Civil Affairs, the contribution to GDP by NPOs in China was 11.2 billion yuan in 2006 and 63.8 billion yuan in 2014. This shows that compared with the number of NPOs in China and the size of their staff, their actual contributions were significantly underestimated. The use of added value to evaluate the economic contribution of NPOs in China began in the "Statistical Bulletin on the Development of Civil Administration in 2006", according to which there were 354,000 NPOs in China, with an added value of 11.22 billion yuan, a total of 4,252,000 staff, and per capita GDP contribution of 2639 yuan. The latest official publication by the Ministry of Civil Affairs was in the "Statistical Bulletin on the Development of Civil Administration in 2014", which stated that in 2014, there were 606,000 NPOs with an added value of 63.86 billion yuan, a total of 6,823,000 staff and per-capita GDP contribution of 9360 yuan. Through a horizontal comparison, the per capita GDP contribution of the tertiary sector was 98,200 yuan in 2014, which means that the per-capita GDP contribution of NPOs was less than 10% of the per-capita GDP contribution of the tertiary sector. This is incorrect however; the actual added value of NPOs should be higher than the official data states.

According to Li Haidong, there is no classification of NPIs and NPISHs in the 2002 CSNA, as NPIs were included in the government sector. At the same time, there is a "dual management system" in China, whereby some NPIs register with departments for industry and commerce, rather than departments for civil affairs, or some are not even registered with either, and NPIs that register with departments of industry and commerce may not be market producers. Against this backdrop, Li believes there are several issues related to NPI accounting in China, namely 1) In the 2002 CSNA, NPIs which should have been allocated as market NPIs in company sectors and non-market NPIs in the NPISH sector, were in fact allocated to government sectors, which will surely have over-estimated the size of the government sector; 2) Definitions of NPIs were not properly explained. As there was no separate NPI sector in the 2002 CSNA, the accounting of NPIs was included in the accounting of the government sector, and the government sector had neither the obligation nor the need to carry out accounting for NPIs.

3.3.4 Studies on How to Improve the Measurement of the Economic Scope of NPOs

Some scholars point out the following four reasons on why a separate NPI sector should be set up:

1) By comparing different countries it has shown that NPOs are making a strong impact on the economy, but official accounting does not reflect the actual data; 2) In practice, the allocation of NPIs under government or company sectors cannot truly reflect their size and the data provided further complicates the features of company and government sectors, so it is necessary to separate the NPI sector; 3) In the current accounting system, NPIs are not treated as a separate sector, so the government is not obligated to collect relevant data on nonprofits; 4) NPIs are becoming the focus of public policies.

Looking at the issues surrounding the accounting of NPIs, there are already proposals in existing literature to build up credibility and enhance information transparency, to strengthen the management of financial accounting and working capital, as well as to boost internal accounting management and improve employees' qualifications. Li Haidong proposed steps to implement NPI accounting: firstly, to screen and select NPIs in the national accounting framework, to add a separate NPISH category and establish a NPISH sector in China's system; secondly, to set necessary variables to describe the economic features of NPIs; and then to compile a NPI satellite account.

Some scholars have suggested two methods to improve the measurement of the economic scope of NPOs: 1) Divide market NPIs which produce both market output and non-market output into two sub-sectors, i.e., market NPI with market output, and market NPI with non-market output. Market NPI with market output uses sales income to measure the value of its market output, while the latter uses total costs as the basis for estimating its non-market output, which equals to the sum of intermediate consumption, compensation of employees, fixed capital consumption and net production tax. This method can guarantee accurate calculation results, but it needs to distinguish market NPIs and calculate both market and non-market outputs, which poses a challenge for better and greater data collection. 2) The second method is easier, and compares total input and sales income of the NPI then uses proper methods to calculate its non-market output depending on the size of the NPI. This method is easier to carry out with less of a work-load, but it lacks a complete theoretical system and may result in accounting loopholes.

In this accounting system, the current price accounting of the gross national product is divided into production method, income method and expenditure method. According to the relevant provisions of the Production Law, the government and non-profit institutions serving households, such as public management, social security, and NPO, are mainly funded by state finance and other sponsors, or although they have some operating income, they cannot make up for their own operations. Activity costs. The total output of such units is generally calculated as expenditure on business activities, which is equal to "recurrent expenditure + depreciation of fixed assets".

In the recently revised 2016 CSNA published in August 2017, NPISH and a NPISH sector appear for the first time as a separate option in the classification of institutional units and sectors. In this accounting system, the current price estimation of GDP can be calculated by either measuring production, income or expenditure. As regulated in production approach, since government sector and NPISH sector such as public administration, social security and NPO are mainly financed by state finances and other donations, and their certain business revenues, but still cannot cover these sectors operating costs. The total output of such sectors is generally calculated on the basis of operating activity expenditure, that is, "current expenditure + depreciation of fixed assets"

In general, research on how to measure the economic scope of NPOs is still weak. Though the new edition of the CSNA includes NPISH and the NPISH sector as a new classification unit, further study and discussions concerning the definition of NPIs, the indicators for the measurement of the economic scope of NPIs and the quality of data collection are still required in practice. In addition, research into NPO development with Chinese characteristics needs to be strengthened, in particular, there needs to be more consolidation and cooperation between government departments, scholars and experts, so as to combine theory with practice, and promote the measurement of the economic scope of NPOs in China to better present nonprofit contributions to the development of the economy in a more objective manner.

From relevant studies both in and out of China, we can see that there are errors in statistical data which influence the evaluation of the economic scope of NPOs. In the future, we will have to pay more attention to developing a new accounting framework and index system, and ensure that irregularities in data are rectified and properly analyzed.

4 Design and Implementation of Measurement Methods

4.1 Measurement Approach and Data Collection

4.1.1 Measurement Approach

Added value is a key indicator of the size of the economy. After weighing up the rationale, the team used the income method used in the United Nations National Accounts System (SNA 2008) and the UN NPI Handbook as a measurement reference. In actual calculations, social service agencies which belong to market producers from social groups are distinguished from foundations which belong to non-market producers, so that the results are more objective and scientific.

The added value of social service agencies = compensation of employees + net production tax + depreciation of fixed assets + operating surplus (1);

The added value of social groups and foundations = compensation of employees + net production tax + depreciation of fixed assets (2).

4.1.2 Data Source

At present, the basic data for national economic accounting originate from the accounting data of all micro-economic units, so the measurement of indices such as the NPO added value should also be based on the accounting data of all grassroots economic units. To ensure the authority and accuracy of the measurement results, this study uses the financial statements and human resources information table included in NPO annual inspection reports as the data source. The financial statement includes the business activity sheet, cash flow statement and balance sheet. The business activity sheet lists the source of income, composition of expenses, and net asset changes; the balance sheet lists indices on assets, liabilities and net assets; and the cash flow statement lists the cash inflows and outflows. The human resources information sheet mainly includes indicators such as employees, full-time staff, part-time staff, and volunteers.

4.1.3 Data Collection

Below are the definitions of the main indicators and data collection:

1) Employee compensation. Employee compensation is defined as the total remuneration payable by an enterprise to an employee in return for work done by the latter, including salaries, bonuses and allowances. In this project, data can be drawn directly from the “aggregate of cumulative compensation to employees of the year” in the “Business Activity Sheet” within the financial statements. If a nonprofit’s compensation to employees only includes “cash paid to employees and cash paid for employees” and excludes payable remuneration, equity, and the like, this data can use “cash paid to employees or paid for employees” as included in the Cash Flow Statement.

2) Fixed asset depreciation. Fixed asset depreciation is defined as the systematic apportionment of accrued depreciations according to the predetermined method within the service life of the fixed assets. The data can be directly extracted from the “aggregate of cumulative depreciation of fixed assets of the year” in the “Business Activity Sheet”, or the “closing balance” minus the “opening balance” in the line of “minus: cumulative depreciation” in the Balance Sheet.

3) Net production tax. Net production tax can be calculated by production taxes minus production subsidies. The production taxes can be directly extracted from the “aggregate of cumulative taxes and

fees of the year” in the “Business Activity Sheet”. The production subsidies can be directly obtained from the “total cumulative government subsidized income” in the “Business Activity Sheet”, or “cash received from government subsidies” in the “Cash Flow Statement”.

4) Operating surplus. Operating surplus can be substituted by “owner’s equity”, which can be drawn from the “aggregate of cumulative net asset changes of the year” in the “Business Activity Sheet”.

5) NPO total expenditure. Total expenditure can be drawn from “an aggregate of total expenses of the year” in the “Business Activity Sheet”.

6) Total employees. This data can be obtained from the number of full-time and part-time employees in the “Human Resources Information Sheet”.

Since these critical indices still contain missing data, we have extracted the data of 12 relevant indicators to make up the missing data caused by the selection of only one indicator, so as to obtain the maximum required data. (see Table 1).

Table 1: Indicators and their Source

No.	Indicator	Data Extraction	Source (the corresponding sheet)
1	Employee compensation	Aggregate of cumulative compensation to employees of the year	Business activity sheet
		Cash paid to employees and cash paid for employees	Cash flow statement
2	Fixed asset depreciation	Aggregate of cumulative depreciation of fixed assets of the year	Business activity sheet
		Closing balance of cumulative depreciation	Balance sheet
		Opening balance of cumulative depreciation	Balance sheet
3	Net production tax	Aggregate of cumulative taxes and fees of the year	Business activity sheet
		Aggregate of cumulative government subsidized income	Business activity sheet
		Cash received from government subsidies	Cash flow statement
4	Operating surplus	Aggregate of cumulative owner’s equity of the year	Business activity sheet
5	Total expenditure	Aggregate of total expenses of the year	Business activity sheet
6	Total employees	Number of full-time employees	Human Resources Information Sheet

		Number of part-time employees	Human Resources Information Sheet
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4.2 Sampling Design

4.2.1 Basic Statistical Information

Before the sampling design stage can begin, as much relevant information as possible must be collected in the following four areas: 1) according to the classification of NPOs, nonprofits can be categorized into social groups, social service agencies and foundations; 2) according to administrative jurisdiction, nonprofits can be classified as operating at provincial level and at central level; 3) auxiliary information on social groups and social service agencies at the central level and in 31 provinces originating from the Ministry of Civil Affairs, and auxiliary information on foundations coming from the National Foundation Center; 4) auxiliary indicators including: total annual expenses of social groups and social service agencies, number of employees employed by social groups and social service agencies; total expenditure of foundations and public welfare expenditure in 2013-16.

1) Number of NPOs and their Distribution across Different Administrative Divisions (Provinces)

Fig. 1 presents the number of NPOs per nonprofit type and their distribution across different administrative divisions based on information acquired from the Ministry of Civil Affairs and the National Foundation Center.

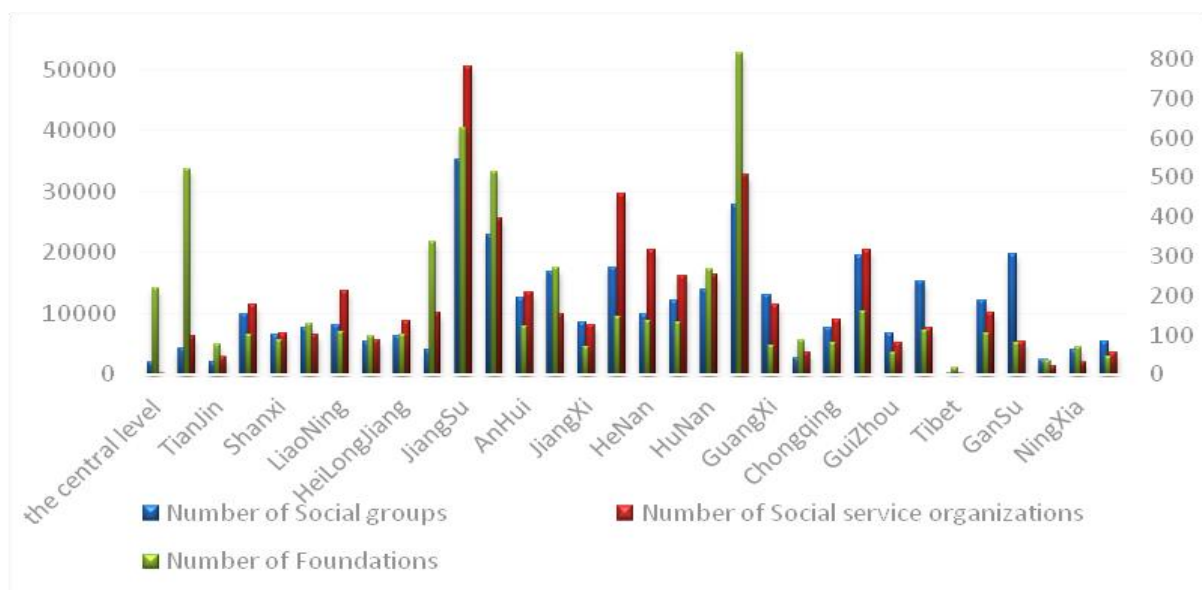


Figure 1: Statistical map of the three types of NPOs in China

2) Undetected rate of auxiliary indicators

According to statistics on overall auxiliary indicators (total yearly costs and the number of employees) and by analyzing the undetected rate², there are “undetected” NPOs in all categories of nonprofits in China. The undetected rate of provincial level NPOs is over 25%, for social groups and social service

² The undetected rate refers to the scenario when the auxiliary indices of an NPO are zero or blank, this NPO is thus called an undetected NPO.

agencies at central level the rate is over 12%, while for foundations at central level it is less than 5%, the lowest among all NPOs. (For more details, please refer to Table 2).

Table 2: Undetected Rate of NPOs across 31 Provinces³

	Social groups at provincial level	Social service agencies at provincial level	Foundations at provincial level
Total	340,397	374,598	5559
Number of annual inspections (based on total expenses of the year)	215,448	251,946	3963
Undetected rate (based on total expenses of the year)	36.71%	32.74%	28.71%
Number of annual inspections (based on total employees)	247,935	279,201	— —
Undetected rate (based on total employees)	27.16%	25.47%	— —

3) Statistical Dispersion

The team calculated the coefficient of variation (CV) of the auxiliary indicators of the nonprofit sector. The results showed that the highest CV value of all three types of NPOs reached over 150, and the lowest over three (see Table 3 for more details).

Table 3: Dispersion of NPOs

	Social groups	Social service agencies	Foundations
The CV value of provincial level NPOs based on total annual expenses	151.24	67.94	4.16
The CV value of provincial level NPOs based on number of employees	19.63	131.73	— —
The CV value of central level NPOs based on total annual expenses	4.85	5.76	3.12

³ The annual inspection rate of foundations as included in Table 2 is based on the mean of total annual expenditures of 2013-15.

4.2.2 Division of Subpopulations

Since the number of NPOs at central level was quite limited and the data sources for the required indicators were the same, the team used the census method to acquire relevant data. While the number of nonprofits at provincial level was much higher and data sources differed, the team divided them into subpopulations and then divided each subpopulation into 31 strata according to the 31 administrative divisions (provinces) in order to select samples. Considering the rate of undetected social groups and social service agencies based on annual aggregate costs at provincial level was high, and that there was considerable divergence in auxiliary information, the team worked with the number of employees as the auxiliary indicator for dividing the subpopulation of social service agencies and social groups at provincial level.

1) Subpopulations of social groups in 31 provinces

All social groups in the 31 provinces were ranked according to “number of employees” and then grouped together based on the “empirical grouping formula” (proposed by Sturges (1926)), these social groups were finally divided into six subpopulations based on the “cumulative square root method”⁴. Since the subpopulations of “1-3 persons” and “3-5 persons” were relatively small, the team combined these into one subpopulation. A further subpopulation was created for missing data. All social groups in 31 provinces were thus divided into five subpopulations, namely “1-5 persons”, “5-10 persons”, “10-30 persons”, “over 20 persons” and “missing data”.

2) Subpopulations of social service agencies in 31 provinces

Similar to the division method for social groups, and mindful of the coefficient of variations, social service agencies in the 31 provinces were divided into six subpopulations, namely “500 persons and above”, “30-500 persons”, “10-30 persons”, “5-10 persons”, “1-5 persons” and “missing data”.

3) Subpopulations of foundations in 31 provinces

Total expenditure was the auxiliary indicator used to further categorize foundations. The team selected the mean of expenditure over three years, taking into account the coefficient of variations, and divided all foundations in the 31 provinces into six subpopulations, namely “50 million yuan and above”, “5-50 million yuan”, “2-5 million yuan”, “0.5-2 million yuan”, “0.5 and less than 0.5 million yuan”, and “missing data”.

4.2.3 Stratum Division, Sample Allocation and Selecting Samples

For each subpopulation of the three types of NPOs, the team used the administrative provinces as the stratum to conduct stratified sampling. As for the allocation of samples in each stratum of each subpopulation, a common proportional distribution method was adopted that was proportional to the stratum size. In terms of selecting sample units within each stratum, a systematic sample method was adopted after the units in the stratum were sorted according to the auxiliary indicators.

⁴ The cumulative square root method, proposed by Dalenius and Hodges, is a fast approximation for determining strata, which refers to the methods using the cumulative square root of the distribution of the variation of X in an "optimal" manner.

4.3 Calculation and Adjustment of Sample Size

4.3.1 Determination of Sample Size of the Subpopulation

For each subpopulation, when applying simple random sampling (SRS), the calculation formula for the sample size is:

$$n_0 = \left(\frac{\mu_{\alpha/2} S}{r \bar{\theta}} \right)^2 = \left(\frac{\mu_{\alpha/2}}{r} \right)^2 \left(\frac{S}{\bar{\theta}} \right)^2 = \left(\frac{\mu_{\alpha/2}}{r} \right)^2 CV^2 \quad (3)$$

Where,

α = significance level

$\mu_{\alpha/2}$ = upper percentile

r = relative error bound

S = standard deviation of the subpopulation

$\bar{\theta}$ = mean of the subpopulation

CV = coefficient of variation of the subpopulation.

Through comparative trial calculations (selection of various parameters and combinations), we specified $\alpha = 5\%$, $r = 7.5\%$ (due to high divergence among foundations, in order to avoid selecting too many sample units, we specified a relative error bound $r = 10\%$ to calculate the sample size of the subpopulations of foundations).

Using the above calculation, we obtained an initial sample size n_0 to be selected from each subpopulation, which was then modified through the following formula:

$$n = \frac{n_0}{1 + n_0/N} \quad (4)$$

It should be noted that N equals the total number of NPOs included in each subpopulation. If $n_0/N < 0.05$, then n_0 is the final result; and if $n_0/N \geq 0.05$, then the modified n is the final result.

Taking into consideration the difficulties in the implementation of the survey, we specified the effective response rate as $h = 70\%$ (since samples of foundations are easily accessible from the National Foundation Center, we specified the effective response rate of foundations at $h = 98\%$), and modified the results a second time, with the following formula:

$n_1 = n / h$ (5) Since the population was divided into subpopulations before conducting the stratified systematic sampling, we selected the deff (designed effect) = 1.8 to modify n_1 , a third modification of the results, with the following formula:

$n_2 = n_1 \times deff$ (6) n_2 is the final sample size that needed to be selected from each subpopulation based on our calculations. Upon adjustment of the results, the sample size of each subpopulation can be summarized in the following table:

Table 4: Allocation of Sample Size of Each Subpopulation

	Subpopulation	NPO scale	Adjusted sample size after calculations	Adjusted sample fraction	Total (sample fraction)	Total
Social groups	Subpopulation 1	30 persons and above	209	1.26%	1980 (0.58%) Social groups	5134 (0.73%)
	Subpopulation 2	10~30	287	0.92%		
	Subpopulation 3	5~10	560	0.70%		
	Subpopulation 4	1~5	793	0.66%		
	Subpopulation 5	Missing data	131	0.14%		
Social services agencies	Subpopulation 1	500 persons and above	185	100.00%	2214 (0.59%) Social services agencies	
	Subpopulation 2	30~500	1373	7.59%		
	Subpopulation 3	10~30	203	0.26%		
	Subpopulation 4	5~10	107	0.11%		
	Subpopulation 5	1~5	229	0.27%		
	Subpopulation 6	Missing data	117	0.12%		
Foundations	Subpopulation 1	50 million and above	52	100.00%	940 (16.91%) Foundations	
	Subpopulation 2	5~50 million yuan	267	40.52%		
	Subpopulation 3	2~5 million yuan	100	16.39%		
	Subpopulation 4	0.5~2 million yuan	133	10.75%		
	Subpopulation 5	Less than 0.5 million yuan (excluding 0)	285	20.49%		
	Subpopulation 6	0 (missing data)	103	6.40%		

4.3.2 Determining Sample Size of Each Stratum (Province) in Each Subpopulation

Since provincial administrative divisions were used as strata for stratified sampling of the subpopulations, the team adopted the most commonly used method of proportional allocation to divide the sample size in proportion to the stratum sizes. Based on the definition of proportional allocation, the stratum sample size equals the subpopulation sample size multiplied by the corresponding stratum weight (stratum weight refers to the proportion of all NPOs in the stratum against the total number of NPOs in the subpopulation). Its calculation formula is as follows:

$$n_2^{ijk} = n_2^{ij} \times W_{ijk} = n_2^{ij} \times \frac{N_{ijk}}{N_{ij}} \quad (7) \text{ where,}$$

$i = 1, 2, 3$, representing the three types of NPOs (social groups, social service agencies and foundations)

$j = 1, \dots, 6$, representing the subpopulations;

$k = 1, \dots, 31$, representing all provinces;

n_2^{ij} = sample size drawn from j^{th} subpopulation of i^{th} NPO

n_2^{ijk} = sample size drawn from k^{th} province of j^{th} subpopulation

N_{ij} = number of NPOs included in j^{th} subpopulation) of i^{th} NPO

N_{ijk} = number of NPOs included in k^{th} province of j^{th} subpopulation

4.4 Sampling Procedure and the Pre-treatment of Data

4.4.1 Sampling Procedure

A correct sampling procedure is very important. Below is the sampling procedure adopted in this project. Upon discussions within the team and conducting interviews with several provincial authorities, the following nine steps were selected for sampling:

Step 1: Collect the contact information of the civil affairs departments of each province.

Step 2: Contact all provincial departments and obtain sample data reviewed by the reporting staff of said department. There are two types of sample data required: the first is the data sheet of the sample units that participate in the annual inspection (i.e. no missing data); the second is the data sheet of the sample units that have not participated in the annual inspection (i.e. missing data). Specific data sheets (4 tables) required for each unit (i.e., each sample unit) include the 2016 balance sheet, the 2016 business activity sheet, the 2016 cash flow statement and the 2016 human resources information sheet.

Step 3: Accept the first round of sample data.

Step 4: Keep a record of the first round of sample data. The team assigns a specific team member to take record and double-check the data sheets submitted and confirmed by the departments of civil affairs of each province.

Step 5: Sample units that fail to respond are dealt with by interpolation.

Step 6: Collect information of the interpolated sample units. Based on the division of labor of the first round of sample data reporting, the designated team member is responsible for the communication and explanation of the interpolated sample units, (i.e., the second round of sample collection). The interpolated sample units are divided into two categories as well: one for those that participate in the annual inspection; and the other for those that do not participate in the annual inspection (missing data). Data required for interpolation are drawn from the four data sheets in the 2016 annual inspection report corresponding to the interpolated sample units, which include the 2016 balance sheet, the 2016 business activity sheet, the 2016 cash flow statement and the 2016 human resources information sheet.

Step 7: Receive the second round of interpolated sample data.

Step 8: Keep a record of the information of the interpolated sample units sent by each province. The designated team member is responsible for recording, archiving and checking the data and information of the interpolated sample units sent by the departments of civil affairs of each province.

Step 9: Summarize the information of all sample units.

4.4.2 Data Preprocessing

Data preprocessing refers to the recorded sample information which is processed by a series of steps before carrying out sample inference. The details of data preprocessing are as follows:

- 1) Interpolation of missing information. Since systematic sampling is adopted for selection of sample units from strata, the mean of the prior and the subsequent units are used as the interpolated value of the missing units.
- 2) Interpolation of outliers. An outlier is defined as data whose value exceeds 3σ of the mean of the subpopulation. The second-largest value of the subpopulation is used to replace the outlier.
- 3) Elimination of sample units that do not meet the requirements. According to the minimum data required for the added value accounting formula, if the data included in the sample unit does not satisfy the requirements, the sample unit is considered invalid and is thus eliminated.
- 4) The effective response rate is calculated by taking into consideration the second round of data collection and the elimination of the ineffective sample units.
- 5) If there are few sample units in the stratum, the unequal-weighted sampling method is used to calculate the stratum mean.
- 6) For strata where there is no sample data (mainly for strata in the subpopulation of missing data), and in the case of three provinces and autonomous regions (i.e., Hubei, Xinjiang and Tibet) where no sample unit was collected, data was interpolated based on subjective principles.
- 7) For strata where there are sample units with a negative added value, and should there be lots of sample units in these strata, the negative-value sample units are eliminated; should there be just a few sample units, the negative values are changed into positive.

4.5 Estimation and Evaluation of the Total Population

4.5.1 Estimation of the Added Value of NPOs

The estimation of the population total in systematic sampling is $\hat{Y}_{sy} = \hat{Y}_r = N\bar{y}_{sy} = \frac{N}{n} \sum_{j=1}^n y_{rj}$, and the estimation of

stratified random sampling with proportional allocation is $Y_{prop} = N\bar{y}_{prop} = N \sum W_h \bar{y}_h = N \sum W_h \frac{1}{n_h} \sum_{i=1}^{n_h} y_{hi} = \frac{N}{n} \sum_{h=1}^L \sum_{i=1}^{n_h} y_{hi}$.

Therefore, the estimation of the population total of the stratified systematic sampling can be expressed with the following formula:

$$Y_{prop, sy} = N\bar{y}_{prop, sy} = N \sum W_h \bar{y}_{h, sy} = N \sum W_h \frac{\sum_{j=1}^{n_h} y_{h, rj}}{n_h} = \frac{N}{n} \sum_{h=1}^L \sum_{j=1}^{n_h} y_{h, rj}$$

With the above formula and the sample data, the team measured the added value of the three types of NPOs in each province. Combining these measurement results with the added value of the three types of NPOs at central level (through censuses), the team obtained final measurement results as shown in the following table:

Table 5: Measurement Results of the Three Types of NPOs in China (unit: 100 million yuan)

	Total added value	Added value of foundations	Added value of social service agencies	Added value of social groups
Provincial level NPOs	2679.81	138.66	2263.69	277.47
Central level NPOs	109.78	22.73	8.15	78.91
Total	2789.60	161.38	2271.84	356.37

The top seven provinces and their added value rates are listed in the following table:

Table 6: Top Seven Provinces with Highest Added Value of NPOs (Unit: 100 million yuan)

Ranks	Province/Municipality	Total value added	Added value of foundations	Added value of social service agencies	Added value of social groups
1	Guangdong	563.52	20.99	497.74	44.79
2	Jiangsu	323.13	34.70	238.85	49.58
3	Shandong	245.21	1.61	236.83	6.77
4	Shanghai	175.16	20.43	144.60	10.13
5	Beijing	167.21	16.62	142.59	8.00
6	Zhejiang	163.82	8.64	118.74	36.44
7	Sichuan	156.53	3.41	140.50	12.62

4.5.2 Estimation of Total Expenditure of NPOs

Using the same sample data and similar estimation methods, we can infer the total expenditure of the three types of NPOs in the 31 provinces, which, together with the total expenditure of NPOs at central level, allows us to obtain the total expenditure of the three types of NPOs in China as shown in the following table:

Table 7: Total Expenditure of the Three Types of NPOs in China (unit: 100 million yuan)

	Total expenditure	Total expenditure of foundations	Total expenditure of social service agencies	Total expenditure of social groups
Provincial level NPOs	6153.60	216.86	5117.94	818.80
Central level NPOs	219.57	43.91	21.96	153.70
Total	6373.17	260.78	5139.90	972.49

The top seven provinces and their total expenditure are listed in the following table:

Table 8: Top Seven Provinces with Highest Total Expenditure of NPOs (Unit: 100 million yuan)

Rank	Province/ Municipality	Total expenditure (100 million yuan)	Total expenditure of foundations	Total expenditure of social service agencies	Total expenditure of social groups
1	Guangdong	1143.96	36.70	962.26	145.00
2	Jiangsu	686.17	31.64	538.85	115.68
3	Sichuan	587.06	8.13	451.16	127.77
4	Shandong	551.43	3.92	538.60	8.90
5	Shanghai	404.45	29.64	352.54	22.27
6	Beijing	358.83	21.79	310.67	26.38
7	Zhejiang	350.88	16.54	279.64	54.70

4.5.3 Evaluation of Measurement Results

1) Effective Response Rate

Compared with the initially set effective response rate, accepting that there is some gap between the effective response rate of social groups and the set value, the effective response rates of other NPOs are higher or close to the set value (see Table 9). Therefore, looking at the effective response rate, we can see that the sample survey conducted by the team is effective.

Table 9: Effective Response Rates of the Sample Survey

	Foundations	Social service agencies	Social groups	Social service agencies + social groups	Total
Set value of the effective response rate	98.00%	70.00%	70.00%	70.00%	75.13%
Actual effective response rate	100.00%	84.79%	50.30%	68.87%	74.84%

2) Margin of Error

The team calculated the added value of the three types of NPOs in Beijing for the year 2016, based on census data of the city that participated in the annual inspection collected in this project. With data from the sample units obtained in the sample survey, the team calculated statistical inference on the added value rates of the three types of NPOs in Beijing without taking into account missing data. Thus, it was able to calculate the actual relative margin of error as: 1.46% for foundations, 9.53% for social service agencies, 4.11% for social groups, and 8.34% for the total population. The difference between the actual margin of error and the set value of the inferences of the added value of NPOs in Beijing was less than one percentage point. In this regard, by evaluating the statistical inference results from the margin of error perspective, the sample inference results are pretty accurate (see Table 10 for details).

Table 10: Sample Survey Margin of Error

	Foundations	Social service agencies	Social groups	Total
Added value based on the census data in Beijing (100 million yuan)	12.91	126.58	5.49	144.98
Added value based on sample survey in Beijing (100 million yuan)	13.10	114.52	5.27	132.88
Actual margin of error for Beijing	1.46%	-9.53%	-4.11%	-8.34%
Set margin of error	±10.00%	±7.50%	±7.50%	±7.72%

3) Correlation Coefficient

In order to conduct a comprehensive evaluation of the sample inference results, the team ranked the provinces according to the inferred results of the added value and total expenditure of each province, as well as GDP and added value of the tertiary sector. Comparing the top six provinces, the ranking of the inference results of this project is consistent with the ranking of key economic indicators.

Table 11: Comparison between Inference Results and Key Economic Indicators of Each Province

Rank	1 st	2 nd	3 rd	4 th	5 th	6 th
NPO added value	Guang-dong	Jiangsu	Shan-dong	Shanghai	Beijing	Zhejiang
NPO total expenditure	Guang-dong	Jiangsu	Sichuan	Shan-dong	Shanghai	Beijing
GDP	Guang-dong	Jiangsu	Shan-dong	Zhejiang	Henan	Sichuan
Added value of the tertiary sector	Guang-dong	Jiangsu	Shan-dong	Zhejiang	Beijing	Shanghai

The team further calculated the correlation coefficient on the ranking of these four indicators, which showed that the lowest correlated coefficient of these four indicators was as high as 85.5%, demonstrating consistency with the rankings of the four indicators. This further proves that the inference results of the added value and total expenditure of NPOs in each province are precise.

Table 12: Correlation Coefficient of the Inference Results and the Key Economic Indicators of Each Province

	NPO Added Value Ranking	NPO Total Expenditure Ranking	GDP Ranking	Tertiary Sector Added Value Ranking
NPO Added Value Ranking	1.000	0.955	0.862	0.883
NPO Total Expenditure Ranking	0.955	1.000	0.855	0.866
GDP Ranking	0.862	0.855	1.000	0.955
Tertiary Sector Added Value Ranking	0.883	0.866	0.955	1.000

4.5.4 Measurement of Non-active and Suspected Non-Active NPOs

During data collection, the team also noticed that the units obtained from the sampling frame of the three types of NPOs registered in the Ministry of Civil Affairs were not all active NPOs. Based on feedback from civil affairs departments, some NPO licenses had been revoked, were in the process of being revoked, or had not participated in an annual inspection for over two consecutive years, defined in the project as “non-active NPOs”. Some sample units which did not accept an official inspection of the particular year, or failed to answer the registration authorities, are defined as suspected non-active NPOs for the sake of this project.

During the measurement process, the team compiled a list of non-active and suspected non-active NPOs from the sample units collected through civil affairs departments and obtained a percentage of these two types of NPOs based on the total sample units. It showed that non-active social service agencies make up 10.85%, suspected non-active social service agencies 2.83%, non-active social groups 12.50%, and suspected non-active social groups 1.96%. (see Table 13).

Table 13: Statistics for Non-active and Suspected Non-active NPOs

	Non-active social service agencies	Suspected non-active social service agencies	Non-active social groups	Suspected non-active social groups
Quantity of NPOs	434	113	318	50
Sample Quantity	4000	4000	2545	2545
Percentage	10.85%	2.83%	12.50%	1.96%

5 Findings and Suggestions

5.1 Major Findings of the Project

The team has obtained important findings over the past two years of research, as highlighted below:

- In 2016, the total added value of NPOs in China was about 278.9 billion yuan, which accounts for 0.37% of the total GDP of China, and 0.73% of the added value of the tertiary sector in the same year. Breaking down the total added value of NPOs, added value from social service agencies reached around 227.2 billion yuan, social groups contributed 35.6 billion yuan, and foundations totaled about 16.1 billion yuan;
- The top five provinces and municipalities in China registering NPOs with the highest added value in 2016 were Guangdong, Jiangsu, Shandong, Shanghai and Beijing, while in terms of per capita added value of NPOs, Beijing, Shanghai, Guangdong, Jiangsu, and Zhejiang topped the list;
- Total expenditure of NPOs in China in 2016 was about 637.3 billion yuan, which accounted for 0.86% of total GDP and 1.66% of the added value of the tertiary sector for the same year. With regards to total expenditure per NPO type, social service agencies spent about 514 billion yuan, social groups spent about 97.2 billion yuan, and foundations spent around 26.1 billion yuan;
- China's top five provinces and municipalities registering NPOs with the highest expenditure in 2016 were Guangdong, Jiangsu, Sichuan, Shandong and Shanghai, while Shanghai and Beijing (with similar values), Guangdong, Jiangsu, Sichuan, and Zhejiang topped the list of NPOs with the highest per capita expenditure;
- There were approximately 49,380 "non-active and suspected non-active organizations" providing social services in 2016, accounting for 13.68% of the total number of social service agencies;

- There were also approximately 48,580 “non-active and suspected non-active” social groups in 2016, accounting for 14.46% of the total number of social groups;
- Excluding “non-active and suspected non-active” social service agencies and social groups, there were about 604,000 established and active NPOs in 2016;
- During the data collection process, though several achievements were noted, there were also areas that required significant improvement, in particular regarding the development of a digitalized information sharing platform to unify the entire NPO data management system, the availability of equipment and amenities, and the standardization and scientific management of data statistics.

These findings help to present a realistic picture of the development of NPOs:

1) NPOs are becoming a major force in the economic and social development in China. Thanks to policy support, China’s nonprofit sector is gaining continuous momentum. Over the past four decades since the reform and opening-up of China, NPOs have undergone four major development stages, namely “recovery period”, “distorted development”, “stable development” and “fast growth”, and are now becoming a formidable force in China. It is expected that NPOs will now take on a new key role as a diverse provider in the supply-side economy.

2) Compared to other developing countries, China still has a long way to go however. The economic scale of China’s NPOs is neither as low as shown in the census data published by authorities, nor as high as estimated by existing studies. During the years the study was carried out, the added value of China’s NPOs accounted for 0.37% of GDP and total expenditure of nonprofits accounted for 0.86% of GDP, which is several times lower than in other countries, even though the difference in scope of NPOs has been taken into consideration. This is not consistent with the country’s rapid economic development either, indicating that social actors still need targeted support from national policy to boost economic capacity.

3) The actual number of active NPOs is much less than those published by the government. As shown in the sample survey, non-active social service agencies in China account for 10.85% of the total, and suspected non-active social service agencies account for 2.83%, while non-active social groups in China account for 12.50% of the total, and suspected non-active social groups account for 1.96%. This means that even if suspected non-active NPOs are excluded from the data, at least 10% of the nonprofit sector is still non-active, which would suggest that there are only 600,000 to 630,000 active NPOs in the country. More attention needs to be given to the issues behind this.

4) There are correlations between N-GDP with GDP, the added value of the tertiary sector, and the number of NPOs. The high correlation between N-GDP with GDP and the added value of the tertiary sector indicates that the phase of economic development and economic structure are strong driving forces for the development of NPOs. However, the correlation between the number of NPOs and N-GDP is not as obvious. In 2016 for example, Jiangsu, Guangdong, Shandong, Zhejiang and Sichuan were among the top five provinces with the highest number, added value and total expenditure of NPOs in China. Beijing and Shanghai were the exceptions however; though they have a relatively small number of NPOs (11,000 in Beijing and 14,000 in Shanghai), the added value and total expenditure of their nonprofits still top the league in terms of total economic and per-capita reach, which indicates that policy support by local governments has gone some way to promote the development of NPOs.

5.2 Issues with Government Data Management

During data collection, the team noticed that it is not possible to extract separate data on NPOs in statistical terms from China's System of National Accounts (CSNA). There is no specific statistical system for nonprofits. Economic accounting of NPOs currently relies on separately-logged data from internal statistical management systems within individual departments of civil affairs bureaus, and yearly statistical data published on the "Statistical Bulletin on the Development of Civil Administration" and "China Civil Affairs' Statistical Yearbook". However, compared with national economic accounting, departmental accounting lacks standardization and accuracy. Government data management systems are often lacking, incomplete and non-standard, which affects the accuracy of data when calculating the economic scope and impact of NPOs.

5.2.1 Issues with Accounting Methods

1) Omissions in accounting formula. Limited by the current statistical conditions of the service industry in China, the calculation of added value of NPOs is always done using the income approach. According to the general practices stipulated in the 2008 SNA and UN NPI Handbook, the formula for calculating the added value of NPOs using the income approach is:

Added value of NPOs = compensation of employees + net production tax + depreciation of fixed assets + operating surplus.

While in the Statistical Information Management System for the Social Service Industry developed and used by the Ministry of Civil Affairs, the formula for calculating added value of NPOs is:

Added value of NPOs = compensation of employees + net production tax + depreciation of fixed assets, without operating surplus.

In fact, NPOs can also generate a certain amount of operating surplus. Social service agencies in particular, as market producers, such as education and medical care organizations, can often generate a considerable operating surplus. The nonprofit nature of the organization simply requires that it does not distribute its surplus. If the operating surplus is omitted from the calculation, the added value of NPOs will be underestimated.

2) Volunteer service contributions are not included. Volunteer activities are an important element of economic activity in nonprofits, also producing substantial added value. However, volunteer activities are often regarded as having no economic value since no rewards are received, and are thus excluded from economic accounting. This results in a contribution loss in the calculation of the nonprofit economy.

5.2.2 Inconsistency of Official Database (Statistical Information Management System of Social Service Industry) with Annual Inspection Data

The Division of Planning and Finance of the Ministry of Civil Affairs conducts the accounting of NPOs based on the official data of nonprofits submitted by provinces and municipalities, and the basic data originates from the annual inspection reports submitted by NPOs to local civil affairs departments. Currently, the digitalization of information has not yet been put into practice in a majority of provinces and municipalities, thus the data from annual inspections cannot be imported into the official central database system. Staff need to manually enter data into the official database in line with paper or electronic versions of the annual inspection report. This leads to inconsistencies between NPO annual inspection data and statistical accounting data. In civil affairs departments at city and county level in

particular, personnel who specialize in NPO statistical work are often inadequately equipped, and some even have no full-time statisticians. The statistical accounting data at local level are not updated in time, and problems of missing or misreported accounting data is common, which directly affects the accuracy of the accounting of nonprofit-related indicators. The economic value created by NPOs is thus seriously lacking in the calculation of NPO added value.

5.2.3 Annual Inspection Filing Rate Issue

To calculate the added value of NPOs, statistical departments mainly rely on annual inspection data, however, the current data from annual inspections does cover the data for all NPOs. According to statistics of the Ministry of Civil Affairs, only 51% of NPOs in China have participated in the annual inspection. In areas registering higher annual inspection rates such as Shanghai and Beijing, just 75-80% of NPOs filed their inspection reports. The reasons for a such low annual inspection rate are mainly due to:

- 1) The scope of NPOs that are required to participate in the annual inspection. Normally, the civil affairs departments stipulate that foundations should participate in the annual inspection from the year they are established, while social groups and social service agencies which were established after 30 June shall participate in the annual inspection in the year following their establishment. Since social groups and social service agencies established for less than 6 months can be exempted from annual inspections, they are not included in the scope.
- 2) The high proportion of non-active NPOs. During the study, the team learned that there are a substantial number of non-active NPOs that have not carried out any activities for years and have not participated in annual inspections. According to the head of the civil affairs department of Jiangsu Province, the number of non-active NPOs at provincial level in Jiangsu accounted for about 15% of the total, whereas for the entire province, that number was 20% on average; Non-active NPOs in Guangdong province accounted for 15% of the total; and non-active NPOs at the municipal level in Beijing accounted for 10% of the total, with an even higher proportion at the county or district level, 15% on average. This phenomenon was also reflected in the sample calculations.
- 3) Some active NPOs did not participate in the annual inspection. Putting aside NPOs established for less than 6 months and non-active NPOs that are exempted from the annual inspections, there are still nonprofit organizations which are operating normally but fail to participate in annual inspections, thus their added value is not reflected in the statistics either.

5.2.4 Lack of Unified Standards for Information System Roll-out

A complete and fully shared information system is the key to ensuring the effectiveness of the official database system. However, the development of an information system on NPOs in China has been lagging behind. According to our data sources, there are only 17 provinces and municipalities such as Beijing, Shanghai, Jiangsu, and Zhejiang that have established information service systems, whereas nearly half of the provinces still use paper records. The provinces that have established digitalized information systems mainly use their own internally-developed software, which are patchy in terms of quality, vary widely in terms of function and content, with inconsistent standards and requirements. In some cases, provinces have only managed to digitalize some procedures such as registration management, and very few provinces have established an online direct reporting system for annual inspection filing. In all, only Beijing and Shanghai have managed to link their annual inspection management system with the official database system to allow the automatic importing of annual

inspections into the official database system. Tables and forms used in the information system are based on the annual inspection requirements of relevant departments of a particular province, and the contents and indicators of the tables and forms to be included in the annual inspections for each locality are adjusted frequently based on the requirements of the Ministry of Civil Affairs, so the information system needs to be adjusted on a yearly basis. Moreover, the annual inspections of foundations, social groups, and social service agencies are supervised by different departments with different requirements, so the annual inspection reports for different types of NPOs or even for the same type of NPO with different characteristics are different. For example, some forms used for public fundraising foundations and private fundraising foundations are different, and social service agencies such as Chambers of Commerce use specific forms for different indicators. All these lead to nearly a hundred different electronic forms in the information system, with numerous indicators and complex data. Unified standards for informatization and data management are urgently required.

At present, the Ministry of Civil Affairs is planning the development of a national NPO information system with nationwide data interconnections. Further attention and study is needed on how to realize seamless integration and effective compatibility with the information system of the Ministry of Civil Affairs in places where local information systems have been established, and on how to rapidly improve management capabilities in places where an information system is yet to be established.

5.2.5 Unsatisfactory Data Quality

The financial data of NPOs are the basis for statistical accounting. However, due to limitations in structure and management ability of nonprofits, the quality of data needs to be further improved.

1) Suspicions on the authenticity of some financial data. There is a lack of inherent logical correspondence between related items in the accounting data of some NPOs contained in annual inspection reports. For example, the articulations of elements such as assets, liabilities, net assets, income, expenses and balances are incorrect. Although the auditing function of some information systems can identify obvious data errors, the data quality issue in China still needs to be addressed. Furthermore, although the civil affairs departments can identify errors in the logical relationship of data, they cannot identify errors within the data themselves. Some NPOs process and present relevant subject data in their own way to suit different needs, which affects the authenticity of the data.

For example, some NPOs modified certain data to falsely present positive operations to donors; some NPOs deliberately underreported incomes and balances in order to evade taxation or to get subsidies from relevant departments; and some adjusted or even fabricated certain data to avoid critical issues.

2) Weak financial management. The survey found that many NPOs have problems with the overall quality of their accounting personnel, many hire junior staff lacking experience and credentials. Accounting professionals tend to choose large enterprises and organizations with standardized operating procedures, a complete business scope and strong economic growth as their employers, and NPOs, in particular small NPOs, have trouble attracting high caliber accountants and financial practitioners. Accountants in many NPOs have limited professional ability, and inadequate understanding of accounting work, thus it is difficult for them to flexibly use various accounting systems and internal control norms to improve their financial management. Even worse, some NPOs do not set up accounting departments, only hiring part-time accountants or a third-party accounting company as their agent, which leads to inaccurate, irregular or even illegal accounting.

3) Weak external audits. At present, civil affairs departments request NPOs to submit their financial audit reports during their annual inspection, completely overseen by an external auditor. This is not the case in practice however for external audits in China, where supervision is weak and irregularities in reporting are common. Against the backdrop of a chaotic auditing market in China, in order to solicit more business, some accounting firms disregard low prices/costs, improperly omit necessary audit procedures, avoid risks through their services, and make it their ultimate target to satisfy their clients, severely hampering the independence and objectivity of auditing. Even worse, some accounting firms hastily issue their audit reports based on simple reviews and checks of the forms and tables provided by NPOs, without exercising their justified accounting obligations. Some accounting firms have very limited knowledge on the auditing basis and financial systems for NPO auditing, resulting in the filing of different names, a mix up in the use of forms, sketchy content, and unstandardized formats of auditing reports. In this context, it is difficult to externally monitor the financial data of NPOs through auditing.

5.2.6 Issues with the Accounting System

1) Inadequate accounting system. The NPO accounting system remains immature compared with the accounting system of companies and institutions, and needs to be further improved. Firstly, ambiguous and vague regulations in the accounting system lead to vague interpretations of the regulations, which further lead financial practitioners to exercise discretion when handling NPO accounting in practice. Different standards for accounting and financial reporting for different NPOs make it difficult to carry out a horizontal analysis of financial data. For example, the accounting system has very obscure definitions for restricted net assets and unrestricted net assets, and unclear standards on the amount for fixed asset accounting, which makes the day-to-day work of financial practitioners in NPOs difficult. Secondly, the design and operability of financial statements is irregular, and disclosure of accounting information is incomplete. For example, the accounting system has a very simple regulation on “net assets”, and there are no further subdivisions which can reflect tax-free income balances and taxable income balances. The incomplete coverage of accounting items in this accounting system will inevitably affect the standardization and information quality of the accounting.

2) Unsatisfactory implementation of the accounting system. The particular accounting system for NPOs was put into practice in 2005, prior to that NPOs used the accounting system specific for companies and institutions. At present, most NPOs are implementing the new accounting system, yet due to some operational obstacles in the convergence of new and old accounting systems and the conversion of financial statements, a small number of NPOs have not implemented, or fully implemented, the new accounting system. In particular, some NPOs have no full-time accountants, thus they outsource their bookkeeping to an agent; some financial practitioners have little knowledge of the NPO accounting system, resulting in incorrect use of the system. In addition, there are conflicts between NPOs and the requirements from tax authorities and banks loans when filing in the accounting system. For example, the taxation department requires that companies report their taxes in accordance with the company’s own accounting system, and the statements for loans of social service agencies are different from the current accounting system. All these reasons lead to the unsatisfactory implementation of the accounting system by private nonprofits, and can even lead to two accounts within one organization, and two systems applied in one financial statement. Unstandardized accounting systems and unregulated financial accounting behaviors further hamper the accuracy of the financial data of nonprofits.

5.3 How to Improve the Measurement of the Economic Scope of NPOs

5.3.1 Improvement of NPO Statistical Accounting

As a systematic, normative and large-scale sample survey, this study is of great significance in exploring the economic measurement of NPO in China. However, China's national economic accounting system has always ignored NPO economic measurement, and the practice of providing simple NPO data through the statistics of competent authorities has great limitations. Chinese official accounting system for NPO have not been established effectively, and there is still a huge gap between the consensus on NPO economic accounting practice formed with all countries in the world.

Following the publication of the "Nonprofit Handbook" in 2003. In particular, following a series of improvements made by the sna-2008 and its application in national statistical practices, more and more countries have started to compile satellite accounts for the non-profit sector, with improved account integrity and data quality. In the process, professor Lester M. Salamon who is the handbook's advocate, noted that the handbook is primarily for non-profits and does not represent all institutions in the third sector. In the existing accounting framework of the handbook, these organizations and activities are not included in the economic accounting: some "related institutions" which are not controlled by the government, including cooperatives, mutual aid organizations and social enterprises, as well as some of the voluntary services provided to non-profit organizations and those provided to others outside the organization are not included in the economic accounting of the non-profit sector. In fact, "related institutions" and volunteer work share the same basic characteristics as nonprofits: privacy, social or public purpose, and voluntariness. Therefore, in order to further improve the accounting work, the Hopkins center for civil society research, in collaboration with the United Nations statistics division, began work on the handbook, and in 2018 released a new handbook, "Satellite Accounts for Nonprofit, Related and Volunteer Work." The new handbook adheres to the methodological concept of the core system of national accounts and adopts a broader accounting framework, and combines the three parts of non-profit organizations, related institutions and voluntary work into the third or socio-economic sector, which is also known as UN TSE Sector Handbook. At present, the new handbook is in the stage of promotion and testing, and it is believed that after its formal implementation, it will be able to more fully reflect the economic contribution status and development prospects of the social and economic sectors.

At present, the statistical accounting conditions of the Chinese government are far from the requirements of the "Nonprofit Handbook" and the "UN TSE Sector Handbook". Statistical departments must change the current status of NPO statistics conducted by civil affairs departments. According to the standard practice of economic accounting, NPO accounting should be formally included in the national economic accounting system, and the accounting method should be in line with the international standards, so as to gradually realize scientific accounting. Considering the current statistical basis and feasibility of implementation, the construction of NPO economic accounting system can be divided into two steps. The first step is to revise the national accounting system of China, add a non-profit sector to serve households as soon as possible, and require the screening and classification of NPO organizations according to the division of SNA institutions and departments. The second step is to implement the NPO satellite account in accordance with the requirements of the "Nonprofit Handbook", improve various variable types and auxiliary information, and realize separate accounting. On this basis, satellite accounts for the third or socio-economic sectors are prepared in accordance with the requirements of the third or socio-economic sector manual to include "relevant institutions" and voluntary work in the accounting.

(1) Revised the system of national economic accounts

The Chinese system of national economic accounts (CSNA-2002), promulgated in 2002, paid little attention to the economic accounting of NPO, and did not even set up a non-profit organization (NPISH) department to serve households according to the prevailing practice of SNA. CSNA-2002 first classifies non-citizens with the attribute of market producer into the corporate sector according to the criterion of "whether they are market producers", and then classifies all government-controlled NPO organizations and private societies and foundations that should be classified into the NPISH sector into the huge government sector for accounting. This not only removes the third sector from the institutional sector classification, excluding government and enterprises, and eliminates the economic contribution of NPO organizations, but also results in the oversize of government departments and the exaggerated size and role of the economy. In 2016, the national bureau of statistics promulgated CSNA2016 on the basis of the revision of CSNA2002, and the new accounting system added the NPISH department, making it in line with the corporate, government, household and other institutional departments. This improvement enhances the consistency of China's national accounts with international norms, and more importantly, it is the first time that NPO accounts have been presented separately in the national accounts system. However, since the foundation of NPISH accounting in China is too weak, establishing NPISH sector in China is still a long way to go. In the next step, non-profit organizations should be gradually separated based on government departments, and the selected non-profit organizations should be classified into NPISH departments according to their organizational identities and characteristics, so as to meet the basic requirements of SNA-1993.

(2) Realization of satellite account

After the completion of the basic construction of the NPISH sector, the NPO economic accounting work can basically reach the accounting level of SNA-1993. At this time, different institutional units in the NPO were divided into different institutional departments for accounting. The NPISH department only included non-governmental social groups and foundations, and the accounting data of the NPISH department only represented a small part of the information in the NPO. On this basis, the direction of further efforts is to implement the revision of the SNA - 2008 proposed non-profit accounting requirements, in view of the accounting system cannot provide a full economic data, the problem of NPO in the non-financial corporate sector, financial companies and government departments in the add sub-departments respectively, of these agencies will be classified as single NPO organization "decomposition". In this way, all the NPO data in the existing accounting system can be identified. Through data "reorganization", the data of all NPO organizations can be collected together. Without changing the representation of the core SNA account, the complete economic accounting data of NPO can be displayed by adding a virtual satellite account.

After the above steps are completed, the NPO satellite account will begin to take shape, enabling the NPO to be accounted for separately. Since then, can be in building the satellite account, on the basis of overall framework, by increasing the statistical investigation items, improve ability and statistics, in accordance with the definition of "the third or social sector manual" standards, gradually introducing "institutions" and volunteer service statistical caliber, establish TSE area satellite account, more authentic, accurate and comprehensive characterization of third sector economic outlook.

5.3.2 Establishment of Effective Information Systems

At present, civil affairs departments still use rather outdated data processing methods in their statistical work. The workforce is particularly weak and it is difficult to obtain uniform business, financial and statistical data, which affects the overall accuracy and credibility of statistical data. Therefore, the key to improving the accuracy of accounting data is to establish an advanced and uniform NPO information system at national level. On one hand, it is necessary to carry out NPO annual inspection filing online, so as to enhance the system's error correction capability, to improve the review of annual inspection data, and ensure that basic data contained in annual inspection reports submitted by NPOs are correct. To improve the screening and review of nonprofit annual inspection reports, one can refer to the way in which departments of industry and commerce manage company annual inspections, to develop a more intelligent annual inspection software. The past manual filing of financial statements can be changed to an automatic filing system of all items to reduce errors in financial data entry; a smart review of data can be set up by using articulations to identify imbalances in financial statements; annual inspection data can be automatically cross-checked against the registration data of the NPO as well as past annual inspection data to produce a data comparison report; and functions such as automatic reminders and error alarms can be embedded to automatically display erroneous data and highlight whether extra-large values have been inputted incorrectly. In updating software in this way, the review work undertaken by staff is no longer to check specific data and content, but rather to focus on the audit results of the software which helps them to carry out their review. Reviews and revisions to enhance the reliability of data will be thus more targeted, effectively avoiding errors caused by manual entry and manual screening, to ensure the accuracy and standardization of data in annual inspections. On the other hand, it is necessary to gradually realize data sharing between the annual inspection system and the official database system, to break down the barrier between departments, and establish an unhindered connection between the annual inspection system and the official database system. The establishment of an effective inter-departmental collaborative working mechanism can open up data transfer systems and channels, so that the official database system can be updated in real time with the latest data from annual inspections. In this way, the data contained in annual inspections reported by NPOs can be processed and applied in the account system, thus improving data processing and resource sharing and providing a solid foundation for the accuracy and authority of statistical data.

5.3.3 Improvement of Formula to Calculate NPO Added Value

According to international practices, operating surplus should be added to the calculation formula for the added value of NPOs which belong to market producers using the income approach, to be adjusted as:

The added value of NPOs = compensation of employees + net production tax + depreciation of fixed assets + operating surplus

Since only the business activity sheet, cash flow statement and balance sheet are required in the accounting system for NPOs, "owner's equity" listed in the business activity sheet can be deemed as operating surplus. In the case of enterprises, operating profits listed in the profit statement in the enterprises accounting system can better represent operating surplus. However, according to the current accounting system for NPOs, nonprofits shall not participate in profitable operating activities; with no profits there is thus no need to prepare a profit statement. In reality however, NPOs may participate in profitable activities; in particular, a large part of social service agencies' business activities are profitable. The difference between NPOs and enterprises lies in the fact that the

profitable business activities of nonprofits must follow the rule of “non-distribution constraint”, i.e., there can be no distribution of profits to investors and employees. Therefore, the NPO accounting system must ensure that social service agencies prepare their profit statements to reflect their profitability. This can, on the one hand, accurately calculate the economic contribution of NPOs, and, on the other hand, supervise the use of profits by NPOs, to enhance the transparency and standardization of accounting information.

5.3.4 Standardization of NPO Accounting

Each NPO should set up its own accounting department based on its actual operating conditions and regularly train accounting personnel. Legal awareness and professional quality in the implementation of accounting systems and fiscal regulations should be enhanced, to realize financial standardization and transparency and improve the accuracy of basic data, through an improved self-regulatory mechanism. Civil affairs departments should further strengthen the financial supervision of NPOs, paying special attention to the registration and review of annual inspections, selecting a certain percentage of NPOs for further review after the inspection to check whether financial systems have been implemented and whether financial operations have been standardized. A further suggestion is to explore and design a unified information disclosure system and specific standards to disclose information on annual inspections, including financial statements on government websites, accepting monitoring from the general public. This would strengthen the role of third-party supervision through social auditing, and regulate such supervision by formulating NPO auditing standards and rules. In case of resignation of a legal representative, cancellation or liquidation of an NPO, or in line with requirements by annual inspections, the competent authorities can entrust an accounting firm to conduct an audit to standardize the financial management of the NPO.

5.3.5 Strengthening the Establishment of NPO Accounting Systems

It is important to refine and improve NPO accounting systems on issues which are vague, ambiguous, unstandardized and inapplicable, by introducing supplementary measures and implementation rules, and unifying financial statements and developing special financial software to form a scientific, systematic and applicable accounting system. With a standardized accounting system to facilitate internal management, the handling of various economic operations is thus guided by rules and regulations, to ensure the authenticity and integrity of the accounting information. A further suggestion is to promote the publicity, training and supervision on the implementation of the accounting system, to ensure that the various provisions and specific methods can be fully implemented to regulate financial management within the sector. In addition, in order to strengthen inter-departmental business synergies, the taxation departments should issue policies on tax collection and management that are consistent with the nature of NPOs on a timely basis, listing “NPO” as a separate category, and using a specific format of financial statements for nonprofits in accordance with the accounting system of private NPIs.

5.3.6 Preparing a Comprehensive Evaluation on NPO Economic Contributions

NPOs have become an economic force which can no longer be ignored. In terms of their direct contributions, they have created substantial added value, and the products and services they provide have become an integral part of the total product value in society. Furthermore, NPOs are an important part of the tertiary sector, interdependent with other industries in the national economy. They not only rely on the development of other industries, but also influence the development of other industries as well as the entire economy. NPOs not only purchase products or services from companies,

but also provide products or services to individuals, companies and governments, constituting an important part of the national economic cycle. The nonprofit sector causes a ripple effect by driving investment, promoting employment and stimulating consumption. The evaluation of NPO economic contributions should thus be done on multiple levels, so that in addition to improving the accuracy of their statistical data by recognizing their contributions to GDP in accounting, further research should also be carried out on the measurement of their indirect economic contributions. It is also important to analyze the influence of NPOs on national economic growth through input-output analysis, industrial correlation analysis and econometrics, as well as preparing a comprehensive evaluation of their economic contribution, so as to deepen the content of this project.

5.4 Issues that Require Further Research

Though faced with limited funds and other restrictions, the team managed to surpass the project targets. Nevertheless, due to constraints in funding, time and issues with the NPO information reporting system, the team was unable to tackle the following aspects:

- 1) Data related to NPO contributions to employment have not been obtained. Within the data analyzed from annual inspections, there were no complete data concerning either employment structure or employee compensation in NPOs.
- 2) Sample inference on key industries of the social service agencies sector has not been carried out. In the project design phase, the team planned to carry out sample inference on the added value of important industries such as education, medical care and health, social work, culture and sports according to the degree of influence of the various industries to social service agencies, but failed to do so.
- 3) The multiplier effect of NPOs has not been measured. In the initial stages of the project, the team discussed the leverage of NPOs on relevant economic industries, which is actually an important dimension to fully understand the economic impact of NPOs. However, time constraints and other necessary conditions did not allow for this study to be carried out.
- 4) The influences that NPO structure have on N-GDP have not been measured. It is generally accepted that social service agencies have a tremendous influence on economic scale, which needs to be further proved through analysis of the relevance between NPO structure and the economic scale of NPOs in each province. However, this study was also not carried out.
- 5) Sampling errors have not been provided. Faced with various constraints, sampling errors, which are an important indicator for evaluating sampling results, are still being calculated.

The study on the economic scope of NPOs is a new area with abundant and diverse content, but fraught with challenges. There are many issues that need to be addressed, many phenomena to be studied to find out their underlying patterns and causes, and there are also many institutional and policy development problems that need to be tackled and made known. This project is merely the beginning, and the team sincerely hopes to have the means necessary to further its study in the future.

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