

## Issues of Labor Statistics in China

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**Abstract:** China currently has two types of employment statistics. One is part of the national population census that is conducted every ten years, and the other is constructed using three types of annual employment statistics collected through labor statistics of urban units, administrative registration of private enterprises and Getihu and rural employment statistics, that is, the so-called “three-in-one” employment statistics. The two types of statistics are different not only in terms of total numbers employed and industrial structures for any given period, but also in terms of changes of employment over time. This paper investigates important differences between the two statistics in statistical coverage and survey methodology and their likely consequences in economic analysis using these statistics.

**Key Works:** Employment statistics; population census; “three-in-one” employment statistics

**JEL Classification:** C81, C82, E24

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## 1. Introduction

Labor statistics, as one of the most important statistics for any economy, is crucial to such measurement and analysis as labor input and its growth in the economy, movement of sectoral employment overtime, and sectoral productivity comparison, and so on. Reliability of the analysis rests on accuracy of the labor statistics and demands high quality of data on employment. Unfortunately, the labor statistics has so many serious drawbacks that make any analysis using its outcomes less reliable. Despite its importance and serious drawbacks, little effort has been so far devoted for it. This study tries to fulfill this gap, discussing two principal types of labor statistics in China, attempting to account for big differences between their outcomes, and making assessment of qualities of the two types of labor statistics.

Like many counties, China has multi-sources of labor statistics. Industrial census used to be an important source of employment for industry, while the census of tertiary industry provided an indicator of how many workers engaging in tertiary activities, along with other measures such as output, value added, assets and so on. The first economic census, which actually combine and replace the industrial census and the census of tertiary industry implemented so far, provided many indicators, inclusive of the number of employment, of all industrial sectors other than primary sector in China for the reference year of 2004, and will do so for every five years in the future. Account of agricultural sector, a sector out of coverage of the economic census, is achieved by every ten years agricultural census. The number of employment is one of most important measures that the census wants to capture.

Availability of data on employment from the censuses and other statistics which are not

specifically designed for employment don't prevent most counties from establishing specific statistics of employment. China is not an exception. China has two types of statistics, which is specifically, or mainly, designed for collection of information of employment. One is population census and the other is so called "Three-in-one" labor statistics. We briefly introduce the two types of labor statistics below, leaving many details to section 3.

While the population census is not designed only to capture employment aspect of population, working status of the population is one of the most important features that the population census wants to collect. Probably, it is true for most counties that the population census provides the most detailed information on employment, such as gender, age, education, industrial sector, occupation and so on. Main weakness of the population census in providing employment information is its infrequency, once for every five or ten years in most counties. Besides every ten years population, 1% population sample survey is carried out in year between any two adjacent population census years, and 1‰ population movement sample survey annually in China. The three population-related surveys share many things in common, and especially they are combined together to provide total number of annual employment in China since 1990. In this sense we call the three population-related surveys the population surveys below. Besides annual total number of employment, two components of the population surveys, the population censuses the 1% population sample surveys, also provide information for every five years on employment of detailed characters such as gender, age, education and so on. No other statistics provides such detailed information on employment in China.

The other labor statistics is formed by combining three separate statistics: labor statistics of urban units, administrative registration of private enterprises and Getihu and rural employment

statistics. Because of its three separate components, this source is sometime called ‘Three-in-one’. As discussed section 3, the reason for combining the three components together is that they complement each other in covering different part of labor force in China. The most important statistics that the source provides on employment are annual figures of employment by industry (at one-digit level of the standard of industrial classification set up in 1994 in China) until 2002. This is the only source of annual employment by sector. There is no official publication of annual employment by sector since 2003, mainly due to the fact that new standard of industrial classification comes into use in 2002.

The two types of labor statistics provide very different pictures of employment in many aspects. In next section, we list up the main differences between the two of labor statistics and take a close look, which will be followed by a section that examines causes of the differences. The final section will conclude with tentative assessment of quality of the two types of labor statistics.

## **2. Main Issues of Labor Statistics in China**

After minimum description of current labor statistics in China, we move on to looking at issues of current labor statistics in China. In rest of this section, we take a close at main inconsistencies of official figures of employment between the two types of labor statistics. Causes of these inconsistencies would be explored in next section.

- Total number of employment given doesn’t equal sum of employment over sectors for

years between 1990 and 2002

The most noticeable inconsistency in official figures of employment could be gaps between given total and sum of its sectoral components. Table 1 gives both total number employment and its sectoral breakdown. As the last two columns shows, the total number of employment given doesn't equal sum of employment over sectors for years between 1990 and 2002. The former is above the latter by over 10 percent for most years of the period. The lack of basic consistency is due to difference in data sources of total number of employment for different years. For each year before 1989, sum of sectoral employment, which comes from "Three-in-one", was directly used as total employment. This is reason why given total of employment is identical to sum of sectoral employments for each year of this period. Since then, however, total number of employment is estimated based on population, with "Three-in-one" remaining unchanged as data sources of annual figures of employment by sector.

- The population surveys give bigger number of total employment than "Three-in-one" do

This inconsistency repeats part of the issue just described, but with focus on gaps in sizes of labor force of the whole Chinese economy between the two different sources of employment, the population surveys and the "Three-in-one". In order to gain further insight into the inconsistency we make a comparison in total number of employment by urban and rural areas, rather than just doing the same for Chinese economy as a whole. Table 2 presents results of the comparison.

As seen from the table, for both urban and rural the population surveys give bigger number of total employments than the "Three-in-one" does, with the exception of recent years in rural

area. The result is consistent with that for Chinese economy as a whole. Or, in other words, for both urban and rural areas the population surveys give greater number of employment than the “Three-in-one” do, thus resulting in the same situation for Chinese economy as a whole. Extents of the discrepancies that the two types of statistics provide in total labor force are much more different between urban and rural. For urban area, the discrepancies, measured as ratio of total employment based on based on the population surveys to that based on the “Three-in-one”, started with 1.16 in 1990, and suddenly jumped to 1.36 in 1998 after lightly declining from the beginning. The discrepancy kept on widening before turning to narrow a bit in 2003. In 2005, the last year of the period under observed, total number of employment in urban area based on the population surveys is 1.5 times based on the “Three-in-one”. The discrepancies are big enough to cause concern and make one face tough choice between the two sets of figure when measuring size of urban labor force. Many factors, such as definition of employment, coverage of two types of labor statistics and so on, are responsible for the large discrepancies and will be examined in next section.

For rural area, the population surveys give more number of total employments than do the “Three-in-one” by 14 percent in 1990. The gap narrowed straightly since then. In 2003, the relative sizes of total employment become opposite. That is, the total employment given by the “Three-in-one” start to exceed that given by the population surveys, and this trend gain strength with time, as the ratio keep decreasing for three successive years.

- The population surveys give greater employment for primary industry than do the “Three-in-one”, but for rest of the industries the former give smaller number of

employment than the latter do.

We just made a comparison of total number of employment generated by two types of labor statistics, and concluded that the population surveys generate more employment than the “Three-in-one” labor statistics do, with the exception of rural area for recent few years. Similar comparison by industrial sector brings out new inconsistencies in current labor statistics in China. Due to the fact that different types of labor statistics differ in details of industrial classification,<sup>2</sup> the comparison only can be made with coarse industrial classification. Table 3 presents results of the comparison. The single and most important information that Table 3 conveys is that, for primary industry the number of employment derived from the population surveys substantially exceeds that derived from the “Three-in-one” in each year of period under reviewed, while for rest of the industrial sectors it becomes opposite; the population surveys give smaller size of employment than “Three-in-one” do, with the exception of few sectors in certain years. These gaps are too big to be attributable to any statistical error and to ignore. Ratio of employment in primary industry generated by the population survey to that given by “Three-in-one” was 1.25 in 1982, but increased to 1.47 in 2005. In other words, the number of employment in primary industry based on population survey is close to 1.5 times based on “Three-in-one” in 2005. It is evident that such big gaps certainly cause concern for any study that employs data on sectoral employment, sectoral productivity comparison, for instance.

Construction is the sector the two types of labor statistics differ most markedly in its employment size. In 1995, the number of employment in the sector based on the population

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<sup>2</sup> Standard of industrial classification changed in China around 2003, depending on statistics. Before 2003, the standard of industrial classification established in 1994 was used in all statistics for classification of industry, while that set up in 2002 are used for the same purpose. The labor statistics make no exception. However, the population surveys and each of three components of “Three-in-one” employed different details of the standard of industrial classification. ??

survey is less than 40 percent of that derived from the “Three-in-one”, which means productivity with figure of employment from the population survey will 2.5 times if employment is taken from the “Three-in-one” statistics, given output of the sector. For rest of years under viewed, the gaps in constructional employment between the two types of labor statistics are smaller relative to that in 1995, but still remain very large compared to other sectors. The only exception is in 1982, in which the two types of statistics provide very close figures of size of employment.

- Sectoral components of total employment differ substantially between the two types of labor statistics

Although substantial gaps in the number of each industrial sector between population surveys and “Three-in-one” imply potentially large gaps in sectoral components of employment between the two types of labor statistics, we here discuss this point explicitly, looking closely at extent to which the two types of current labor statistics provide different pictures of sectoral components of total employment. Table 4 presents information we need.

As can be seen from the table, primary sector’s proportion of total employment based on the population surveys is well above that based on the “Three-in-one” for every year under viewed, while for rest of industrial sectors the shares derived from population survey are well below those calculated from “Three-in-one”. For the proportion of primary sector in total employment, the two types of labor statistics exhibit same the trend between any two adjacent years except for the period between 1995 and 2000, during which the proportion dropped noticeably, from 69.6 percent to 64.4 percent, based on the population surveys but rose slightly, from 52.9 percent to 53.0 percent, according to the “Three-in-one” statistic. The slight increase on the proportion of

primary sector in total employment based on the “Three-in-one” is due to change in coverage of the “Three-in-one” statistics. This will become clear below this section. The gaps in the components between the two types of labor statistics, measured as difference in the proportion of primary sector based on the population and that based on the “Three-in-one” statistics, vary with time but show no sign to narrow.

- Problems specific to the “Three-in-one” labor statistics

As introduced at the beginning of this section, the “Three-in-one” labor statistics used to be the single and the most important labor statistics in Chinese before the officials made more use of outcome of the population surveys to produce official figures of employment. The “Three-in-one” statistics, however, suffered many problems, such as change in definition of ‘working’, inconsistencies of industrial classification among its three components and so on. Such shortcomings certainly make its outcomes less reliable and limit its use. Here we pick up two major problems with the statistics and examine their impacts on figures it provides.

The most serious change in definition of employment took place in 1998. The economic reform in urban began to leave a lot of workers unemployed around 1996. At the beginning when worker were taken off work, they usually have connection with their former employment unit. The laid-off workers were still counted as staff member of their former working unit. In 1998, however, the practice of “Three-in-one” labor statistics change to exclude the laid-off workers from coverage of employment, leading to decrease in employment in many industrial sectors. The most affected sectors by the change in coverage of employment include mining, manufacturing, construction and Geological prospecting and water conservancy. The number of

employment dropped from 868 ten thousands in 1997 to 721 ten thousands, or by -16.9 percent. Decrease in manufacturing sector is from 9,612 ten thousands to 8,319 ten thousands, or -13.5 percent. As a result of sharp drop in employment in many sectors, the total number of employment derived from “Three-in-one” decreased by 1,304 ten thousands, or 2.0 percent. This is the only year that “Three-in-one” register negative growth in total employment for entire Chinese economy. The change in coverage of employment has plagued many studies, the studies that focus on manufacturing in particular, e.g. Banister (2005). It is no difficult to find examples of how coverage change affects what one will conclude by using the resulting figure. The proportion of primary sector in total employment implied by the “Three-in-one” increased, albeit a bit, from 1995 to 2002. On the contrary, population surveys demonstrate significant decrease in proportion of agricultural sector in total employment. Given the fact that massive worker migrate to urban for non-agricultural works, the trend in agricultural proportion of total employment implied by the population surveys seems convincing. Unchanged (actually slightly increasing) share of primary industry in total employment are mainly due to coverage change that reduce the number of employment in non-agricultural sectors and raise agricultural share of total employment accordingly.

Other drawback of the “Three-in-one” is inconsistency in industrial classification among its three components. As mentioned above, before 2002 the standard of industrial classification set up in 1994 was used for sectoral breakdown in all statistics in China. The standard has 16 industrial sectors at one digital level (broadest breakdown of entire economic activities in China) and has more number of sectoral items for two or more digital level. Annual employments by industrial sector derived from the “Three-in-one” employ one-digital level of the standard.

Problem arises due to the fact that the three components of the “Three-in-one” don’t use the same industrial breakdowns. Of the three components of the “Three-in-one”, only the labor statistics of urban unit lists explicitly all the 16 items of sectors at one-digital level in the standard. For other two components of the “Three-in-one” statistics only part of the 16 one-digital sectors are explicitly listed up, with all other sector being put into single residual sector called “other”. Table 5 provides information on what industrial sectors (at one digital level) are explicitly listed up in each of three components of the “Three-in-one” statistics. It’s clear from the table that the administrative registration of private enterprises and Getihu only explicitly lists up 7 of the 16 one-digital sectors, such as primary industry, mining, manufacturing, construction and so on, with all the other sector combined to a residual sector o “other”. As a consequence, sectoral status for workers who are working for private enterprises and as self-employment and working in sectors such as Finance and insurance, Health care, sport & social welfare, Education, culture and arts radio, film and television, Scientific research and polytechnic services, Government agencies, party agencies and social organization and other cannot be separately identified.<sup>3</sup> The problem becomes more serious for the rural employment statistics for years between 1993 and 2002, where only 5 of 16 one-digital sectors were explicitly listed up. That is, for workers engaging the rest of sectors their sectoral status cannot be separately identified. To put the problem another way, rural workers recorded under sector of “other” could engage economic activities of any of the sectors that are not explicitly listed, social services, for instance. It is easily confirmed that employment figures from the three components of the “Three-in-one” statistics are simply put together to produce employment by sectors for

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<sup>3</sup> Sector of other here is one of the 16 one digital sectors in the standard of industrial classification.

entire economy, as expressed in Table 1.

This drawback of the “Three-in-one” has many consequences; it is responsible to very higher proportions of “other” in total employment relative to those implied from population surveys; miss-identification of sectoral status for workers for certainly sectors make estimates of productivities for such sectors unreliable, thus making productivity comparison by sector less meaningful. It should be noted that the most advantage of the “Three-in-one” over population surveys is its provision of annual figures of employment by sector, as introduced in section ??.

The miss-identification of sectoral status for workers in certain sectors jeopardizes the advantage of the “Three-in-one” labor statistics and limits the use of its outcomes.

### **3. Accounting for the issues of Labor Statistics in China**

In the previous section we took a close look at inconsistencies between two main labor statistics’ outcome, as well as problems specific to the “Three-in-one” statistics. In this section we turn attention to causes of these inconsistencies and problems. It should be noted that causes of some inconsistencies and problems, such as no identity between total number of employment given and sum of sectoral employment, have become clear by examinations made in the previous session. So exploration of causes of inconsistencies here should focuses on why the two major labor statistics give large different numbers of employment for China as a whole, by urban and rural area and by sector. In doing so, we need to examine and compare main aspects of the two types of labor statistics, including coverage of each statistics, definitions of employment, units

(households or enterprises) through which data are collected and so on.<sup>4</sup>

- Coverage

Both the population surveys and the “Three-in-one” statistics intend to coverage all employment working for Chinese economy. The population surveys use the same questionnaires for all the households, regardless of urban and rural, ownership of working units for which the family members work and so on. So the population surveys achieve the best coverage and consistency. The “Three-in-one” statistics is supposed to have a full coverage of total employment in China. Actually, the purpose of combining three independent statistics is to cover employment of both urban and rural areas, as well as workers in urban area who work for different ownership enterprises. This becomes to clearer by looking at the coverage of each component of the “Three-in-one” statistics. The labor statistics of urban units is covering all employment in urban except for workers who are working for private enterprises and Getihu (self-employment). In order to incorporate the group of workers that the labor statistics of urban unit fails to captures, administrative records by State Administration for Industry and Commerce (SAIC) were used to fill in the gaps, rather than launching new labor statistics or expanding the existing labor statistics of urban units to include the group of worker. In Chinese system of governmental administration, SAIC is responsible to administer the private enterprises and Getihu, inclusive of issuing licenses, performing annual inspection of operational status of this group of businesses, enforcing market laws and so on. For administrative purpose, SAIC keeps record for each enterprise and Getihu of location, amount of assets, the number of employment,

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<sup>4</sup> Brief comparison is given in Table 6.

types of products produced and services rendered and so on. Of which, the number of employment, both total and by sector, are used together with outcome of the labor statistics of urban units to produce figures of total employment and employment by sector for whole urban area.

Labor statistics for rural area, other part of China in the context of urban and rural divide, have been conducted by one department inside NBS,<sup>5</sup> under name of the rural employment statistics (乡村从业人员统计). The employment statistics is an integrated part of comprehensive statistics that NBS has been carrying out for the rural area.<sup>6</sup>

By combining the three independent statistics, the resulting “Three-in-one” statistics provides annual total employment and employment by breakdown of main sectors, with full coverage of all employment in Chinese economy. The coverage of the “Three-in-one” statistics is far from complete, a point we will make an extensive discussion below.

- Definition of employment

Definition of employment is the most important components for any labor statistics. The definition of employment is to define who is the “employed” in the population and who is not. There are two criteria to define who is the “employed”, the usual status and the current status.<sup>7</sup> The usual status uses a relative long reference period such as the preceding month or the preceding year to define the “employed”. This criterion define a person as the “employed” if working is usual status for him/her during the reference period, which means casual workers, or

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<sup>5</sup> The department had a name of Rural Survey Organization of National Bureau Statistics, but changed to Department of Rural Social and Economic Survey last year.

<sup>6</sup> The comprehensive statistics of the rural area by NBS include major agricultural products, rural household income, total GDP and its sectoral components, health, education, fiscal income and expenditure, and so on.

<sup>7</sup> For details of the two criteria, refer to ILO (1982).

a person who only worked for a few hours during the reference period are not the “employed”. The current status, on the contrary, defines the “employed” based on relative short reference period, the preceding week for instance. The current status typically defines a person as “employed” as long as he/she works for wage or salary at least one day or one hour during reference period. It is therefore clear that the current status has broader coverage in definition of employment and will give greater number of employment than the usual status does, holding other things constant.

The population surveys adopt the current status in defining the employment. This can be verified by looking at definition of employment in each component of the population surveys. The “Three-in-one” statistics employs the usual status for definition of employment. To see this point we need examine definition of employment for each component of the “Three-in-one” statistics. ??

- Units through which information on labor are collected

The population surveys collect demographic information of population, including employment status of the population through households, while the “Three-in-one” collect the information, through enterprises. In other words, the population surveys collect data on labor via labor supply side, while the “Three-in-one” gather labor data via labor demand side. The units through which the information is collected will matter little if they are fully covered. However, this is not the case for the two types of labor statistics under discussion. Problem arises with each component of the “Three-in-one” statistics, which we discuss below.

As being clear from discussion above, two of the three components of the “Three-in-one”,

the labor statistics of urban units and the administrative records by SAIC cover all the working units in urban area, with the former including all the urban units except for the private enterprises and Getihu, which are covered by the latter. For a worker in the urban to be covered in either of the two statistics, he/she has to work for a 'unit', or an incorporated enterprise. Otherwise, he/she will not be captured as a worker by the two labor statistics. Two groups of workers are most likely not to be covered: agricultural workers in the urban, in cities' suburbs in particular, and informal workers engaging in activities other than the agriculture.

The agricultural activities, like growing grains and vegetables, are typically conducted in family units, but not in incorporated entities. This is true of both urban and rural area. Furthermore, the workers need not to register at SAIC for permission of performing agricultural activities. So workers conducting agricultural activities are not counted as employment, by either the labor statistics of urban units or the administrative records by SAIC. This group of workers is quite large based on the population surveys. We will discuss this below. Other group of workers in urban area that are like not to be covered is informal workers. Informal employment, mainly consisting of large number of migrants from rural area, can engage in a variety of activities, such as street vendors, haircuts, small restaurants and so on. It is difficult for labor statistics to capture workers engaging into such activities for a couple of reasons. Firstly, some of these activities need no registration to be carried out, the same as agricultural activities. Therefore, workers engaging such activities will not be able to be captured by employment statistics. Secondly, some of activities are conducted with not fixed places, so it is impossible to capture the workers who conduct such activities. Finally, perhaps most importantly, the businesses run by informal employment are so small but with huge number that the workers are unable to be fully captured

statistically unless one collects the employment information through households.

Further explanations need to be made of the rural employment statistics in the context of units through which employment information is collected. The rural employment is unique, in sense that it collects data on employment through neither working units (labor supply side) nor households (labor demand side), but via local governments in rural area (More precisely, statistical agencies of local governments). Difficulty arises in treating migrants. Migrants, with an increasing size and various types, create a big challenge to employment statistics currently. Should the migrants be counted as urban workers or as rural workers, if they work in the cities for part of year but engage in agricultural activities at home (in the rural area) for rest of the year? This has been a big issue that plagued practice of most statistics in China, inclusive of employment statistics. In addressing the issue, the rural employment statistics set up a certain length of time period (6 months) and count workers who have registered in the rural (means who have a rural *Hukou*) and who are working in urban above the pre-decided length of time period as urban workers. In addition to this criterion of length of time period, those working in cities for a period larger than the pre-decided length of time, but leaving rest of family members in rural area and whose income earned in cities being main income sources for rural part of their families are also classified as rural workers.

After a close look at the two types of labor statistics in China, we move on to investigation into causes of the gaps between the two labor statistics' outcomes. To be repeated, the question we want to answers is: why do the two types of the labor statistics give so different number of total employment and different number of employment by urban and rural area and by sector as

well?

As already made clear from last section, the population surveys give greater number of employment than do the “Three-in-one” statistics for both urban and rural, and also for Chinese economy as a whole. A couple of factors are responsible for the gaps. Firstly, the population surveys adopt broader a definition of employment than do the “Three-in-one”. Holding other things constant the former will identify more workers than the latter does. Secondly, last session shows that the excess of total employment for entire economy, inclusive of both urban and rural areas, derived from the population surveys over that derived from the “Three-in-one” statistics mainly result from the same patten for urban area. That is, the number of employment identified by population surveys is well above that that by the “Three-in-one” statistics for urban area, so is that for entire China given moderate gaps for rural area. One reason why the gaps are so significant for urban area is that, as to be clear from discussion given before in this section, the “Three-in-one” statistics failed to capture agricultural workers and informal employment in the urban area.<sup>8</sup>

For the rural area, as discussed above in this section and can be seen from Table 2, the gaps started with greater number of total employment based on the population surveys relative to that based on the “Three-in-one” in 1990 and narrowed constantly with time. In 2003 the relative size changed, with the number of employment based on the “Tree-in-one” being above that derived from the population surveys, and this gap becomes wider with time since then. Why do the “Three-in-one” give larger number of employment than the population surveys do for the rural area? This is not so clear. Actually, it is much easier to find the factors that cause the population

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<sup>8</sup> Further discussions, evidences if possible, should be provided here.

surveys providing larger number of employment than the “Three-in-one” do. The definition of “the employed”, for instance, is one of these factors, as the former use broader definition of “the employed” than the “Three-in-one” do. From discussion above on difference between the two types of labor statistics, the only factor that leads to a larger number of employment identified by the “Three-in-one” is that it includes rural migrant who work in cities shorter than the pre-decided length of time period, or longer than the pre-decided length but leave rest of his/her family in rural area and whose income is the main source of the rural part of his/her family.

We next move on to gaps between the two labor statistics in employment by sector. As already seen above in this section, simple description of the gaps is that the population surveys provided bigger number of employment than do the “Three-in-one” for the primary sector, but smaller number of employment for rest of the sectors, with the exception of few sectors in few years. This point can be confirmed by ratios of the number of workers derived from the population surveys to that derived by the “Three-in-one” statistics (multiplying by 100) being well above 100 for agricultural sector, but well below 100 for rest of the sectors, again with the very few exception. Other expression of the gaps can be made in terms of sectoral proportion of total employment. That is, sectoral proportions in total employment implied by the population surveys are higher than that implied by the “Three-in-one” statistics for the primary sector, but lower for other sectors.

Clearly, failing to capture agricultural workers in the urban area by two components of the “Three-in-one” statistics is one of factors responsible to the excess of the number of employment in agricultural sector based on the population surveys over that derived from the “Three-in-one” statistics. This factor only applies to what happened to primary sector, but cannot explain why

the population surveys give a smaller number of workers than the “Three-in-one” statistics do for sectors other than the primary sector. This suggests other factors at work. Existing literature points to miss-identification of sectoral status of workers by the population surveys. That is, the population surveys tend to count as rural agricultural workers those who have residence in rural but no longer engage in agricultural activities for an entire year or part of a year. Such workers are sometime called off-farm workers or off-farm employment. The off-farm employment can be those who work for local town and village enterprises (TVEs), or those who migrate to and work in cities, with or without other family members. Basically, determining the off-farm workers as agricultural workers by population surveys is due to the casual nature of the off-farm activities engaged by rural workers. During the initial stage of the economic reform, the off-farm activities are only casual and temporary as opposed to agricultural activities for the rural workers. The *Hukou* system, a residency registration which poses a strict constraint on migration from the rural to the urban, is the biggest factor contributing to unstable and temporary off-farm activities in the cities. Given instability of the off-farm employment, rural workers is most likely to respond with agriculture as their activities.<sup>9</sup>

The hypothesis of miss-identification seems convincing; the population surveys report smaller number of employment than the “Three-in-one” do for all sectors except for the primary industry, for which the population surveys give bigger size of workers than the “Three-in-on” do. Sectors such as manufacturing, construction, wholesale and retail trade are industrial areas where most migrants work for.

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<sup>9</sup> Young (2003) argues the way of determining workers’ activities by population censuses should be responsible for the miss-identification. The Population censuses ask name of working place, instead of main activities, and use this information to determine sectoral status of workers. For details, refer to Young (2003) pp. 1237-8.

#### **4. Conclusions and a tentative assessment of quality of the two labor statistics**

This study made an investigation into main differences between the types of labor statistics in China and causes of these differences. Conclusion of quality comparison of the two types of labor statistics is fairly clear. That is, the population surveys are of higher quality than is the “Three-in-one”. This assessment is consistent with how the two types of labor statistics are treated by the official, which makes an increasing use of outcomes of the population surveys in preparing the employment statistics.

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Table 1: Total Employment and Its Sectoral Components

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1978	40153	28,318	652	5,332	107	854	178	750	1,140	76	31	179	363	1,093	92	467	521	40,153	0
1979	41025	28,634	670	5,516	112	916	185	781	1,232	86	34	210	386	1,131	100	505	527	41,025	0
1980	42361	29,122	697	5,899	118	993	188	805	1,363	99	37	276	389	1,147	113	527	588	42,361	0
1981	43725	29,777	728	6,122	125	1,028	188	844	1,491	107	38	305	375	1,095	127	556	819	43,725	0
1982	45295	30,859	747	6,329	128	1,142	191	878	1,576	113	38	322	399	1,128	132	611	702	45,295	0
1983	46436	31,151	758	6,508	131	1,282	193	936	1,732	117	37	367	415	1,151	133	646	879	46,436	0
1984	48197	30,868	767	7,029	134	1,660	197	1,122	1,994	127	36	439	435	1,204	137	743	1,305	48,197	0
1985	49873	31,130	795	7,412	142	2,035	197	1,279	2,306	138	36	401	467	1,273	144	799	1,319	49,873	0
1986	51281	31,254	809	8,019	152	2,236	197	1,376	2,413	152	38	466	482	1,324	152	873	1,338	51,281	0
1987	52784	31,663	819	8,359	164	2,384	200	1,453	2,576	170	39	501	496	1,375	158	925	1,502	52,784	0
1988	54337	32,249	832	8,652	177	2,491	204	1,521	2,743	194	42	534	508	1,403	161	971	1,655	54,337	0
1989	55330	33,225	842	8,547	180	2,407	199	1,522	2,770	205	43	550	518	1,426	165	1,022	1,709	55,330	0
1990	64749	34,117	882	8,624	192	2,424	197	1,566	2,839	218	44	594	536	1,457	173	1,079	1,798	56,740	8,009
1991	65491	34,956	905	8,839	203	2,482	199	1,617	2,998	234	48	604	553	1,497	179	1,136	1,910	58,360	7,131
1992	66152	34,795	898	9,106	215	2,660	202	1,674	3,209	248	54	643	565	1,520	183	1,148	2,313	59,433	6,719
1993	66808	33,966	932	9,295	240	3,050	144	1,688	3,459	270	66	543	416	1,210	173	1,030	3,740	60,222	6,586
1994	67455	33,386	915	9,613	246	3,188	139	1,864	3,921	264	74	626	434	1,436	178	1,033	4,155	61,472	5,983
1995	68065	33,018	932	9,803	258	3,322	135	1,942	4,292	276	80	703	444	1,476	182	1,042	4,484	62,389	5,676
1996	68950	32,910	902	9,763	273	3,408	129	2,013	4,511	292	84	747	458	1,513	183	1,093	4,563	62,842	6,108
1997	69820	33,095	868	9,612	283	3,449	129	2,062	4,795	308	87	810	471	1,557	186	1,093	4,862	63,667	6,153
1998	70637	33,232	721	8,319	283	3,327	116	2,000	4,645	314	94	868	478	1,573	178	1,097	5,118	62,363	8,274
1999	71394	33,493	667	8,109	285	3,412	111	2,022	4,751	328	96	923	482	1,568	173	1,102	4,969	62,491	8,903
2000	72085	33,355	597	8,043	284	3,552	110	2,029	4,686	327	100	921	488	1,565	174	1,104	5,643	62,978	9,107
2001	73025	32,974	561	8,083	288	3,669	105	2,037	4,737	336	107	976	493	1,568	165	1,101	5,852	63,052	9,973
2002	73740	32,487	558	8,307	290	3,893	98	2,084	4,969	340	118	1,094	493	1,565	163	1,075	6,245	63,779	9,961

Note: the meanings of columns:

- (1) Total
- (2) Farming, forestry, animal husbandry and fishery

- (3) Mining and quarrying
- (4) Manufacturing
- (5) Production and supply of electricity gas and water
- (6) Construction
- (7) Geological prospecting and water conservancy
- (8) Transport, storage, post & telecommunication
- (9) Wholesale and retail trade & catering services
- (10) Finance and insurance
- (11) Real estate
- (12) Social services
- (13) Health care, sport & social welfare
- (14) Education, culture and arts radio, film and television
- (15) Scientific research and polytechnic services
- (16) Government agencies, party agencies and social organization
- (17) Other
- (18) Sum of employment over sectors
- (19) Gaps between total and sum (= (1)-(18))

Table 2: The Number of Employment  
 -- Comparison between outcomes of Population surveys and the "Three-in-one" --  
 (Unit: 10 million persons; percent)

Year	The whole economy			The urban area			The rural area		
	Population surveys	the "Three-in-one"	Ratio	Population surveys	the "Three-in-one"	Ratio	Population surveys	the "Three-in-one"	Ratio
	(1)	(2)	(3) (=(1)/(2))	(4)	(5)	(6) (=(4)/(5))	(7)	(8)	(9) (=(7)/(8))
1978	40,152	40,153	100.0	9,514	9,515	100.0	30,638	30,638	100.0
1979	41,024	41,025	100.0	9,999	10,000	100.0	31,025	31,025	100.0
1980	42,361	42,361	100.0	10,525	10,525	100.0	31,836	31,836	100.0
1981	43,725	43,725	100.0	11,053	11,053	100.0	32,672	32,672	100.0
1982	45,295	45,295	100.0	11,428	11,428	100.0	33,867	33,867	100.0
1983	46,436	46,436	100.0	11,746	11,746	100.0	34,690	34,690	100.0
1984	48,197	48,197	100.0	12,229	12,229	100.0	35,968	35,968	100.0
1985	49,873	49,873	100.0	12,808	12,808	100.0	37,065	37,065	100.0
1986	51,282	51,281	100.0	13,292	13,291	100.0	37,990	37,990	100.0
1987	52,783	52,784	100.0	13,783	13,784	100.0	39,000	39,000	100.0
1988	54,334	54,337	100.0	14,267	14,270	100.0	40,067	40,067	100.0
1989	55,329	55,330	100.0	14,390	14,391	100.0	40,939	40,939	100.0
1990	64,749	56,740	114.1	17,041	14,730	115.7	47,708	42,010	113.6
1991	65,491	58,360	112.2	17,465	15,267	114.4	48,026	43,093	111.4
1992	66,152	59,433	111.3	17,861	15,631	114.3	48,291	43,802	110.2
1993	66,808	60,222	110.9	18,262	15,966	114.4	48,546	44,256	109.7
1994	67,455	61,472	109.7	18,653	16,819	110.9	48,802	44,653	109.3
1995	68,065	62,389	109.1	19,040	17,346	109.8	49,025	45,043	108.8
1996	68,950	62,842	109.7	19,922	17,552	113.5	49,028	45,290	108.3
1997	69,820	63,667	109.7	20,781	17,704	117.4	49,039	45,963	106.7
1998	70,637	62,363	113.3	21,616	15,930	135.7	49,021	46,433	105.6
1999	71,394	62,491	114.2	22,412	15,594	143.7	48,982	46,897	104.4
2000	72,085	62,978	114.5	23,151	15,014	154.2	48,934	47,964	102.0
2001	73,025	63,053	115.8	23,940	14,824	161.5	49,085	48,229	101.8
2002	73,740	63,780	115.6	24,780	15,253	162.5	48,960	48,527	100.9
2003	74,432	64,863	114.8	25,639	15,892	161.3	48,793	48,971	99.6
2004	75,200	66,309	113.4	26,476	16,614	159.4	48,724	49,695	98.0
2005	75,825	68,027	111.5	27,331	17,640	154.9	48,494	50,387	96.2

Table 3: Comparison of Employment by Industry between Population Surveys and "Three-in-one"

	1982	1987	1990	1995	2000	2005
<b>Population Surveys</b>						
Farming, forestry, animal husbandry and fishery	38,416	41,424	46,717	47,400	46,406	44,625
Manufacturing	6,167	7,926	7,454	7,899	8,982	10,101
Construction	1,101	1,330	1,165	1,306	1,934	2,662
Transport, storage, post & telecommunication	961	1,164	1,259	1,569	1,859	2,468
Wholesale and retail trade & catering services	1,488	2,004	2,495	3,593	4,823	6,569
Other	4,018	4,609	5,660	6,299	8,081	9,399
Aggregate	52,151	58,457	64,749	68,065	72,085	75,825
<b>"Three-in-one"</b>						
Farming, forestry, animal husbandry and fishery	30,859	31,663	34,117	33,018	33,355	30,468
Manufacturing	6,329	8,359	8,624	9,803	8,043	10,552
Construction	1,142	2,384	2,424	3,322	3,552	4,822
Transport, storage, post & telecommunication	878	1,453	1,566	1,942	2,029	2,274
Wholesale and retail trade & catering services	1,576	2,576	2,839	4,292	4,686	6,663
Other	4,511	6,349	7,170	10,012	11,313	13,248
Aggregate	45,295	52,784	56,740	62,389	62,978	68,027
<b>Ratio of Population survey to "Three-in-one" ("Three-in-one" = 100)</b>						
Farming, forestry, animal husbandry and fishery	124.5	130.8	136.9	143.6	139.1	146.5
Manufacturing	97.4	94.8	86.4	80.6	111.7	95.7
Construction	96.4	55.8	48.0	39.3	54.5	55.2
Transport, storage, post & telecommunication	109.5	80.1	80.4	80.8	91.6	108.6
Wholesale and retail trade & catering services	94.4	77.8	87.9	83.7	102.9	98.6
Other	89.1	72.6	78.9	62.9	71.4	71.0
Aggregate	115.1	110.7	114.1	109.1	114.5	111.5

Table 4: Industrial Components of Employment and Their Differences between Two Types of Labor Statistics

	1982	1987	1990	1995	2000	2005
<b>Population Surveys</b>						
Farming, forestry, animal husbandry and fishery	73.7	70.9	72.2	69.6	64.4	58.9
Manufacturing	11.8	13.6	11.5	11.6	12.5	13.3
Construction	2.1	2.3	1.8	1.9	2.7	3.5
Transport, storage, post & telecommunication	1.8	2.0	1.9	2.3	2.6	3.3
Wholesale and retail trade & catering services	2.9	3.4	3.9	5.3	6.7	8.7
Other	7.7	7.9	8.7	9.3	11.2	12.4
Aggregate	100.0	100.0	100.0	100.0	100.0	100.0
<b>"Three-in-one"</b>						
Farming, forestry, animal husbandry and fishery	68.1	60.0	60.1	52.9	53.0	44.8
Manufacturing	14.0	15.8	15.2	15.7	12.8	15.5
Construction	2.5	4.5	4.3	5.3	5.6	7.1
Transport, storage, post & telecommunication	1.9	2.8	2.8	3.1	3.2	3.3
Wholesale and retail trade & catering services	3.5	4.9	5.0	6.9	7.4	9.8
Other	10.0	12.0	12.6	16.0	18.0	19.5
Aggregate	100.0	100.0	100.0	100.0	100.0	100.0
<b>Difference between the Population Survey and the "Three-in-one"</b>						
Farming, forestry, animal husbandry and fishery	5.5	10.9	12.0	16.7	11.4	14.1
Manufacturing	-2.1	-2.3	-3.7	-4.1	-0.3	-2.2
Construction	-0.4	-2.2	-2.5	-3.4	-3.0	-3.6
Transport, storage, post & telecommunication	-0.1	-0.8	-0.8	-0.8	-0.6	-0.1
Wholesale and retail trade & catering services	-0.6	-1.5	-1.2	-1.6	-0.8	-1.1
Other	-2.3	-4.1	-3.9	-6.8	-6.8	-7.1
Aggregate	0.0	0.0	0.0	0.0	0.0	0.0

Table 5: Explicitly Listed One Digital Sectors in Three Components of the “Three-in-one”

Sectors	Types of statistics	the labor statistics of urban unit	the administrative registration of private enterprises and Getihu	the rural employment statistics	
				Prior 1992	1993 and after
Farming, forestry, animal husbandry and fishery		√	√	√	√
Mining and quarrying		√	√		
Manufacturing		√	√	√	√
Production and supply of electricity gas and water		√			
Construction		√	√	√	√
Geological prospecting and water conservancy		√			
Transport, storage, post & telecommunication		√	√	√	√
Wholesale and retail trade & catering services		√	√	√	√
Finance and insurance		√		√	
Real estate		√			
Social services		√	√	√	
Health care, sport & social welfare		√		√	
Education, culture and arts radio, film and television		√		√	
Scientific research and polytechnic services		√		√	
Government agencies, party agencies and social organization		√		√	
Other		√	√	√	√

Notes: √ stands for the sector explicitly listed up in the statistics.

Table 6: Comparison between the two types of labor statistics: Population surveys and “Three-in-one”

	Population surveys	“Three-in-one”
<b>Coverage</b>	Entire China	Entire China
<b>Definition</b> of “the employed”	Current status	Usual status
<b>Unit</b> through which the information collected	Households that provide labor	Enterprises that employ the labor
<b>Main indicators</b> provided	Annual total of employment since 1990.	Annual figures of employment by sectors.