

# On the Selection of Sampling Methods and Demonstrative Analysis of the Sample Survey of Industry under the Designated Size

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It is extremely important to choose the right sample methods for the design of a sample survey. The sample survey in Industry is brand-new in china, so good theoretic preparation, and more importantly, plentiful accumulations of practical experiences are needed. In this case, the study of idiographic uses of sampling methods theory in specified conditions and different objects as well as ways to improve efficiency of sample survey means quite a lot to popularization of industry sample survey. Based on the practices of sample survey of industry under the designated size in Fujian Province, this article makes demonstrative analyses of practical effects of several commonly used sampling methods and provides ways of improving sample efficiency by adopt these methods synthetically.

## **1. The major principles to be followed to select the right sampling methods**

Namely: the principle of random city, the principle of adapting frames for selection, the principle of least *Deff*, the principle of most economical and the principle of feasibility etc. These principles may collide with each other from time to time; so sampling designers should balance advantages and disadvantages of them according to aims of sample survey to abide by the right principles.

## **2. Demonstrative and comparative analysis of practical effects of commonly used sampling methods**

By doing contract analysis of practical effects of the sampling methods adopted in the industry sample survey of Fujian Province, it is concluded that:

(1). Lists sampling in comparison with cluster sampling has the following problems regardless of its advantages in improving sample precision and reducing the size of sample: Firstly, It is rather difficult to estimate the population value because of incomplete population elements. Secondly, Samples are too dispersive to be operated expediently. Thirdly, Sample units are in constant change affecting typification of the sample.

(2). Cluster sampling otherwise conquered these defects of lists sampling. But the sample size of cluster sampling is rather huge; moreover it is hard to control the variance.

(3). Stratified sampling plays an important part in reducing the sample size and sampling errors. But the efficiency of stratified sampling is always inhibited because of serious distortion of the signs used to stratify

(4). One-stage sampling in comparison with two or multi-stage has the following features: Firstly, different frames for selection requirements. That of one-stage sampling is rather high. Secondly, different required the size of sample. That of one-stage sampling is fewer. Thirdly, different sample concentration. That of one-stage rather scattered. Fourthly, different practical sample error. Less practical sampling error in one-stage sampling in comparison with the planned error.

Instruct sampling designers to obtain better understanding of advantages and disadvantages of each sampling method in practical uses through demonstrative analysis of these methods to make more scientific and rational choose among them.

### **3. The ideas of how to improve the present sampling methods of industry under designated size**

According to the demonstrative analysis, my opinion is that cluster sampling and one-stage sampling are the main sampling methods in the sample survey of industry under the designated size. The important thing is taking measures to raise the efficiency of cluster sampling and one-stage sampling. Firstly, consummate frames for selection and do dynamic maintenance to it to create conditions for optimized sampling methods. Secondly, combine enterprises of town level and above with that of town level and below to adopt cluster sampling. Thirdly, subdivide larger cluster units accordingly to improve efficiency of cluster sampling. Fourthly, do sampling by taking unequal probability to size. Fifthly, integrated use of multi methods should be flexibly adopted for populations of county (town or borough).

#### **References:**

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Le choix de méthodes d'investigation joue un rôle décisif dans la conception d'une investigation au hasard. Vu que l'investigation industrielle au hasard est un terrain vierge dans notre pays, la préparation dans le domaine de théorie est aussi importante que l'accumulation des expériences. A cet effet, la recherche sur l'application des théories dans différentes conjonctures et sur les méthodes pour augmenter les efficacités de l'investigation a une influence profonde sur le développement de l'investigation industrielle dans notre pays. Basées sur les données obtenues dans l'investigation des petites et moyennes entreprises dans la province de Fujian, cet article a donné des analyses concrètes sur les efficacités des différentes méthodes choisies et a donné des conseils sur la combinaison de différentes méthodes pour augmenter l'efficacité.