1. Sample Design

A Stratified Systematic Sampling was adopted for the survey. Each region was constituted a stratum. The sampling units were establishments.

1.1 Stratification

Each region was constituted a stratum. There were altogether 6 strata . Each stratum was classified by ISIC at class level into 73 sub-stratum and in each sub-stratum was divided into 10 sizes according to number of persons engaged as follows:

Size of establishment	1	2	3	4	5	6	7	8	9	10
Number of person engaged	1	2	3 - 5	6 - 10	11 - 15	16 – 25	26 – 30	31 – 50	51 – 200	> 200

1.2 Selection of Sampling Unit

The sample selection of establishments were done by systematic sampling and performed separately and independently in each sub-stratum and size of establishments. The total sample were 26,101 from 1,606,507 establishments.

The total number of sample establishments selected for enumeration by region and size was as follows:

Region	Size of establishment										
	Total	1	2	3	4	5	6	7	8	9	10
Bangkok	6,819	562	518	726	483	255	1,263	663	920	928	501
Vicinity	3,814	696	498	576	306	176	573	203	372	323	91
Central	4,113	761	614	553	287	182	650	230	368	352	116
North	3,654	896	565	489	248	155	530	163	292	262	54
Northeast	3,920	837	667	519	251	166	581	186	336	327	50
South	3,781	772	617	502	250	159	566	196	321	291	107
Whole kingdom	26,101	4,524	3,479	3,365	1,825	1,093	4,163	1,641	2,609	2,483	919

2. Method of Estimation

The survey results were presented at regional level. There were altogether 6 regions, namely, Bangkok, Vicinity (Samut Prakan, Nonthaburi, Pathum Thani, Nakhon Pathom and Samut Sakhon), the North, the Northeast and the South. All the establishments were divided into 6 sizes according to number of person engaged as follows:

Size of establishment	1	2	3	4	5	6
Number of person engaged	1 – 15	16 – 25	26 – 30	31 – 50	51 – 200	> 200

$$
\begin{aligned}
\text{Let} \quad m &= 1, 2, 3, \ldots, n_{hil} && \text{(sample establishment)} \\
l &= 1, 2, 3, \ldots, 10 && \text{(size of establishment)} \\
k &= 1, 2, 3, \ldots, 11 && \text{(division)} \\
j &= 1, 2, 3, \ldots, 41 && \text{(group)} \\
i &= 1, 2, 3, \ldots, 73 && \text{(class)} \\
h &= 1, 2, 3, 4, 5, 6 && \text{(region)}
\end{aligned}
$$

2.1 The estimated total number of characteristic X of the establishments for the lth size, i^{th} class, h^{th} region was based on the formula :

$$
\hat{X}_{hil} = \sum_{m=1}^{n_{hil}} w_{hil} x_{hilm}
$$

where x_{hilm} is the value of characteristic X for the mth establishment, l^{th} size, i^{th} class, h^{th} region.

w_{hil} is the weighting factor of the establishments for the lth size, i^{th} class, h^{th} region. Where

$$
w_{hil} = \frac{N_{hil}}{n_{hil}}
$$

N_{hil} is the total number of the establishments for the lth size, i^{th} class, h^{th} region

n_{hil} is the total number of the sample establishments for the lth size, i^{th} class, h^{th} region

2.2 The estimated total number of characteristic *X* of the establishments was based on the formula :

Presented part	Region	Whole kingdom
Establishment with 1 – 15 persons engaged	$\hat{X}'_{h1} = \sum\limits_{l=1}^{5} \sum\limits_{i=1}^{73} \hat{X}_{hil}$	$\hat{X}'_{1} = \sum\limits_{h=1}^{6} \hat{X}'_{h1}$
Establishment with 16 – 25 persons engaged (l = 6)	$\hat{X}'_{h2} = \sum\limits_{i=1}^{73} \hat{X}_{hi6}$	$\hat{X}'_{2} = \sum\limits_{h=1}^{6} \hat{X}'_{h2}$
Establishment with 26 – 30 persons engaged (l = 7)	$\hat{X}'_{h3} = \sum\limits_{i=1}^{73} \hat{X}_{hi7}$	$\hat{X}'_{3} = \sum\limits_{h=1}^{6} \hat{X}'_{h3}$
Establishment with 31 – 50 persons engaged (l = 8)	$\hat{X}'_{h4} = \sum\limits_{i=1}^{73} \hat{X}_{hi8}$	$\hat{X}'_{4} = \sum\limits_{h=1}^{6} \hat{X}'_{h4}$
Establishment with 51 – 200 persons engaged (l = 9)	$\hat{X}'_{h5} = \sum\limits_{i=1}^{73} \hat{X}_{hi9}$	$\hat{X}'_{5} = \sum\limits_{h=1}^{6} \hat{X}'_{h5}$
Establishment with more than 200 persons engaged (l = 10)	$\hat{X}'_{h6} = \sum\limits_{i=1}^{73} \hat{X}_{hi10}$	$\hat{X}'_{6} = \sum\limits_{h=1}^{6} \hat{X}'_{h6}$
class i	$\hat{X}_{hi} = \sum\limits_{k=1}^{10} \hat{X}_{hik}$	$\hat{X}_{i} = \sum\limits_{h=1}^{6} \hat{X}_{hi}$
group j	$\hat{X}_{hj} = \sum\limits_{i=1}^{A_j} \hat{X}_{hi}$ where A_j is the total classes in the jth group	$\hat{X}_{j} = \sum\limits_{h=1}^{6} \hat{X}_{hj}$
division k	$\hat{X}_{hk} = \sum\limits_{j=1}^{A_k} \hat{X}_{hj}$ where A_k is the total groups in the kth division	$\hat{X}_{k} = \sum\limits_{h=1}^{6} \hat{X}_{hk}$

2.3 The estimated variance of the estimated total number of characteristic *X* of the establishments for the lth size, i^{th} class, h^{th} region was based on the formula:

$$\hat{V}(\hat{X}_{hil}) = N_{hil}(N_{hil} - n_{hil})\frac{s^{2}_{hil}}{n_{hil}}$$

$$\text{where} \quad s^{2}_{hil} = \frac{1}{n_{hil} - 1}\left[\sum\limits_{m=1}^{n_{hil}} x^{2}_{hilm} - \frac{\left(\sum\limits_{m=1}^{n_{hil}} x_{hilm}\right)^{2}}{n_{hil}}\right]$$

2.4 The estimated coefficient of variation of the estimated total number of characteristic X of the establishments for the lth size, i^{th} class, h^{th} region wasbased on the formula:

Presented part	Region	Whole kingdom
Establishment with 1 – 15 persons engaged	$$c.v.'_{h1} = \frac{\sqrt{\sum_{l=1}^{5}\sum_{i=1}^{73}\hat{v}(\hat{x}_{hil})}}{\hat{X}'_{h1}}$$	$$c.v.'_{1} = \frac{\sqrt{\sum_{h=1}^{6}\sum_{l=1}^{5}\sum_{i=1}^{73}\hat{v}(\hat{x}_{hil})}}{\hat{X}'_{1}}$$
Establishment with 16 – 25 persons engaged ($l = 6$)	$$c.v.'_{h2} = \frac{\sqrt{\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi6})}}{\hat{X}'_{h2}}$$	$$c.v.'_{2} = \frac{\sqrt{\sum_{h=1}^{6}\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi6})}}{\hat{X}'_{2}}$$
Establishment with 26 – 30 persons engaged ($l = 7$)	$$c.v.'_{h3} = \frac{\sqrt{\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi7})}}{\hat{X}'_{h3}}$$	$$c.v.'_{3} = \frac{\sqrt{\sum_{h=1}^{6}\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi7})}}{\hat{X}'_{3}}$$
Establishment with 31 – 50 persons engaged ($l = 8$)	$$c.v.'_{h4} = \frac{\sqrt{\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi8})}}{\hat{X}'_{h4}}$$	$$c.v.'_{4} = \frac{\sqrt{\sum_{h=1}^{6}\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi8})}}{\hat{X}'_{4}}$$
Establishment with 51 – 200 persons engaged ($l = 9$)	$$c.v.'_{h5} = \frac{\sqrt{\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi9})}}{\hat{X}'_{h5}}$$	$$c.v.'_{5} = \frac{\sqrt{\sum_{h=1}^{6}\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi9})}}{\hat{X}'_{5}}$$
Establishment with more than 200 persons engaged ($l = 10$)	$$c.v.'_{h6} = \frac{\sqrt{\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi10})}}{\hat{X}'_{h6}}$$	$$c.v.'_{6} = \frac{\sqrt{\sum_{h=1}^{6}\sum_{i=1}^{73}\hat{v}(\hat{x}_{hi10})}}{\hat{X}'_{6}}$$
class i	$$\hat{v}(\hat{X}_{hi}) = \sum_{l=1}^{10}\hat{v}(\hat{X}_{hil})$$ $$c.v._{hi} = \frac{\sqrt{\hat{v}(\hat{X}_{hi})}}{\hat{X}_{hi}}$$	$$c.v._{i} = \frac{\sqrt{\sum_{h=1}^{6}\hat{v}(\hat{X}_{hi})}}{\hat{X}_{i}}$$
group j	$$\hat{v}(\hat{X}_{hj}) = \sum_{i=1}^{A_j}\hat{v}(\hat{X}_{hi})$$ $$c.v._{hj} = \frac{\sqrt{\hat{v}(\hat{X}_{hj})}}{\hat{X}_{hj}}$$ where A_j is the total classes in the jth group	$$c.v._{j} = \frac{\sqrt{\sum_{h=1}^{6}\hat{v}(\hat{X}_{hj})}}{\hat{X}_{j}}$$
division k	$$\hat{v}(\hat{X}_{hk}) = \sum_{j=1}^{A_k}\hat{v}(\hat{X}_{hj})$$ $$c.v._{hk} = \frac{\sqrt{\hat{v}(\hat{X}_{hk})}}{\hat{X}_{hk}}$$ where A_k is the total groups in the kth division	$$c.v._{k} = \frac{\sqrt{\sum_{h=1}^{6}\hat{v}(\hat{X}_{hk})}}{\hat{X}_{k}}$$

2.5 Data collection

The interviewing method was employed in data collection. The enumerators who are permanent and temporary staff of the National Statistical Office were sent out to interview the owners or the entrepreneurs of the sampled business establishments during May – August 2010.

2.6 Errors of the data

Data presented in this report might be subject to sampling and non-sampling errors. For instance, errors from the imputation for missing values and non-response, intentional misreporting and errors arising at coding and data entry stages. However, the NSO tried its best to minimize such errors, thus the data should be used with appropriate cautions.

2.7 In round figures

The summation of each amount may not equal to the total due to rounding.