

A Study on the Variation of Main Industry for Korean Enterprises Using the Panelized “Survey of Business Activities” Data

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Abstracts

Businesses today are continuously changing its face to respond to the rapidly changing economic environment caused by the development of industrial technologies. In this process, more and more businesses are changing their main industry to deal with the continuously changing economic environment. In this respect, this study investigates the variations of the main industry of Korean enterprises in order to provide information on the fluctuations of the industrial structure in Korea so that we might deal with the rapid change of the industrial structure found in Korea. To achieve this, this study first endeavors to create the panelized data of “Survey of Business Activities” using the annual “Survey of Business Activities” data, which is produced by Statistics Korea, between 2006 and 2010. As a result, this study can compile the panelized data which consists of the 8,002 enterprise data (without missing any data) over a five year period. Using the panelized “Survey of Business Activities” data, this study analyzes the variation of the main industry and further investigates the turnover composition for Korean enterprises. From the analysis on the variation of the main industry for Korean enterprises, this study demonstrates that 1,051 enterprises changed the main industry more than once between 2006 and 2010, and also illustrates that the industrial change between ‘Manufacturing [C]’ and ‘Wholesale and Retail Trade [G]’ is the most popular industrial change pattern of the main industry in Korea. Also, this study establishes that the main industry turnover’s share of the total turnover is higher in ‘Transportation [H]’ and ‘Electricity, Gas, Steam and Water Supply [D]’ as compared with other industries from the results of the analysis on the turnover composition for Korean enterprises.

Keywords: change of industrial structure, compiling panelized data, industrial change pattern of main industry, turnover composition

1. Introduction

Businesses today are continuously changing its face to respond to the rapidly changing economic environment caused by the development of industrial technologies which is characterized as a rapidly technological change, a flexible production method, and a diversity of products. In addition, in this process, more and more businesses are changing their main industry to deal with the continuously changing economic environment. In this respect, this research investigates the variations of main industry of Korean enterprises to provide information on the fluctuations of industrial structure and to prepare a countermeasure so that we might deal with the rapid change of industrial structure found in Korea.

In principle, the panel data which is created by the repeated survey on identical respondents at regular intervals is required to investigate the change pattern of main industry for Korean enterprises. With this in mind, this research tries to panelize the “Survey of Business Activities” data, which is produced by an annual survey on enterprises consisting of more than 50 employees and 300 million Korean Won of capital stock, between 2006 and 2010 using the identification number of each enterprise in the “Survey of Business Activities” data. Also, this research carries out

the analysis on the change pattern of main industry and the investigation on the turnover composition for Korean enterprises using the panelized “Survey of Business Activities” data.

2. Data and Data Organization

In Korea, businesses are basically classified into two types, enterprises and establishments. In general, the establishment is defined as ‘all the economic units that are situated in a single location, and that are operated under a single ownership or control, such as factories, workshops and mines’. On the other hand, the enterprise is the smallest combination of legal units that is an organizational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially in the allocation of its current resources. In particular, an enterprise carries out one or more activities at one or more locations.

In the case of “Survey of Business Activity” which is conducted by Statistics Korea, the enumeration unit is fundamentally an enterprise. The “Survey of Business Activities” covers all Korean enterprises consisting of more than 50 employees and 300 million Korean Won of capital stock and includes all industries as defined in the Korean Standard Industry Classification (KSIC), revised in 2008. The first reference year of “Survey of Business Activities” is 2005, and the periodicity is an annual survey. In addition, the reference date is December 31 of each year and the reference period is from January 1 to December 31. Also, the enumeration period is from May 11 to June 19 of the following year and the methods of data collection are self-administered interviews.

This research endeavors to create the panelized data of “Survey of Business Activities” between 2006 and 2010 and to analyze the change pattern of main industry for Korean enterprises using the panelized “Survey of Business Activities” data as time passes. To achieve this, first, this research tries to panelize the annual “Survey of Business Activity” data between 2006 and 2010 on the basis of the identification number of each enterprise in the “Survey of Business Activity” data. Table 1 represents the composition of panelized data of “Survey of Business Activities”. The result of Table 1 indicates that the data of 8,005 enterprises can include the entire panelized data without missing values based on 5 years.

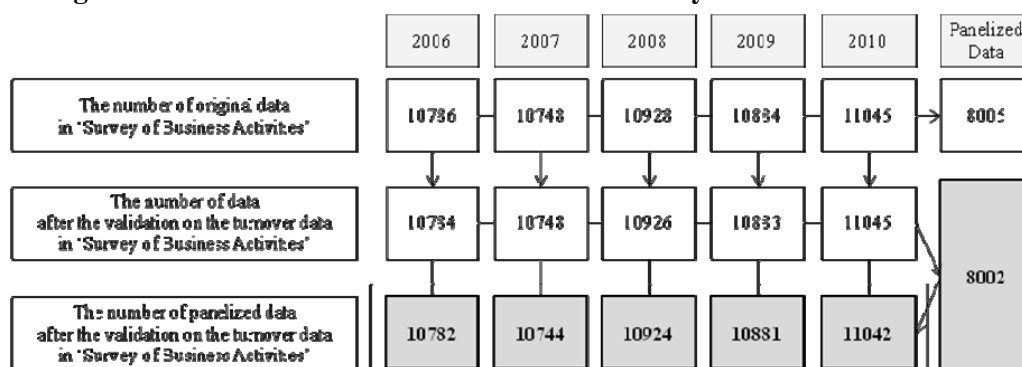
After panelizing the “Survey of Business Activities” data, this research carries out the validation of the turnover data in the panelized “Survey of Business Activities” data through the comparison between the sum of individual product turnovers and the total turnover for each enterprise. More specifically, this research removes the data which has a disparity between the sum of individual product turnovers and the total turnover for the quality improvement of the panelized “Survey of Business Activities” data. As a result, the disparity occurred in three enterprise data among 8,005 enterprise data. In this end, this research compiles the final panelized data using 8,002 enterprise data in the “Survey of Business Activities” data.

Table 1. The composition of panelized data of “Survey of Business Activities”

No	2006 (10786)	2007 (10748)	2008 (10928)	2009 (10884)	2010 (11045)	Frequency Number	Frequency Rate
1	presence	presence	presence	presence	presence	8005	55.91%
2	presence	presence	presence	presence	absence	502	3.51%
3	presence	presence	presence	absence	presence	4	0.03%
4	presence	presence	presence	absence	absence	486	3.39%
5	presence	presence	absence	presence	presence	19	0.13%
6	presence	presence	absence	presence	absence	1	0.01%
7	presence	presence	absence	absence	presence	29	0.20%
8	presence	presence	absence	absence	absence	1089	7.61%
9	presence	absence	presence	presence	presence	19	0.13%
10	presence	absence	presence	presence	absence	5	0.03%
11	presence	absence	presence	absence	presence	0	0.00%
12	presence	absence	presence	absence	absence	7	0.05%
13	presence	absence	absence	presence	presence	4	0.03%
14	presence	absence	absence	presence	absence	2	0.01%
15	presence	absence	absence	absence	presence	5	0.03%
16	presence	absence	absence	absence	absence	609	4.25%
17	absence	presence	presence	presence	presence	429	3.00%
18	absence	presence	presence	presence	absence	52	0.36%
19	absence	presence	presence	absence	presence	1	0.01%
20	absence	presence	presence	absence	absence	39	0.27%
21	absence	presence	absence	presence	presence	0	0.00%
22	absence	presence	absence	presence	absence	1	0.01%
23	absence	presence	absence	absence	presence	1	0.01%
24	absence	presence	absence	absence	absence	90	0.63%
25	absence	absence	presence	presence	presence	1080	7.54%
26	absence	absence	presence	presence	absence	141	0.98%
27	absence	absence	presence	absence	presence	0	0.00%
28	absence	absence	presence	absence	absence	158	1.10%
29	absence	absence	absence	presence	presence	533	3.72%
30	absence	absence	absence	presence	absence	91	0.64%
31	absence	absence	absence	absence	presence	916	6.40%
Total						14318	100.00%

※ Numbers in parenthesis refer to the number of enterprises which were contained in “Survey of Business Activities” each year.

Figure 1. Validation on the turnover data in “Survey of Business Activities”



In addition, this research determines the main industry and the secondary industry for each enterprise in the final panelized “Survey of Business Activities” data using the information on the size of turnover which is classified according to the 1st digit industrial classification codes defined in the Korean Standard Industry Classification (KSIC). In principle, the industry in which the largest turnover is occurred is determined as the main industry and the industry in which the second-largest turnover is occurred is determined as the secondary industry for each enterprise on the basis of 1st digit industrial classification codes.

3. Analysis on the change pattern of main industry and the turnover composition for Korean enterprises

After determining the main industry and the secondary industry for each enterprise, this research investigates the change pattern of main industry and the composition of turnover for each Korean enterprise using the information on the main industry and the secondary industry determined using the turnover size of each enterprise.

First, this research investigates the variation of main industry for Korean enterprises using the final panelized “Survey of Business Activities” data consisting of 8,002 enterprise data which is compiled in Chapter 2. Following the results on the variation of main industry for Korean enterprises, 1,051 enterprises (approximately 13.13%) changed the main industry more than once between 2006 and 2010. More specifically, this research identifies that the industrial change between ‘Manufacturing [C]’ and ‘Wholesale and retail trade [G]’ is the most popular industrial change pattern between 2006 and 2010. In addition, this research also establishes that the industrial change between ‘Professional, scientific and technical activities [M]’ and ‘Information and communication [J]’ and the industrial change between ‘Business facilities management and business support services [N]’ and ‘Real estate activities and renting and leasing [L]’ are also common industrial change patterns. Table 2 indicates the results on the primary change patterns of main industry of Korean enterprises.¹

In addition, this research examines the turnover composition of Korean enterprises using the aforementioned final panelized “Survey of Business Activities” data consisted of 8,002 enterprise data. Following the results on the analysis of the turnover composition for each Korean enterprise, the main industry turnover’s share of total turnover is higher in ‘Transportation [H]’, ‘Electricity, gas, steam and water supply [D]’, ‘Financial and insurance activities [K]’, and ‘Business facilities management and

¹ Each capital letter means the 1st digit industrial classification codes in the Korean Standard Industry Classification (KSIC)

- A : Agriculture, forestry and fishing
- B : Mining and quarrying
- C : Manufacturing
- D : Electricity, gas, steam and water supply
- E : Sewerage, waste management, materials recovery and remediation activities
- F : Construction
- G : Wholesale and retail trade
- H : Transportation
- I : Accommodation and food service activities
- J : Information and communications
- K : Financial and insurance activities
- L : Real estate activities and renting and leasing
- M : Professional, scientific and technical activities
- N : Business facilities management and business support services
- O : Public administration and defense; compulsory social security
- P : Education
- Q : Human health and social work activities
- R : Art, sports and recreation related services
- S : Membership organizations, repair and other personal services

business support services [N]’ as compared with other industries when the turnover size is classified according to the 1st digit industrial classification codes, which are defined in the Korean Standard Industry Classification (KSIC), for each enterprise. On the other hand, the secondary industry turnover’s share of total turnover is higher in ‘Art, sports, and recreation related services [R]’, ‘Agriculture, forestry and fishing [A]’, ‘Membership organizations, repair and other personal services [S]’, ‘Real estate activities and renting and leasing [L]’, and ‘Wholesale and retail trade [G]’. From these findings, this research suggests that the difference between the industry which has higher main industry turnover’s share and the industry which has higher secondary industry turnover’s share is significant.

Table 2. Change patterns of main industry of Korean enterprises

2006	2007	2008	2009	2010	Frequency Number	Frequency Rate
G →	G →	C →	C →	C	80	1.00%
C →	C →	G →	G →	G	59	0.74%
C →	G →	C →	C →	C	56	0.70%
G →	C →	C →	C →	C	31	0.39%
M →	M →	J →	J →	J	29	0.36%
N →	N →	L →	L →	L	18	0.22%
C →	G →	G →	G →	G	17	0.21%
C →	C →	C →	C →	G	14	0.17%
C →	C →	G →	C →	C	13	0.16%
C →	C →	C →	G →	G	12	0.15%
J →	G →	J →	J →	J	12	0.15%
J →	J →	M →	M →	M	12	0.15%
G →	G →	J →	J →	J	11	0.14%
F →	F →	C →	C →	C	10	0.12%
J →	J →	C →	C →	C	10	0.12%
G →	C →	G →	G →	G	9	0.11%
G →	G →	I →	I →	I	9	0.11%
C →	C →	M →	M →	M	8	0.10%
J →	J →	G →	G →	G	8	0.10%
J →	M →	J →	J →	J	8	0.10%

4. Conclusions

This research panelizes the data of “Survey of Business Activities” between 2006 and 2010 using the identification number of each Korean enterprise and analyzes the variation of main industry of Korean enterprises. In addition, this research investigates the turnover composition of Korean enterprises using the panelized “Survey of Business Activities” data between 2006 and 2010.

First of all, this research identifies that the 8,005 enterprise data can include the panelized “Survey of Business Activities” data between 2006 and 2010 without missing values of the identification number. In addition, the final panelized “Survey of Business Activities” data can be compiled using 8,002 enterprise data after removing the incorrect data related to the turnover.

After compiling the final panelized “Survey of Business Activities” data between 2006 and 2010, this research investigates the change pattern of main industry for Korean enterprises using the aforementioned final panelized data which is consisted of 8,002 enterprise data. The results on the analysis of the change pattern of main

industry represent that 1,051 enterprises (approximately 13.13%) changed the main industry more than once from 2006 to 2010 and that the industrial change between 'Manufacturing [C]' and 'Wholesale and retail trade [G]' is the most popular industrial change pattern.

From the results of the analysis on the turnover composition of Korean enterprises, this research establishes that the main industry turnover's share of total turnover is higher in 'Transportation [H]', 'Electricity, gas, steam and water supply [D]', 'Financial and insurance activities [K]', 'Business facilities management and business support services [N]' and the secondary industry turnover's share of total turnover is higher in 'Art, sports, and recreation related services [R]', 'Agriculture, forestry and fishing [A]', 'Membership organizations, repair and other personal services [S]', 'Real estate activities and renting and leasing [L]', 'Wholesale and retail trade [G]' when the main industry and the secondary industry are determined using the information on the turnover size which is classified according to the 1st digit industrial classification codes defined in the Korean Standard Industry Classification (KSIC), respectively.