

## The Business Demography of Sole Proprietorships in Japan \*

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We developed business demography tables of sole proprietorships by using the Japanese Labor Force Survey (LFS). This is the first time in Japan that LFS, of which reporting units are households and statistical units are individual persons, is used to make the business statistics. We observed entry and exit rate of sole proprietorships by industry, sex and age of business owners. Furthermore, we compared these tables with the Unincorporated Enterprise Survey results, of which statistical units are enterprises.

Key Words: Labour Force Survey, self employed, entry and exit rate, Unincorporated Enterprise Survey

### 1. Introduction

The statistical unit of Japanese Labour Force Survey(LFS) is the household. LFS asks employment status to respondents, and “self-employed worker” is one of response choice in the questionnaire form. The most of self-employed workers are sole proprietors at the same time. Number of sole proprietors is many, but its contribution to the national sales is relatively small compared with large enterprises. It is a problem for Japanese statistical agencies how to survey sole proprietors efficiently. It is expected that the application of household survey(LFS) to the industry survey might be one of the solution.

Parker(2008) wrote that there were broadly two available approaches and data sets for entrepreneurship research. The first defines of entrepreneurship as self-employment, which can be implemented at the aggregate country-level using publicly available OECD Labour Force Statistics data. The second approach defines entrepreneurship as the formation and operation of new firms, and is implemented in the Global Entrepreneurship Monitor (GEM). Parker summarized the characteristics of Labour Force Statistics as follows, (i) definition of entrepreneurship is self-employment, (ii) type of measure is stock, (iii) considerable cross-country comparability disaggregate as well as aggregate level data, (iv) self-employment includes part-time and hobby (non-entrepreneurial) firms and (v) data are not strictly comparable across countries. Since most entrepreneur started from sole proprietor, what

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Parker mentioned about entrepreneurships can be apply for sole proprietor.

Recently, the development of new Japanese Business Register is processing and will become full operation in September 2013. The Business Demography statistics based on Business Register will be available in the near future. It seems not necessary to develop the business demography statistics of sole proprietorships from LFS. But Parker wrote that “In my opinion, the existence of more than one practical entrepreneurship measure is an advantage rather than a limitation. The researcher has greater choice to employ an empirical measure that relates more closely to their theoretical construct, whatever that may be.” Actually, sole proprietors who are not incorporated and have no employee cannot be captured by administrative records in Japan. It might be meaningful to develop the business demography statistics of sole proprietorships from LFS. We ordered special tabular of LFS to National Statistics Center and conducted analysis based on that data.

## 2. Entry Rate

LFS asks “When did you take up the present job?” in the questionnaire. The person who answered that he/she was “Self employed” and took up the present job “Last year”, he/she is defined as “Entry”. **Table 1** shows entry rate by industry and age of sole proprietors in 2009. The definition of “Sole proprietors” here is the person who wrote “Self-employed” in LFS. (Strictly speaking, those two do not perfectly match.) Number of sole proprietors and entries are annual average since Japanese LFS is the monthly survey. Entry rate is defined as number of entries divided by number of total sole proprietors. Entry rate of 15 years old and over vary from 3% to 5% by industry, excluding outstanding Services, n.e.c. industry(13%). Entry rate tends to decline with advancing age.

**Figure 1** shows entry rate by industry through time. The entry rate of Manufacturing industry declined and that of Accommodations, Eating and Drinking Services industry rose. It is consistent with the hollowing out of the Japanese manufacturing industry caused by strong yen and promotion of tourism by Japanese government.

## 3. Exit Rate

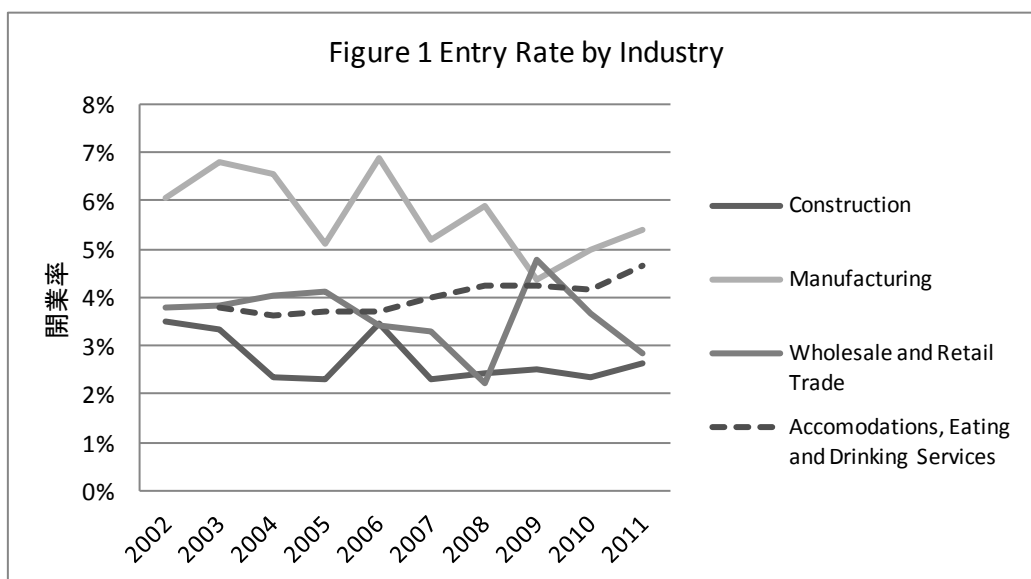
Number of exits is estimated by subtracting net increase by number of net entry. Net increase is calculated by stock of sole proprietors of two years.

$$\text{Number of exit} = \text{Number of entry} - \text{Net increase}$$

**Table 2** shows exit rate by industry and age of sole proprietors in 2009. Since number of sole proprietorships is rounded, number of exits of 60 years old and over in construction industry and wholesale and retail trade industry became negative sign. However, number of exit is positive in most cases. Exit rate tends to decline with advancing age similarly to entry rate.

**Table 1 Entry Rate by Industry and Age of Sole Proprietors (2009)**

	Age of Sole Proprietors			
	15-	-39	40-59	60-
<b>Number of Sole Proprietors (10 thousands)</b>				
Construction	80	18	39	23
Manufacturing	46	6	15	25
Wholesale and Retail Trade	84	11	30	43
Accommodations, Eating and Drinking Services	47	6	20	21
Living Related and Personal Services and Amusement Services	46	7	17	23
Services, N.E.C.	39	7	13	19
<b>Number of Entries (10 thousands)</b>				
Construction	2	1	1	0
Manufacturing	2	1	1	0
Wholesale and Retail Trade	4	3	1	0
Accommodations, Eating and Drinking Services	2	1	1	0
Living Related and Personal Services and Amusement Services	2	1	1	0
Services, N.E.C.	5	1	1	3
<b>Entry Rate (%)</b>				
Construction	3%	6%	3%	0%
Manufacturing	4%	17%	7%	0%
Wholesale and Retail Trade	5%	27%	3%	0%
Accommodations, Eating and Drinking Services	4%	17%	5%	0%
Living Related and Personal Services and Amusement Services	4%	14%	6%	0%
Services, N.E.C.	13%	14%	8%	16%



**Table 3** shows exit rate by industry through time. There was a discontinuity between 2009 and 2010, which was caused by the revision of industry classification. Exit rate rose in 2011 when the large earthquake occurred in northeastern Japan.

**Table 2 Exit Rate by Industry and Age of Sole Proprietors**

	Age of Sole Proprietors			
	15-	-39	40-59	60-
Net Increase (10 thousands, 2007-2008)				
Construction	-4	-1	-5	2
Manufacturing	-7	-4	-1	-2
Wholesale and Retail Trade	-1	-2	-2	2
Accommodations, Eating and Drinking Services	-3	-1	-1	-1
Services, N.E.C.	2	0	1	1
Number of Entries (10 thousands, 2008)				
Construction	2	1	1	0
Manufacturing	3	2	1	0
Wholesale and Retail Trade	2	1	1	0
Accommodations, Eating and Drinking Services	2	1	1	0
Services, N.E.C.	7	3	2	3
Estimated Number of Exits (10 thousands, 2008)				
Construction	6	2	6	-2
Manufacturing	10	6	2	2
Wholesale and Retail Trade	3	3	3	-2
Accommodations, Eating and Drinking Services	5	2	2	1
Services, N.E.C.	5	3	1	2
Estimated Exit Rate (% , 2008)				
Construction	7%	11%	15%	-9%
Manufacturing	20%	86%	10%	8%
Wholesale and Retail Trade	3%	38%	9%	-4%
Accommodations, Eating and Drinking Services	11%	33%	10%	5%
Services, N.E.C.	4%	13%	2%	4%

**Table 3 Exit Rate by Industry**

	Construction	Manufacturing	Wholesale and Retail Trade	Accommodations, Eating and Drinking Services	Services, N.E.C.
2003	7%	3%	10%	0%	0%
2005	1%	8%	6%	6%	2%
2006	3%	9%	14%	4%	9%
2007	2%	5%	0%	12%	5%
2008	7%	20%	3%	11%	10%
2010	-4%	20%	6%	2%	26%
2011	14%	14%	18%	16%	6%

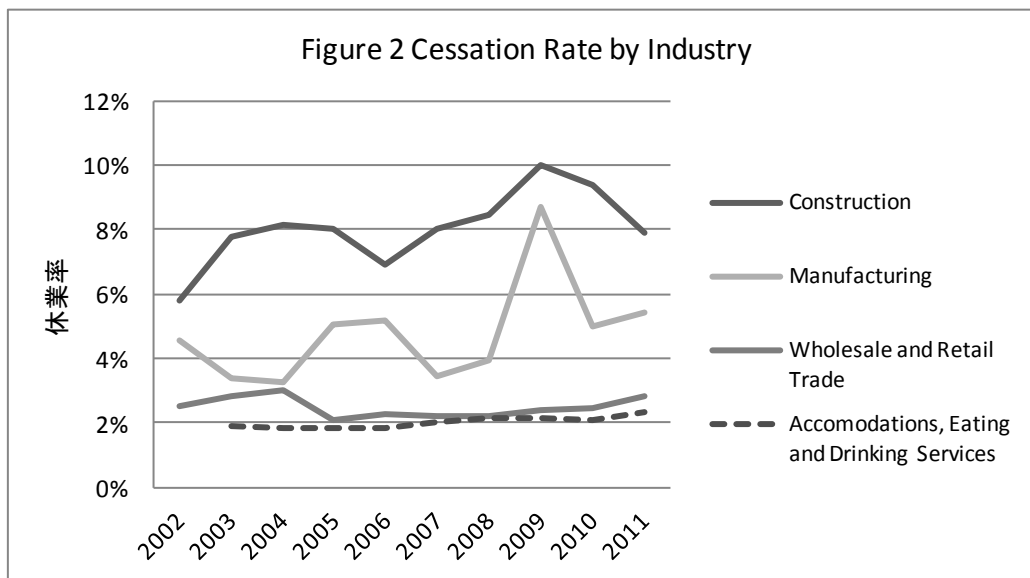
Note: There was revision of industry classification between 2009 and 2010.

#### 4. Cessation Rate

LFS asks “Were you engaged in work at all during the last seven days of the month?” in the questionnaire and there is “Absent from work” in response choices. The person who answered he/she was “Self employed” and “Absent from work” is defined as “Cessation”. **Table 4** shows cessation rate by industry and age of sole proprietors in 2009. Cessation rates of Construction industry and Manufacturing industry are three times higher than those of other industries. **Figure 2** shows cessation rate by industry through time. Cessation rate of Manufacturing industry rose in 2009 when the influence of World Financial Crises(2008) had impact on Japanese economy.

**Table 4 Cessation Rate, by Industry and Age of Sole Proprietors (2009)**

	Age of Sole Proprietors			
	15-	-39	40-59	60-
<b>Number of Sole Proprietors (10 thousands)</b>				
Construction	80	18	39	23
Manufacturing	46	6	15	25
Wholesale and Retail Trade	84	11	30	43
Accommodations, Eating and Drinking Services	47	6	20	21
Living Related and Personal Services and Amusement Services	46	7	17	23
Services, N.E.C.	39	7	13	19
<b>Number of Cessations (10 thousands)</b>				
Construction	8	0	3	4
Manufacturing	4	1	1	2
Wholesale and Retail Trade	2	0	1	2
Accommodations, Eating and Drinking Services	1	-	0	1
Living Related and Personal Services and Amusement Services	1	0	0	1
Services, N.E.C.	1	0	1	1
<b>Cessation Rate (%)</b>				
Construction	10%	0%	8%	17%
Manufacturing	9%	17%	7%	8%
Wholesale and Retail Trade	2%	0%	3%	5%
Accommodations, Eating and Drinking Services	2%	-	0%	5%
Living Related and Personal Services and Amusement Services	2%	0%	0%	4%
Services, N.E.C.	3%	0%	8%	5%



### 5. Comparison with Unincorporated Enterprise Survey

Table 5 and Table 6 shows comparison between entry and cessation rate from LFS and percentage change of sales and profits from Unincorporated Enterprise Survey(UES). UES aims to clarify the actual conditions of business management at establishments engaged in Manufacturing, Wholesale and Retail Trade, Accommodations and Eating and Drinking Services, as well as obtain basic data on trends in business and for the promotion of small and medium-sized enterprises. Signs of correlation coefficients are reasonable and it means that

business demography statistics of sole proprietorships is successful.

**Table 5 Comparison between Entry Rate from Labour Force Survey and Percentage Change of Sales and Profits from Unincorporated Enterprise Survey**

	Entry Rate from LFS			Percentage Change of Sales from UES (year on year)			Percentage Change of Profits from UES (year on year)		
	Manufacturing	Wholesale and Retail Trade	Accommodations, Eating and Drinking Services	Manufacturing	Wholesale and Retail Trade	Accommodations, Eating and Drinking Services	Manufacturing	Wholesale and Retail Trade	Accommodations, Eating and Drinking Services
2002	6%	4%	0%	-4%	13%	-5%	-6%	1%	-14%
2003	7%	4%	4%	24%	5%	-10%	24%	-9%	-4%
2004	7%	4%	4%	-2%	1%	6%	-12%	6%	7%
2005	5%	4%	4%	-20%	-2%	-14%	-5%	-1%	-17%
2006	7%	3%	4%	10%	2%	16%	8%	-5%	8%
2007	5%	3%	4%	-2%	0%	-3%	-12%	-4%	-1%
2008	6%	2%	4%	-5%	-11%	3%	-2%	-10%	4%
2009	4%	5%	4%	-14%	-11%	-7%	-29%	-2%	-11%
2010	5%	4%	4%	-3%	9%	-4%	6%	-4%	-11%
2011	5%	3%	5%	20%	-5%	-8%	6%	-14%	-10%
Correlation with Entry Rate				0.586	0.189	0.019	0.595	0.657	0.239

**Table 6 Comparison between Cessation Rate from Labour Force Survey and Percentage Change of Sales and Profits from Unincorporated Enterprise Survey**

	Cessation Rate from LFS			Percentage Change of Sales from UES (year on year)			Percentage Change of Profits from UES (year on year)		
	Manufacturing	Wholesale and Retail Trade	Accommodations, Eating and Drinking Services	Manufacturing	Wholesale and Retail Trade	Accommodations, Eating and Drinking Services	Manufacturing	Wholesale and Retail Trade	Accommodations, Eating and Drinking Services
2002	5%	3%		-4%	13%	-5%	-6%	1%	-14%
2003	3%	3%	2%	24%	5%	-10%	24%	-9%	-4%
2004	3%	3%	2%	-2%	1%	6%	-12%	6%	7%
2005	5%	2%	2%	-20%	-2%	-14%	-5%	-1%	-17%
2006	5%	2%	2%	10%	2%	16%	8%	-5%	8%
2007	3%	2%	2%	-2%	0%	-3%	-12%	-4%	-1%
2008	4%	2%	2%	-5%	-11%	3%	-2%	-10%	4%
2009	9%	2%	2%	-14%	-11%	-7%	-29%	-2%	-11%
2010	5%	2%	2%	-3%	9%	-4%	6%	-4%	-11%
2011	5%	3%	2%	20%	-5%	-8%	6%	-14%	-10%
Correlation with Cessation Rate				-0.355	0.247	-0.269	-0.502	0.051	-0.353

**Reference**

Parker, Simon C.(2008) “Chapter 2 Statistical Issues in Applied Entrepreneurship Research: Data, Methods and Challenges,” Emilio Congregado Ed., *Measuring Entrepreneurship*, Springer.