Studies on the Effectiveness of Farm Internship Program in Japan

Akira KIMINAMI[1] and Lily KIMINAMI[2*]

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Summary

The aim of farm internships in Japan is to reveal the current status of the agricultural and foodstuffs industry as a place of employment through work experience at agricultural corporations, as well as improving employment through checking the suitability and skills of those prospective agricultural employees, therefore, it is considered that farm internships have the effect of improving the business environment and human resource development in agriculture. Although the number of participants in farm internships in Japan has been on the rise in recent years, on the other hand, the studies of farm internships centering on the current situation, and there is a severe shortage of comprehensive research such as theoretical and empirical analysis on the effectiveness of internships. Therefore, the purpose of this study is to shed light on the relationship between the business impact of farm internships and the business characteristics, based on existing internship theories.

Methodology employed in this study is the multiple regression analysis of information from application forms and reports on the experience provided by those who participated in farm internship; reports on implementation status and grant application form provided by the agricultural corporations which received participants, as well as factor analysis of the business impact performed through text mining. The results of analyses show that interns and managers have different expectations in farm internships, and that the factors that define the level of their satisfaction also differ. In addition, factors that define achievement of employment differ from factors that define the satisfaction level of the interns and the managers, suggesting that it is not easy to combine satisfaction level and achieving employment.

Therefore, for successful farm internships, it is necessary, first of all, for both interns and managers to understand what is expected from the internship, as well as to assess the content and the implementation method of the internship. Based on this, effective internship plans, guidelines, and manuals in implementing internships would be necessary.

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Key words : Farm Internship, Performance of Program, Agricultural Corporation

1. INTRODUCTION[1]

Recently in Japan, decline in the number of agricultural workers and their aging has been an issue. According to "Survey on Movement of Agricultural Structure" by the Ministry of Agriculture, Forestry and Fisheries (MAFF), the number of core persons mainly engaged in farming fell by 23% over the last decade to 1.78 million people in 2012, and that 60% of these were aged 65 and over (see Table 1). Furthermore, the number of new farmers also is declining. New farmers in Japan are categorized in 3 types, self-employed farmer, agricultural employees (people employed by agricultural corporations, etc.) and new entries, and the percentage of agricultural employees in the all of new farmers is on the rise, accounting for 15% of the total. In addition, this group has a characteristically high ratio (62.8%) of those under 39 years old, as well as a high ratio (79.4%) of those from non-agricultural families (see Table 2). As above, young people from non-agricultural families are steadily coming in to work as agricultural employees. However, given that approximately 30% of the agricultural corporation employees left work within five years of employment, the retention of personnel is an issue.

In the meantime, improving competitiveness and sustainability in agriculture requires the stable intake of new farmers, fulfillment of their ability and nurturing the next generation of agricultural management. In this process, farm internships are expected to play a pivotal role. Indeed, the number of farm internship participants in Japan has been increasing in recent years. However, the majority of studies on farm internships center on analysis of the current situation, and there is a severe shortage of comprehensive research such as theoretical and empirical analysis on the effectiveness of internships. The aim of this study is to examine the Farm Internship Program implemented by the National Chamber of Agriculture, an organization that implements farm internships on the largest scale in Japan (partially consigned to Japan Agricultural Corporations Association), and to clarify the relationship between the impact of farm internship on businesses and the business

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[1] Graduate School of Agricultural and Life Sciences, The University of Tokyo

[2] Faculty of Agriculture, Niigata University

* Corresponding author: kiminami@agr.niigata-u.ac.jp

Table 1. Situation of core persons mainly engaged in farming

	1990	2000	2012
Core persons mainly engaged in farming (thousand persons)	2,927	2,400	1,780
Ratio of aged 65 and over (%)	26.8	51.2	61.1

Source: MAFF "Survey on Movement of Agricultural Structure"

Table 2. Situation of new farmers in Japan

	Number of new farmers (thousand persons)			Ratio of 39 year old or younger (%)	
	2006	2011	2011/2006	2006	2011
New farmer	81.0	58.1	0.72	18.2	24.5
Self-employed farmer	72.4	47.1	0.65	14.3	16.1
Agricultural employees	6.5	8.9	1.37	57.3	65.7
New entries	2.2	2.1	0.95	32.1	38.1

Source: MAFF "Survey on Newcomers in Agriculture"

characteristics.

2. SURVEY OF EXISTING RESEARCH

In theoretical and empirical research on internship, progress has been made in recent years in research on the effects that are brought by internship. Taylor(1988) compared those with internship experience and those without, and showed that internship helps to translate the work awareness into reality, reduce reality shock and promote expanding employment opportunities. D'Abate *et al.*(2009) used multi-regression analysis to clarify that the internship satisfaction level is affected by the nature of the work and the working environment. Furthermore, Narayan *et al.*(2010) organized existing research from the viewpoint of theory (socialization theory, learning theory, human resource theory, etc.), method, subject, and main results. They then regarded internship as a process of knowledge transfer between companies and individuals, assumed a causal model of assumption-process-achievement (company's business achievement, satisfaction of the participants), and used covariance structure analysis to analyze factors for effective internship.

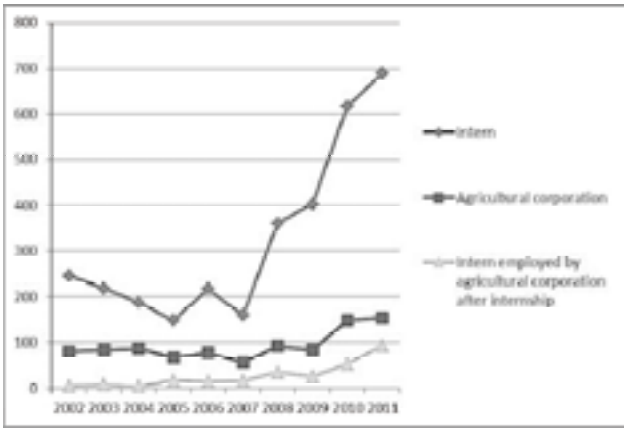
However, with regards to the current status of internship in Japan, a number of cases of initiatives taken by universities are reported, in addition to reports on overall trends, such as by Koseki(2001) and the Ministry of Health, Labour and Welfare(2005). With regards to the effect of internship, Takara and Kinjo(2001), and Sato, Hori and Hotta(2006) analyzed factors that affect the internship satisfaction level to show conditions for effective internships. It has also been identified that internship has the effect of improving work readiness of university students (Takara and Kinjo, 2001), improving new recruitsμ basic skills as members of society (Manabe, 2010) as well as improving job adaptability of the new recruits (Furuta, 2010). With regards to internship in agriculture, however, research is limited to the present data analysis from the viewpoint of supporting new farmers by Tsuda(2008), analysis of the present status of agricultural corporations by Kagawa and Chomei(2009), and the analysis of interns' career-path selection and career development by Tasaki(2013).

3. Scope of analysis and analysis method

1) Scope of analysis

The aim of the Farm Internship Program (official name: Farm Work Experience Activities), implemented by the National Chamber of Agriculture (partially consigned to Japan Agricultural Corporations Association), is to promote understanding of agriculture, and to encourage employment in agricultural corporations and engagement in agriculture. This project offers, to those who are interested, work experience for the period of one week to one month at an agricultural corporation or similar organization, in principle on a live-in basis. It has been operated since 1999 under a MAFF subsidy. Participation is free, and the cost of accommodation and food is borne by the individual recipients. While the program initially was only available to students, as expectations rose for employment opportunities in agriculture, it began accepting working-age adults as well from 2006. Furthermore, in 2010, a preliminary work experience course was also set up for job offer holders at agricultural corporations before graduation.

Receiving corporations use the opportunity in a variety of ways, for example, making use of opinions from employee training and interns in management, and incorporating it as part of their recruitment activities. Interns and their aims have also diversified, for example, a whole class from an agricultural high school as well as a former agricultural corporation employee came to participate in the program. As



Source: NCA "Report of farm internship program"

Fig 1. Interns and agricultural corporations participating the farm internship program of National Chamber of Agriculture in Japan

a result, the number of interns, which was around 200 a year until 2007, increased sharply since 2008 to 689 in 2011 (see Fig.1). This large rise is thought to be influenced by government projects to expand job opportunities in agriculture, as well as growing interest in agriculture as work place. The number of receiving corporations also grew from 60 to 80 corporations until 2007 to 154 in 2011.

2) Method of analysis

Materials analyzed in this study are application forms and reports on the internship provided by participants in the farm internship program, reports on implementation status, grant application form and basic information of farming and internship provided by the agricultural corporations in 2011.

A total of 713 individuals applied for the farm internship program, of which 565 actually participated in the work experience activities (excluding preliminary work experience by those holding job offers to work for agricultural corporations).

Table 3 shows a summary of interns' attributes. 'n' represents the number of respondents (the same applies below). The response rate was high from males, "in 20s" in terms of age, "students" in terms of occupation, "with experience" in terms of agricultural experience, and "agricultural experience" in terms of the aim of participation. The most important point in participating in the experience was the "content of work," followed by "crops" and "exchange of opinions with manager." Most interns learned about the program from the "New farmer center website", followed by "Posters and handouts at school," and "participation in career placement consultation."

124 agricultural corporations received interns, with an average of 5.8 interns per corporation. The number of employees was 18.6 on average (n=111).

Table 4 shows a summary of attributes for the agricultural corporations. The response rate was high for

Table 3. Attributes of Interns

Sex (n=565)	Male	64.6
	Female	35.4
Age (n=565)	-19	14.1
	20-29	64.3
	30-39	15.7
	40-49	4.8
	50-	1.1
Occupation (n=565)	Student	57.5
	Office worker	9.9
	Part-time job	6.5
	Unemployed	22.5
	N.A.	3.5
Agricultural Experience (n=562)	With experience	63.7
	Training in school	27.0
	Helps of farming in one's home	20.1
	Others	17.6
	Without experience	36.3
Aim of Participation (n=524)	Agricultural experience	56.5
	Choosing workplace	31.1
	Agricultural experience and choosing workplace	8.8
	Others	3.6
Important point in participation (up to 2) (n=520)	Content of work	50.6
	Crops	37.3
	Exchange of opinions with manager	32.3
	Management philosophy	27.7
	Region	26.2
	Opportunity of employment	11.3
	Residential environment	6.5
	Atmosphere in workplace	0.4
	Salary	0.2
	Worthwhile job	0.0
	Training and education system	0.0
	Vacation system	0.0
	Social insurance	0.0
Opportunity to learn about the project (n=551)	Website of new farmer center	30.1
	Posters and handouts at school	18.3
	Participation in career placement consultation	14.7
	Introduction from agricultural corporation	14.5
	Class in school	7.6
	Posters and handouts at public employment security office	4.9
	Introduction from friends	4.7
	Others	4.2

"agricultural experience" in terms of the important aims of the interns, "vegetables" for crops and sections to be managed, "agricultural experience and increase of supporters" for aims in participation.

Table 5 shows the kind of experience provided in the farm internship. "Cultivation of agricultural crops" was offered in most internships, followed by "livestock rearing,"

Table 4. Attributes of agricultural corporations

Unit: %

Important aims of intern (n=115)	Agricultural experience	53.0
	Choosing workplace	47.8
	Agricultural experience or choosing workplace	19.1
	Others	5.2
Crops and business (n=113)	Vegetables	70.8
	Rice	30.1
	Fruits	19.5
	Livestock	14.2
	Tourism	11.5
	Flower	9.7
	Others	15.9
Aims of participation (n=100)	Agricultural experience and increase of supporters	83.0
	Securing employees	64.0
	Securing interns	57.0
	Others	8.0

but it also shows that a diverse variety of work experience was offered, such as "sale of agricultural products" and "processing of agricultural products." The duration of the work experience varied from 7 to 54 days, with an average of 12.4 days (n=554).

Of those who participated in the farm internship program, data for 191 interns, whose entries were complete for application forms and reports on the experience, reports on implementation status and grant application form provided by the receiving agricultural corporations, was used for analysis.

The impact of farm internship on businesses was assessed using three indicators, namely the participants' satisfaction level, the management's satisfaction level, and the achievement of employment.

Interns' satisfaction level and managers' satisfaction level was assessed using a five-point scale (5 points for very satisfied, 4 for satisfied, 3 for not sure, 2 for not satisfied and 1 for not satisfied at all). Average scores for interns and managers were 4.43 and 4.19, respectively.

Achievement of employment was assessed by scoring 1 when the intern wished to work full or part time after the internship and the manager wished to offer the position. Otherwise zero score was given. The ratio of successful employment after the internship was 9.95%. 58.1% of the interns considered an agricultural corporation as a place of employment before applying for the internship.

Based on the above, multiple regression analysis was carried out, where explanatory variables were interns' attributes and awareness of the farm internship and finding employment at agricultural corporations, agriculture corporations' attributes, managers' awareness of the farm internship and recruiting participants, and the content of the internship. The dependent variables were the indicators of business impact.

Table 5. Contents of work experience (n=552)

Unit: %

Cultivation of agricultural crops	90.2
Livestock rearing	22.6
Sale of agricultural products	20.8
Processing of agricultural products	17.4
Accompanying manager's off-farm work	12.5
Machinery operation	7.4
Fact finding in relevant organizations	7.4
Community involvement	4.5
Business administration	2.9
Others	18.1

4. RESULTS OF ANALYSIS

Table 6 shows the results of analyzing the business impact factors for the farm internship.

With regards to interns' satisfaction level, "older age group," "inclination to be an agricultural employee" and "awareness of residential environment" had a negative effect, though the explanatory power of the model was low. This also shows that those with higher probability of going into farming may have lower level of satisfaction. On the other hand, "awareness of management philosophy" and "livestock" in crops and business of agricultural corporations had a positive effect. Overall, managers' awareness and the content of experience did not affect the satisfaction level very much.

Concerning the managers' satisfaction level, a positive effect was found such that when the participant was "female" and had a "strong inclination to experience agriculture," the managers had "clear participation aim" and "awareness to value participants who are considering place of employment," and the internship had "long term and the various contents."

As for "achievement of employment," a positive effect was found such that when interns "have agricultural experience or intention to be an agricultural employee" and "have participated in consultation, etc.," managers "value the agricultural experience itself," and the contents of work experience "includes business administration and sale of agricultural products."

In order to clarify the meaning and mutual relationship of these performance variables, variables to show interns' work attitude was created (4 for worked very hard, 3 for worked hard, 2 for average and 1 for did not work hard). The average score was 3.38.

Table 7 summarizes the correlation coefficient among performance variables of internship. First of all, the correlation coefficient between interns' satisfaction level and managers' satisfaction level was not high, indicating that the satisfaction level of both parties did not match. Work attitude had a very high correlation coefficient with managers' satisfaction level, but it was low with interns' satisfaction level. That suggests that managers may feel satisfied when interns work hard, but that the interns may not always feel

Table 6. Factor analysis on the performance of farm internship

			Satisfaction of intern	Satisfaction of manager	Achievement of employment
Variables of interns					
	Age	(year)	-0.020(-2.57)**		
	Sex	Male	-0.193(-1.82)	-0.256(-3.04)**	
	Agricultural experience	With experience			0.096(2.53)*
	Aim of Participation	Searching workplace		-0.199(-1.88)	
		Agricultural experience and searching workplace		-0.370(-2.20)*	-0.147(-2.00)*
	Opportunity to learn about the project	Website of new farmer center			0.110(2.70)*
		Participation in career placement consultation			0.206(3.82)**
		Introduction from agricultural corporation			0.306(4.75)**
	Important point in participation	Residential environment	-0.402(-2.18)*		
		Management philosophy	0.274(2.32)*	0.198(1.99)*	
		Opportunity of employment	-0.283(-1.54)	0.361(2.14)*	
		Content of work			-0.074(-1.99)
	Inclination to be agricultural employee	With inclination			0.114(2.90)**
Variables of agricultural corporations					
	Number of employees	(person)			-0.001(-2.33)*
	Important aims of Intern	Agricultural experience			0.077(2.00)*
		Searching workplace		0.404(4.53)**	
		Any of above	-0.182(-1.57)		
	Crops and business	Livestock	0.232(2.05)*		
		Fruits		0.208(1.78)	
	Aim of Participation	Agricultural experience and increase of supporters		0.466(4.04)**	0.083(1.65)
		Securing employees		0.399(3.13)**	
		Securing interns		-0.349(-2.76)**	
Variables of Internship					
	Terms of internship	(day)		0.018(2.52)*	
	Contents of work experience	Fact finding in relevant organizations	0.283(1.65)	0.422(2.83)**	
		Livestock rearing		0.380(3.98)**	
		Sale of agricultural products		0.199(1.89)	0.099(2.10)*
		Machinery operation			0.118(1.96)
		Business administration			0.377(2.48)*
Constant term			4.963(26.09)**	3.215(18.57)**	-0.203(-2.97)**
Adjusted R^2			0.155	0.350	0.309

Notes: The number in parentheses shows t-value.
** and * mean the statistical significance level of 1% and 5% respectively.
The method of increasing and decreasing the variables (Fin, Fout=2.0) is used for selecting independent variables .
Independent variables except for age, the number of employees, and terms of internship are 1-0 dummy variables.

Table 7. Correlation among performance variables

	Satisfaction of intern	Satisfaction of manager	Achievement of employment	Work attitude of intern
Satisfaction of intern	1.000	0.278	-0.054	0.273
Satisfaction of manager		1.000	0.088	0.703
Achievement of employment			1.000	0.107
Work attitude of intern				1.000

Table 8. Frequency of appearing words in the description of satisfaction

Intern(n=145)		Manager(n=188)	
Possibility:43	Job:13	Opeartion:32	Stimulation:15
Intern:41	Various:10	Positive:27	Other:15
Agriculture:19	Experience:10	Job:22	Engage:14
Work:17	Myself:9	Intern:22	Good:14

satisfied. Correlation with achievement of employment, however, was low with all variables. Generally speaking, a sense of satisfaction and positive work attitude of intern in internship activities were expected to lead to achievement of employment, but no such relationship was identified.

Table 8 shows the result of extracting frequently used terms by analyzing through text mining the reasons given by interns and managers who, for questions regarding satisfaction level, responded "very satisfied" and "satisfied." (IBM SPSS Text Analytics for Surveys 4 was used for analysis.) This indicates that interns gained satisfaction from having various experiences in agriculture, while managers gained satisfaction when interns actively engaged in work and provided positive stimulus to those around them.

At present, interns and managers have different expectations in farm internship, and the factors that defined their satisfaction level also differ. Consequently, it is not always easy to raise the satisfaction level of both parties. In addition, factors that defined the achievement of employment differed from factors that defined the satisfaction level of the interns and of managers, suggesting that it is not easy to conjoin the satisfaction level with achievement of employment.

5. CONCLUSION

Results of the above analysis indicate that the business aspects of farm internships influence the impact on business, suggesting that the impact of farm internships on businesses can be increased by accurately understanding the awareness and characteristics of interns and agricultural corporations, matching both parties and then setting the work experience program appropriately.

It was also revealed that employment through farm internships does not materialize based on the satisfaction level of either interns or of managers, or on a firm intention to find employment or to recruit. What is important is interns' certain understanding of agriculture and the managers' consciousness to broaden agricultural experiences. However, if neither interns nor managers obtain satisfaction from the farm internship, then the sustainability as business will be lost, and the effect of achieving employment will also be lost as a result.

Therefore, it is necessary, first of all, to understand what is expected from the internship by the interns and the managers, and their assessment of the content and the implementation method of the internship. Based on this, effective internship plans, guidelines and manuals for implementing an internship would be necessary.

However, the analysis in this study used business materials concerning farm internships as the data source, and it is not based on survey or participant survey for research purposes. Therefore, business characteristics are mainly external indicators that do not capture participants' motivations and deep psychology. Consequently, interview survey and detailed survey of the participants are needed to enable the research to examine the situation more closely. In addition, Hotta(2010) pointed out that internships are said to have the effect of settling employees and developing their abilities after recruitment, an effect based on the Realistic Job Preview (RJP) theory. Analysis of such an effect requires follow-up survey of the interns who were recruited by the agricultural corporations after completing the internship to determine the process leading up to recruitment and the situation after recruitment. These remain as research subject for the future.

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日本における農業インターンシップ事業の効果に関する研究

木南章[1]・木南莉莉[2*]

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要　約

近年、日本では農業インターンシップへの参加者数が増加傾向にあり、人材育成や経営環境の改善に効果があると期待されている。しかしながら、インターシップの有効性に関する理論的・実証的分析などの総合的研究が極めて不足している。本研究は、インターンシップの理論に基づいて、農業インターンシップの事業効果と事業特性の関係を明らかにすることを目的としている。

分析方法は、農業インターンシップに参加した体験者の体験申込書、体験報告書および体験者を受け入れた農業法人の実施状況報告書兼交付申請書から得られた情報に基づいて重回帰分析およびテキストマイニングによって事業効果の要因分析を行う。分析の結果から、体験者と経営者とでは、農業インターンシップに期待するものが異なっており、それぞれの満足度を規定する要因も異なっている。また、雇用実現を規定する要因も、体験者満足度や経営者満足度を規定する要因とは異なることから、満足度と雇用実現の両立は容易ではないことが明らかとなった。したがって、農業インターンシップを効果的に実施するには、体験者と経営者がインターンシップに対する期待を把握しておくこと必要であり、効果的な体験メニューの作成、インターンシップ実施のガイドラインやマニュアルの作成が求められる。

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キーワード：農業インターンシップ、事業効果、農業法人

[1] 東京大学大学院農学生命科学研究科

[2] 新潟大学農学部

* 代表著者：kiminami@agr.niigata-u.ac.jp