

5. Meat Traceability in China

In China, the institution for food safety has been improving recently, while a traceability system has just started. Some pork companies have had success in establishing cold chains and integrated production systems from farm, to transportation, to sales. Actually, these advanced companies work closely with and are assisted by their local governments.

6. Comparison between Japan and Other Countries

We compared the public support and regulations for the traceability system, their implementations and the voluntary measures by the food industry between Japan and some foreign countries, especially on the following points: 1) particulars and scope of legal regulations, 2) animal identification, labeling and quality control, 3) obligatory matters, 4) targeted animals, 5) share of cost and responsibility by national and local governments, the private sector, and producers (see Table 1). The particulars of legal regulations and obligatory matters are almost identical between Japan and EU, but the Japanese system is distinguished in

that the main part of costs are borne by the national government and a huge amount of money is budgeted in order to guarantee quality and to prevent counterfeiting.

Additionally, the identification system of bovine animals has been introduced not only in EU member countries, but in Australia, Canada, Brazil, Argentina, Mexico and Uruguay as well.

7. Related Publications

Ichida, T. (2005) Traceability System of Meat after BSE in Germany: Institution and Actual Situation, *Research on the Establishment of a Risk Management System for Food and Agriculture on the Viewpoint of Social Science 2, Research Paper of Risk Management Project 3*:

Kondo, H.(2005) Administration for Food Safety by the U. S. Department of Agriculture, Food Safety and Inspection Service, Ibid.

Kawahara, S.(2005) The Institution for Food Safety and the Traceability of Animal Product in China, Ibid.

List of Research Members

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Institutional Design of Agri-Environmental Payment: An Application of Behavioral Economics for Policy Analysis

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1. Purpose

Agri-Environmental Payment is a policy which could bring out the multifunctionality of agriculture. It is necessary to design institutions which farmer can assent to and attend in a positive manner, when policy makers make consideration an aspect of volatility to attend a scheme. However, it is not easy to clarify the relationship between amount of subsidy and effect. Specifically, some cases in Europe say that the amount of subsidy and policy effect have an inverse relation. Consequently, this research was conducted to get policy implications as follows: (1) when total amount of (inter temporal) subsidy is same, which payment scheme is preferred by farmers; and (2) institutional design of agri-environmental policy which can reduce farmer's excessive risk aversion strategy.

2. Process

This paper uses behavioral economics for its theoretical base. Behavioral economics is a field which combines cognitive psychology and

economics. It is gathering attention due to Daniel Kahneman's Nobel prize in 2002. Unlike neo-classical economics, behavioral economics is not based on homo-economics. Moreover, behavioral economics is being applied to policy analysis gradually as Behavioral Law and Economics, especially in the US. Data used in this paper is gathered from questionnaires handed to farmers in Yonezawa, Yamagata.

3. Brief Results

Two assumptions were set by theoretical research on behavioral economics and existing case studies in Europe. The following are the two main results found.

Firstly, farmers do not prefer inter-temporal payment systems in which the amount paid per year is small at the early stages, then increases. However they do not prefer the case that is widely supported by theoretical models and labor-economics research, but prefer a constant amount of payment (see Table 1). In recent cases in Europe where agri-environmental is a common measure, some indications said that monetary compensation for

Table 1. % Share of Selected Payment Schemes

	1st year (present)	2nd year	3rd year	4th year	5th year	SUM	Exponential Discount	Hyperbolic Discount	% share
Constant	5,000	5,000	5,000	5,000	5,000	25,000	20,060	13,709	77
Increasing	1,250	1,250	1,250	1,250	20,000	25,000	18,019	11,089	3
Decreasing	20,000	1,250	1,250	1,250	1,250	25,000	23,962	22,203	6

farmers participating in a program continually should smaller than those who newly participate, due to characteristics of agri-environmental payment which compensates monetary loss caused by environmental conservation or extensive agriculture. For example, in the case of North-Rhine Westphalia, Germany, the amount of subsidy per hectare is the largest in the 1st and 2nd years, decreasing through the 3rd to 5th years. According to the results of this paper, that policy was designed mainly out of concern over the fairness of monetary compensation, not on effectiveness of the highest possible participation. It is implicated that policymakers should consider the efficiency and effectiveness of agri-environmental policy.

Secondly, farmers do not follow expected utility theory, which is commonly understood in modern economics. According to this study, farmers prefer low-risk alternatives, even if expected revenue is low. Moreover, two types of farming methods (Farming A and one of the Farming B) which indicated min, mean and max as recorded in Table 2, farmers do not necessarily choose the larger expected utility alternative. Moreover, some differences are found in risk premium which farmer want, even when the same value was presented, with or without presentation of positive effects of own practices for the environment (Table 3). Generally it is called "Flaming effect". In fact, farmers want a large-enough risk premium when their own practices could have an impact on the environment.

Additionally, it is apparent that farmers evaluate risk too highly, due to the way of explanation of agri-environmental policy and expected income. Consequently, it is implicated that policymakers should not explain "your in-

Table 2. Provided alternatives and its risk in questionnaires

	Min (1,000yen)	Mean (1,000yen)	Max (1,000yen)	Risk premium compare with A	Risk abatement
Farming A	100	1000	1900		
Farming B1	240	760	1280	240	0.00379
Farming B2	310	865	1420	135	0.00180
Farming B3	370	960	1550	40	0.00053
Farming B4	420	1030	1640	-30	-0.00041

Table 3. Effect of Environmental Flaming (%)

Risk premium (1,000yen)	Environmental Flaming	Without Environmental Flaming
240<RP	29	10
135<RP<240	19	0
40<RP<135	14	20
-30<RP<40	0	30
-30<RP	24	30
Unknown	14	10
SUM	100	100

come level *could decrease* by X%", but that "your income level could be 100-X%". Human beings feel different even if the same facts are explained. Morals must be reserved to apply this approach, because it is based on the fact that human beings are not rational. But by using this kind of approach, some significant effects were found in suit insurance institution and 401(k) in the US.

4. Presentations and Use of Results, etc.

Sasaki, H. (2005) "Institutional Design of Agri-Environmental Payment : An Application of Behavioral Economics for Policy Analysis", *Working Paper on PRIMAFF Research Project: Policy Analyses and Evaluation with respect to Multifunctional Roles of Agriculture*. (in press)