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**Quantifying the Economic Benefits of the Non-profit
Organization in Japan
-Setting the Non-profit Performance to the I-O Table**

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Quantifying the Economic Benefits of the Non-profit Organization in Japan –Setting the Non-profit Performance to the I-O Table (Summary in English)

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I. Introduction

As social needs become more diversified and the market economy makes further inroads, peoples' expectations for non-profit organizations (NPOs) have grown. In the past few years Japan has experienced a significant surge of various nonprofit activities led by the civil sector, in fields where services by the government and business have not been sufficient, such as community building, recycling, and welfare services. These activities have gathered momentum since the Great Hanshin-Awaji Earthquake in 1995 and the enactment of the NPO law in 1998.

Although media, books and reports introduced these NPO activities, there are quite a few which now provide us with macro-based and quantitative information. In this paper, we quantified the non-profit economic activities in Japan by resetting the non-profit performance to the Input-output Table.

II. Previous Research and the Premise of Quantifying the NPO sector

1. The area of the NPO sector to be estimated

To define the nonprofit sector, it may be useful to use the legal form of definition. Under this definition are the following types of organizations: charitable or public organizations, social welfare corporations, private school corporations, religious corporations, medical corporations, special public corporations, charitable trusts, cooperatives, specified nonprofit cooperatives¹ and unincorporated organizations. Here, we take specified nonprofit cooperatives and unincorporated organizations as objects of

¹ Each is established under Civil Code Article 34, the Social Welfare Law, the Private Schools Law, the Religious Corporation Law, the Medical Service Law, specific legislation, Trust Act Article 66, the Combination Acts, and the NPO law, which was enacted in 1998, respectively.

study and define them as “the NPO sector”. These two types of organizations are initiated by individuals, not influenced by public and private business sectors. They provide individuals with opportunities for actively participating in a social life; thereby, they have recently received more attention than other organizations.

2. Study for quantifying macro-based NPO activities

Estimation of NPO activities in Japan has been conducted by JHCNSP²(1994) and the Economic Planning Agency (1998)³. They estimate all the economic activity of the above-mentioned types of organizations. However there are no agencies that study nonprofit cooperatives and unincorporated organizations, and none that verify how many there are or their macro-based economic transactions.

3. Using the I-O Table for quantifying macro-based NPO activities as a strong point

The Input-output (I-O) Table grasps the conditions of various industries producing goods and services, and the consumption of these produced goods and services by industries, households and exports during one year in a certain country. The I-O Table shows this international relation in the form of a matrix. Therefore, by using the framework of the I-O Table, it is possible to analyze the volume of the production activities in the NPO sector, and transactions of goods and services conducted between the NPO sector and the other sectors. However, in the current I-O Table, NPO activities are estimated as a part of the activities of a “producer of private non-profit service for households or for industries”, which means it is impossible to analyze the activities of specific nonprofit cooperatives and unincorporated organizations. In addition, non-market-based activities are not considered in the current I-O Table.

For these reasons, we tried to produce a new I-O Table, which includes the NPO sector that then makes it possible to analyze the macro-based and quantitative NPO activities.

III. Setting NPO Activities into the I-O Table

1. Estimation process

Setting NPO activities to the I-O Table was conducted in the following ways, based on the formal method of compiling work for I-O Table:

- i) Estimating the Control Total of the NPO sector;
- ii) Estimating the inputs and outputs of the NPO sector;
- iii) Incorporation into the I-O Table and reconciliation of the I-O values;
- iv) Completing the new Transaction Table.

2. Assumption

Available data is so limited that we conducted the estimation work based on the following assumptions:

- There was no major change of production in each industrial sector during 1998 and 2000;

² The Johns Hopkins Comparative Nonprofit Sector Project

³ “The estimation of NPO production in Japan”(1998)

- There were no considerable changes of input and output in the NPO sector during 1998 and 2000;
- The input-output structure can be the same between a specified nonprofit corporation and an unincorporated organization.

3. Data resources

- “Survey for activities of all the NPO corporations in 2001”, RIETI (2001);
- “Report of the Basic Survey on NPOs in 2000 (Shimin Katsudoudantaitou Kihontyousa Houkokusyo)”, Secretariat of the Cabinet (2000);
- “Updated nationwide I-O Table at producers’ prices in 1998, 184th sector, ” Ministry of Economy, Trade and Industry (2002);
- Statement of Accounts of the specified nonprofit corporations (2000fy);
- The other data was obtained from interviewing NPO activists.

4. Estimating the Control Total of the NPO sector

In setting the NPO sector into the I-O Table, it is necessary for its Control Total to have the highest accuracy possible. Unpaid work, volunteer efforts, donated goods and services to the NPO should be included, as they are considerably large. On the basis of the above point, the Control Total of the NPO sector was estimated by the following:

- Dividing the NPO sector into 8 units⁴ by an active-based classification, dividing NPO activities into market-based and non-market-based activities, and then estimating each unit of production separately;
- Estimating market-based productions by:
(average expenditure of each unit) × (the number of the organizations in each unit);
- Estimating non-market-based production and others; for unpaid work and volunteer efforts by:
(average working hours of each unit) × (average wage of paid worker’s of each unit);
- Finally integrating each unit into the NPO sector.

Figure 1 is the estimation results. The Control Total of the NPO sector is estimated to total 694 trillion-yen in 2000. The non-market-based production is 62.3%.

Figure 1. The estimation result of the Control Total of the NPO sector

(million yen)

	Market-based production	Imputed Non-market-based production				Total
		Unpaid staff	Volunteer efforts	donated goods and services		
				donated offices	Others	
Sub Total	261,576	77,279	161,157	9,495	184,606	694,113
Health and medical service	27,576	8,628	10,744			
Social Welfare	78,220	20,742	71,752			
Education, culture and sports	56,191	12,583	49,065			
NPO support, gender equality, human rights and peace	8,353	2,066	2,926			
Town and regional promotion	34,248	10,552	6,531			
Environment affairs	13,150	7,300	4,309			
International cooperations	27,066	7,952	6,929			
Others	16,772	7,456	8,901			

⁴ Classified by “Report of the Basic Survey on NPOs in 2000, Economic Planning Agency; a)Health and medical service, b)Social welfare, c)Education, culture and sports, d)NPO support, gender equality, human rights and peace, e)City and regional activity, f)Environmental affairs, g)International cooperation, h)Other.

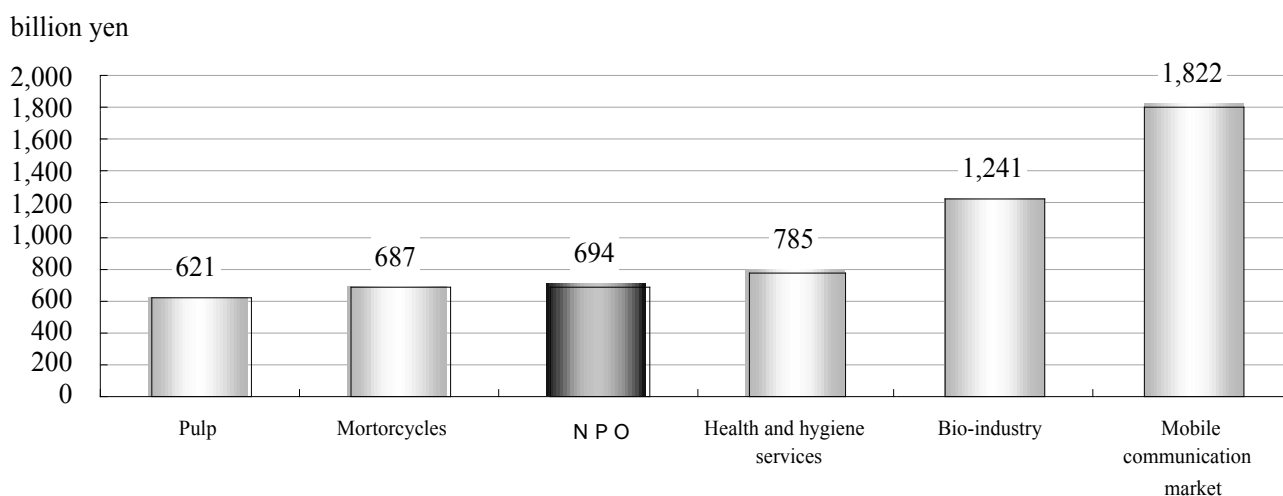
5. Incorporating the NPO sector into the I-O Table and reconciling the I-O values
 - Using the following method, we incorporated the NPO sector into the I-O Table, and then completed the work.
 - i) Estimating of the ratios of Input and Output of the NPO sector
 - Conducted by the formal method of compiling work for the I-O Table.
 - ii) Incorporation into the I-O Table and reconciliation of the I-O values
 - Estimating the Input (column1) and the Output (row 8) of the NPO sector by multiplying the ratios of Input and Output and the Control Total together.
 - Then, incorporating the NPO sector (8×1) into the I-O Table of 184 sectors, and balancing it to make the I-O Table (192×185).
 - Finally, aggregating the I-O Table (192×185) to that of 56 sectors, then completing the I-O Table for analysis of NPO activities.
 - iii) Compiling various coefficients and supporting tables
 - Compiling input coefficients, a Leontief inverse matrix, induced domestic products, production inducement coefficient, and a production inducement distribution ratio.

IV. Analyzing the NPO Sector Using the New I-O Table

1. The production of the NPO sector

The amount of domestic production from the NPO sector was 694.1 billion-yen in 2000, which was equivalent to 0.08% of the gross production for all industries. Comparing this to other industries, the production of the NPO sector is about the same as pulp, motorcycles, and health and hygiene services. However, it is much smaller than the production of an emerging market such as bio-industries (1.24 trillion-yen) and the mobile communications market (1.82 trillion-yen).

Figure 2. Comparison of the production of each industry

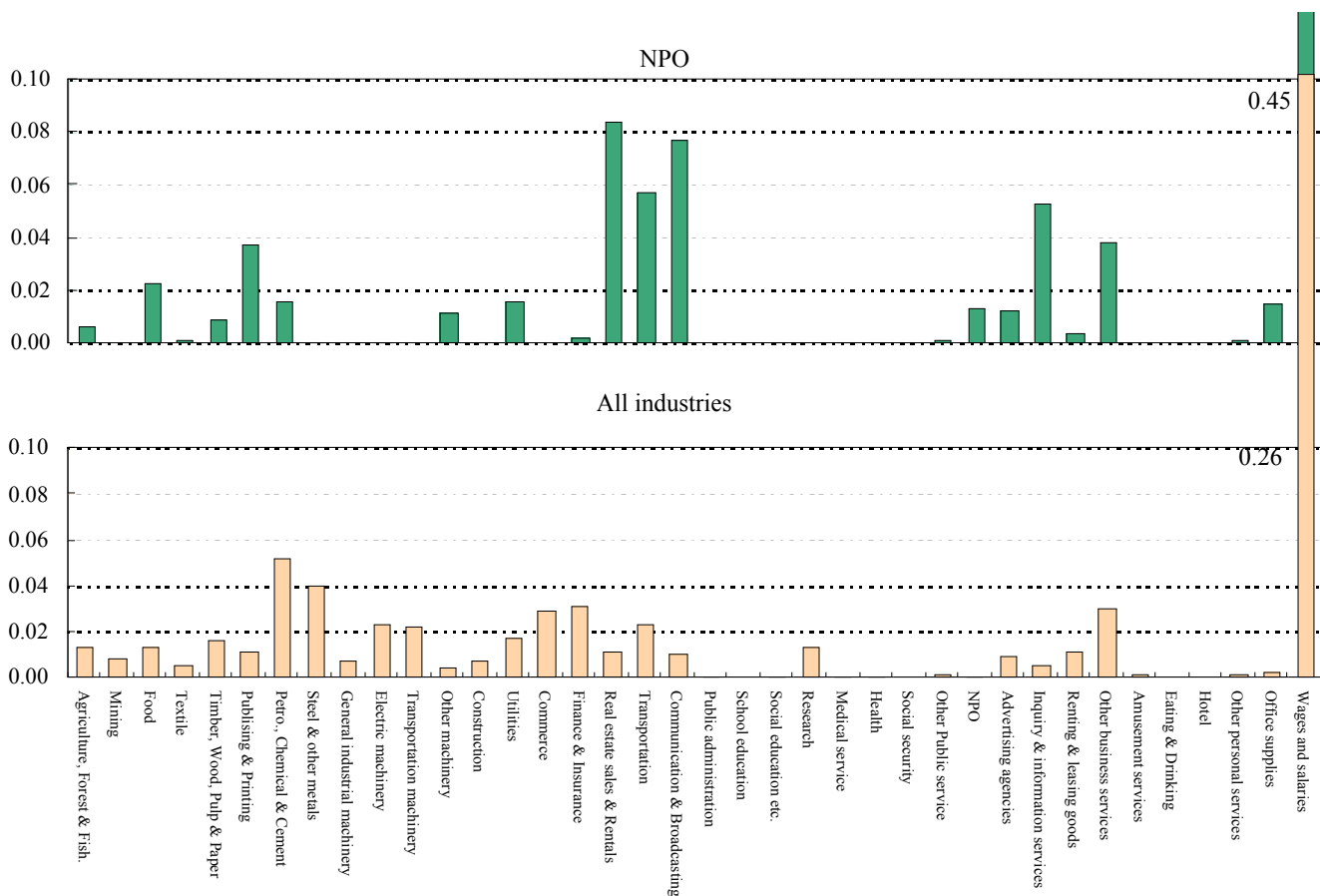


2. The Input-Output structure of the NPO sector

i) Input structure:

Figure 3 shows the Input coefficients of the NPO sector and the industrial average. In the NPO sector, the ratio of intermediate input and value added are estimated at 48.1% and 51.9%, while they are estimated at 43.1% and 56.9% in the industrial average. “Real Estate Sales and Rentals” and “Service relating to information” are outstanding in intermediate input, and “Wages and salaries” occupies 86.9% in value added. These suggest that development of the NPO sector can induce considerable multiple effects in the industrial sector, especially to the service sector, and it will provide job opportunities due to its high labor intensity.

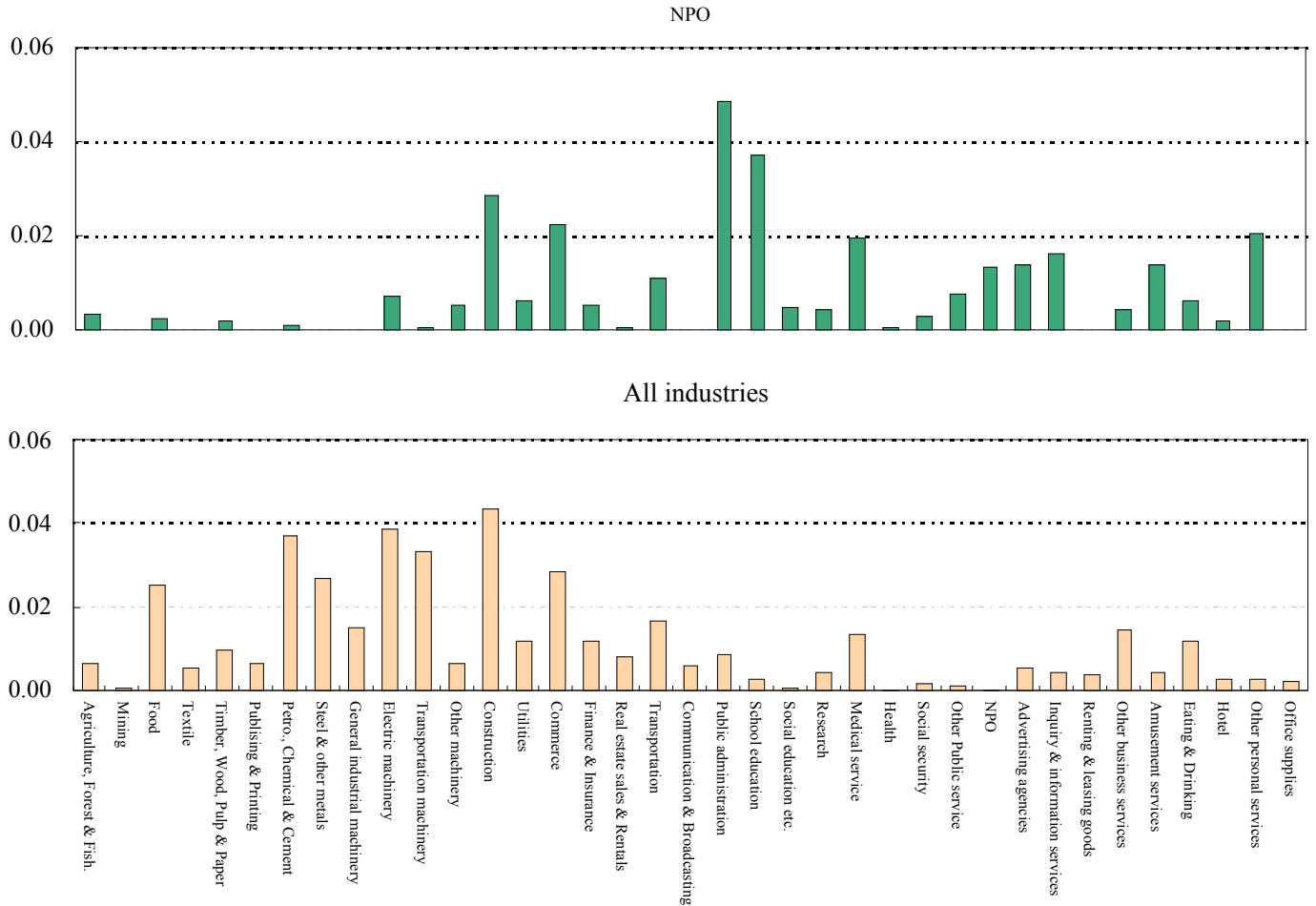
Figure 3. Comparison of the Input coefficients of the NPO sector and the industrial average



ii) Output structure:

Figure 4 shows the Output coefficients of the NPO sector and the industrial average. In the NPO sector, the ratio of outputs of the endogenous and the exogenous sectors are estimated as 31% and 69%, while 41% and 59% is the industrial average. The ratio of public and personal service and consumption expenditures of households are high in each sector. The NPO sector has few economic transactions with the industrial sector, although it has many personal transactions. However, it is expected to become larger due to the increased needs for public and personal services, such as social education and welfare services in an aging society.

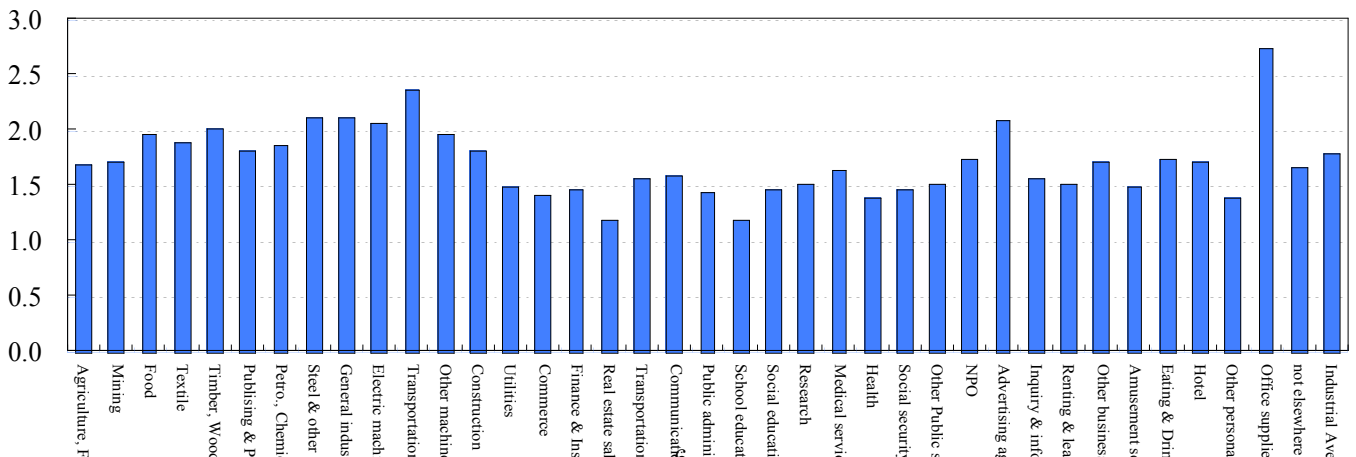
Figure 4. Comparison of the Input coefficients of the NPO sector and the industrial average



3. Repercussion effect by unit demand for each industry

Figure 5 shows the repercussion effect by unit demand for each industry. It is found that the repercussion effect of the NPO sector is considerably higher in comparison to the other service sectors, although it is a little smaller than that of the industrial average.

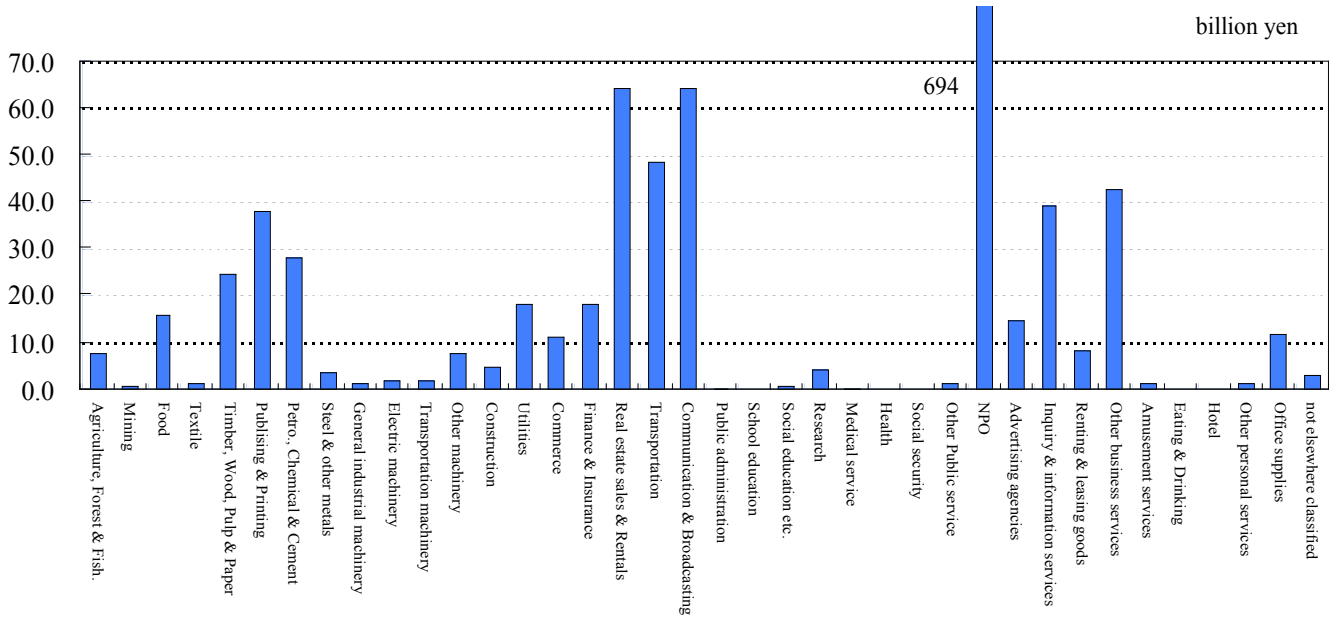
Figure 5. Repercussion effect by unit demand for each industry



4. Induced domestic products resulting from the NPO sector's production

Figure 6 shows the induced domestic products resulting from the NPO sector's production. The NPO sector's production of 694 billion yen brings 492 billion yen to the production of other sectors. In particular, it is relatively high for sectors such as real estate rentals, Transportation and Telecommunication, Inquiry and information service, and Publishing and printing,

Figure 6. Induced domestic products resulting from the NPO sector's production



V. Simulation Analysis

Many fields in the area of society, such as medical welfare, social education, community building and recycling, are all expected to experience growing demands. This is expected to spur development of the NPO sector, which is in a comparatively advantageous position for providing these services and goods. Here we tried to forecast the scale of the NPO's production, based on expanded demand, by using the new I-O Table.

1. Model and scenarios for simulation analysis

Using the following model of conditions and scenarios, we forecast the state of the NPO sector in 2010.

[Prerequisite condition]

i) We account for the change of induced domestic products (X) that can result in changes only to the final domestic demand (F_d) structure. This can be estimated by:

$$X = [(I - \hat{M})A]^{-1} \cdot [(I - \hat{M})F_d + E]$$

X : Induced domestic products, $[(I - \hat{M})A]^{-1}$: Inverse matrix of input coefficient, \hat{M} : Import coefficient, E :

Export coefficients, F_d : final domestic demand

ii) In addition to i), we account for the collateral repercussion effect due to increased compensation for employees (V). This can be estimated by:

$$X_2 = [(I - \hat{M})A]^{-1} \cdot (I - \hat{M})F_d^c, \quad F_d^c = \alpha \cdot V, \quad V = w \cdot X_i$$

X_2 : induced collateral domestic products, α : average propensity to consume (setting 0.93 in 2010), V : compensation for employees, w : compensation ratio for employees

[Scenario 1] 1.5% growth is steadily achieved from fiscal 2004 led by private demand and amid structural reforms based on the “Midterm Economic and Fiscal Outlook” released by the Economic and Fiscal Advisory Panel.

[Scenario 2] In addition to Scenario 1, large demand will be created due to growth in such fields in the Japanese economy as the environment, welfare and information services.

[Scenario 3] In addition to Scenario 2, there is also the assumption that improvements to services in the NPO sector will bring about a 10% shift from the public sector.

2. Results

The scale of NPO sector’s production is expected to expand to 1.7844 trillion yen in the next ten years due to growth in final domestic demand. More production will also be brought to the NPO sector by its shift from the public sector due to improved service.

Figure 7. Forecasted production of the NPO sector

Year & Scenario		NPO Production	Growth over 10 years	Percentage of Overall Production
2000		694.1 billion yen	-----	0.08%
2010	Scenario 1	865.6 billion yen	1.2 times	0.08%
	Scenario 2	1784.4 billion yen	2.6 times	0.16%
	Scenario 3	6588.4 billion yen	9.5 times	1.03%

VI. Conclusion

In this paper, we were able to develop a new applied area for analysis with the new I-O Table that we created for the analysis of NPO activities. With this Table, we were able to reveal macro-based and quantitative information about these activities as follows:

- We found that the amount of domestic production from the NPO sector was 694.1 billion-yen in 2000, which was equivalent to 0.08% of gross production for all industries. Non-market-based production occupied 62.3% of its production.
- The NPO sector is highly labor-intensive, which comes from the high input ratio of wages and salaries. Its development depends on the increased demand from social lifestyle areas, such as

social education and welfare services, which is seen by their high output ratio.

- The scale of NPO sector's production is expected to expand to 1.7844 trillion yen in the next ten years due to growth in final domestic demand, particularly in such fields as the social lifestyle area from the aging society

Although we obtained abundant information from this work, there were many impediments to progress. Particularly, there were problems gathering data. In Japan, there are many varieties of data and information about NPO activities. However, most of them are fragmented and are not systematically ordered.. To further Marco-based and quantitative analysis of NPO activities, a study should begin by integrating the NPO-related information into one database.

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