

# Who are protected in the Public Assistance Act? : Empirical Evidence from JSTAR

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## Abstract

In this paper, We examine that what attributes does promote to receive the benefit of the Public Assistance Program using 2007, 2009, and 2011 survey of Japanese Study of Aging and Retirement. Main results are as follows. Earning capability of the elderly and the support from family has a weak effect on the behavior, but the residential style of the elderly has strong effect the probability of receiving. Expenditure for addiction goods has ambiguous effect on the Assistance. And preference for a necessity of the poor has significant effect in our estimation. Physical health condition has impact for receiving the benefit, but mental health has more massive effect on the Public Assistance.

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## 1. Introduction

Public Assistance Act is a last resort of social security system, which guarantees the national minimum standard of living based upon the right to life in The Constitution of Japan. There is a doubt, however, in regard to the achievement level of the Public Assistance System for the purpose that guarantees the national minimum. Relative poverty rate in Japan has been known to remain at a high level in international comparison. In addition to that, the protection rate of the system, which is defined as the ratio of the number of recipient households and the total households, is very low at 32.1%, and also the capture rate, which is defined as the ratio of the number of recipient households and the low-income households who are below the minimum living standard and should be protected with the system, although there are some variance with using statistics, it has remained at a level low level, 29.6% from 15.3% (Ministry of Health, Labour and Welfare, Public Assistance Division (2010), “Estimation on the Number of Low Income Households who Less than Minimum Standard of Living in Japan”) In other words, the most part of the poor who could not live with standard level in this country do not use the Public Assistance System, and live on their own. Therefore, it is natural question whether the poor citizens could enjoy the right to live with national minimum level in this country where the welfare programs are not effective for the people to be protected.

This situation gives rise to another simple question. That is, who could be protected under the Public Assistance System? A tiny part of low-income households who are below the standard defined as eligible for the system could be protected under the system. What attribute does households have who are receiving the benefit program actually? Not all the poor households submit an application form to the welfare office. Not all the applicant could receive the benefit. Among the poor households, specific households make an application for the protection. And if and only if the applicants pass the assessment and means

test by welfare office, the applicant can receive the program benefit. Grasping what type of household could get the protection from the system actually through the application procedure is most basic, substantial information to understand the Public Assistance System in Japan.

In this article, we examine that what attributes does promote to receive the benefit of the Public Assistance Program using 2007, 2009, and 2011 survey of Japanese Study of Aging and Retirement, JSTAR the panel study elderly people aged 50 or older conducted by the Research Institute of Economy, Trade and Industry, Hitotsubashi University, and, more recently, the University of Tokyo. As far as we know, there is few empirical study that focus on the determinant to receive the Public Assistance Program in Japan using micro data<sup>1</sup>. This shortage of empirical study on the Public Assistance Program is attributable to the limitation to the access for microdata set of households, although access environment to the dataset is improving in recent years. Especially, there are a few surveys including the beneficiary information of the Public Assistance Program. In this study, we will approach to this question with microdata surveyed under the sophisticated questionnaires both for beneficiary and non-beneficiary, although the survey covered only the elderly in Japan.

The configuration of this paper is as follows. In Section 2 below, we refer the related literature with this study. In section3, the explanations are made regarding outline of the Public Assistance Program in Japan. In Section 4, we organize the determinants of the application for the program. In Section 5, the estimation and discussion about the results. A conclusion is given in Section 6.

## 2. Related Literature

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<sup>1</sup> In the field of social welfare study, there are some empirical studies on the Public Assistance Program using microdata extract from management data of welfare offices in the specific region. For instance, see Michinaka(2009).

Almost of empirical study on the Public Assistance Program in Japan use cross-section or panel data aggregated in local government or administrative unit under the limited circumstance for data access. In recent years, many studies focus on the program benefit and incentive for labor supply. Tamada and Otake(2004) examine whether support program for self-reliance by Osaka prefecture stimulate the beneficiary's incentive to work using cross-section data aggregated in 44 welfare offices unit in Osaka prefecture. They showed that Osaka-originated support programs for self-reliance did not affect employment rate of the beneficiary in the region. Abe and Tamada(2007) investigated whether the regional differences of labor force participation rate of minimum educated male could be explained as a differences between the amount of the Public Assistance Program benefit and the minimum regional wage or average wage of part-time labor. Abe and Tamada(2007) showed that, using regional aggregated data of Employment Status Survey of Ministry of Internal Affairs and Communications, the minimum regional wage have no effect on the labor force participation rate, but regional average wage of part-time labor raise the participation rate significantly. And Tamada and Mori(2013) examined correlation of the benefit of Livelihood Assistance in the program and the real consumption level in each region. Using Family Income and Expenditure Survey of Ministry of Internal Affairs and Communications, Tamada and Mori(2013) revealed that the differences in commodity prices between regions would be reflected in regular revision on the benefit of Livelihood Assistance, but the differences in consumption level between each regions do not affect on the revision significantly.

Many articles in the United States and European countries focus on the relationship between the labor participation incentive and the benefit. However, it is stand out that the most studies in the United States are using the luxury microdata set of households. There are two representative assistance programs in the United States, which are Supplementary Security Income (SSI) and Temporary Assistance for Needy Families (TANF). SSI is a program that provides the benefit

to low-income people who are either aged or disabled. And TANF is a program that provides the benefit to low-income single parent households and succeeded the Aid to Families with Dependent Children (AFDC) program in 1996, providing cash assistance to indigent families. The benefit of TANF is different between states, and each state can impose the income restriction on the benefit uniquely. Many researchers are making good use those events effectively as an experimental environment.

Schoeni and Blank (2000) is one of the major research literatures on this field. Schoeni and Blank (2000) analyze the relationship between the welfare reform in 1996 and some indicator of poverty and labor market using DID method. They found that 1996 reform did not affect on the labor supply of indigent families, but rise in total family income and a decline in poverty. In contrast, McKernan et al.(2000) also examine the effect on labor force participation of 1996 reform with DID focusing on the variation of city size. They showed that the system reform to TANF raised the labor market participation of single mother families<sup>2</sup>.

Neumark and Powers (2000) and Neumark and Powers(2005) examine the effect of SSI on labor supply in the United States. They confirm that the benefit of SSI reduce both of the probability of labor force participation and working hours using cross-section microdata for the former study and the census survey as a panel dataset for the later study.

As mentioned above, Almost studies in the United States on the SSI or TANF analyze the relationship between the benefit and labor supply or consumption behavior. Off course, it is certain that rich circumstance for the microdata set assist those studies. However, we have to mention to the differences in entitlement situation between the US and Japan. In the United States, the application condition for the program is more severe than Japan, but the benefit is entitled nearly automatically if the applicant satisfy the condition. In contrast, the poverty policy in Japan have restricted for the poor to apply the program, or a little

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<sup>2</sup> See Moffit (2002) as a broad survey on empirical studies about labor supply and AFDC or TANF.

entitlement have took place. This is an obviously unique situation for the policy making. We convince that simple question on the attributes characteristic of the applicant for the Public Assistance Program under low-protect rate and low-capture rate have significance for the poverty policy making in Japan.

### **3. Outline of the Public Assistance Program in Japan**

#### **3.1 The Benefit**

The purpose of the Public Assistance Program “is Act is for the State to guarantee a minimum standard of living as well as to promote self-support for all citizens who are in living in poverty by providing the necessary public assistance according to the level of poverty, based on the principles prescribed in Article 25 of the Constitution of Japan.” (Article 1 of the Public Assistance Act) Guaranteeing a minimum standard of living is a duty of Japanese National Government, but the administration work is classified as the statutory entrusted functions of the local government where is more close to citizen life. The application form must be submitted to the welfare office in each region.

There are three principles and four basic rules in the program, which are stated in the Act. “All citizens may receive public assistance under this Act in a nondiscriminatory and equal manner.” (Principle of Nondiscrimination and Equality, Article 2) And “the minimum standard of living guaranteed by this Act shall be where a person is able to maintain a wholesome and cultured standard of living.” (Principle of Minimum Standard of Living, Article 3) Furthermore, “public assistance shall be provided based on a requirement that a person who is living in poverty shall utilize his/her assets, abilities and every other thing available to him/her for maintaining a minimum standard of living.” And “Any support given by a person responsible for support prescribed by the Civil Code and any assistance prescribed by any other Act shall be provided in precedence to public assistance under this Act.” (Principle of Supplementary Nature of Public Assistance, Article 4) The above is three principles of the Program.

The four basic rules are as below. “The provision of public assistance shall start based on an application filed by a person requiring public assistance, a person responsible for his/her support or any other relative living together.” (Rule of Public Assistance Based on Application, Article 7) “The standard set forth in the

preceding paragraph shall be one that sufficiently satisfies but shall not exceed the demand pertaining to a minimum standard of living, taking into consideration the age, sex, household composition and location of the person requiring public assistance and any other necessary circumstances according to the type of public assistance.” (Rule of Standard and Extent, Article 8) “Public assistance shall be provided effectively and appropriately by taking into consideration the differences between the actual needs of individuals or households, such as the age, sex and health conditions of the person requiring assistance.” (Rule of Conforming to Individual Needs, Article 9) “The need for and extent of public assistance shall be determined on a household basis.” (Rule of Public Assistance on a Household Basis, Article 10)

Under the principle and rules mentioned above, the beneficiary could be provided eight types of benefit in cash or kind. The type of public assistance shall be as follows. Livelihood assistance is for expenses needed for daily life. The base amount of livelihood assistance is calculated with age, household size, and place of residence. Education assistance is for charges for school supplies needed until completing compulsory education. Housing assistance for rent for apartment. Medical assistance is for expenses for medical services. Long-term care assistance is for expenses for nursing care services. Maternity assistance is for expenses for delivery of baby. Occupational assistance is for charges for vocational training necessary for getting employed, including expenses to enter a secondary school. And finally, there is funeral assistance.

The standard amount for public assistance is defined as total amount of those assistances. Surplus of benefit do not come from the program because only necessary benefit should be provided with rule of Conforming to Individual Needs, and rule of Public Assistance on a Household Basis. In the application procedure, the welfare offices examine the carrying capacity of those responsible for dependent family members and assess the possibility of finding employment. Moreover the offices take place means test on bank deposits and postal savings, insurance policies,



property.

Therefore the beneficiaries are not able to hold any asset unless special provision on specific asset holding is permitted. At the same time, the beneficiaries are not able to hold any luxuries that violate the Rule of Standard and Extent. For example, the beneficiaries cannot have a car or air-conditioner without special circumstances.

### **3.2 Trend of the Benefit**

This two decades, it has shown an increasing trend in both benefit costs and beneficiaries number almost consistently, and total welfare benefits expenses in FY2012 record high amount, 3,723.2 billion yen. The number of beneficiary households has reached 1.51 million households; this is a new record high in of the system. (Fig.1 and Fig.2)

That rapid growth of the Public Assistance Program is reflected by deterioration in employment environment of non-regular workers. However, more important factor is aging population structure as is evident from the data. Main part of the beneficiary is composed of the elderly households, and the number of that is growing consistently.

Japanese national government expense the three quarters of the total benefit in every year and local government should bear the rest. The burden of local government, however, is covered with transfer from national government as a local allocation tax grants. So, there is little financial burden of local government for the program in totally. But, Hayashi (2011) pointed out that the amount of the transfer for local government do not calculated accurately with the condition of the benefit in each region. Especially, the protection rate of big city is higher than small city areas. So, it is highly likely that the lack of financial resources of the program have happened in big city area.

#### 4. Determinants for Application Behavior

Firstly, the applicant's ability to earn in labor market is essential. Earning ability has correlation with their asset accumulation. The more financial asset they have, the less probability they apply for the program. Off course, age is important factor for application condition. Aging deteriorate the ability to earn in labor market, and is likely to decrease in amount of savings and assets. The program require for the applicant to exhaust all of their wealth with Principle of Supplementary Nature of Public Assistance. In this sense, aging is one of main factor to order the condition for the program.

Secondly, Municipality of residence could affect the decision on the program. As mentioned above, local governments are responsible for public assistance management. Local governments set up welfare offices and assign a caseworker to each recipient household. Local governments are also responsible for finance to the system. 75% of the expenditures for the public assistance are financed by the central government and 25% by the local governments. And (In theory) almost burden of the local government also are subsidized from the central government through the local tax allocation system. Hayashi (2010), however, pointed out that subsidies from the central government are insufficient to finance the program, especially for urban areas. In addition to that the subsidies from the national government go to the general account of the local government, not to the special account for welfare program. So, municipality government has incentive to restrain the expenditure for the program. Actually, social workers of the Welfare Office usually give "advice" for applicant to the program, especially for young, and relatively young applicants who may have a capacity to work. If the welfare office accepts the application and if the applicant satisfies the condition, the local government must pay the benefit. So, social workers sometime guide the applicants to self-help decision intentionally. This phenomenon is called "Defense Operation at the Border Line" in some news media. Although the existence of this

operation is reported in some news media, it is not yet confirmed in empirical studies, especially microeconomic studies. This study will check whether this effect exists in the system with JSTAR dataset.

Thirdly, residential style of the elderly, especially, coresidence with family is a main factor to maintain their stable life. It should be noted that the duty of support relationships in the Civil Code of Japan assumed that it is the strong duty of support relationship to child and spouse, but the relatively weak duty of support relationship to their parents. Transfer from child to parent is not rigid duty if they live separately; therefore, residential condition of the elderly became more important factor to determine for the program.

Fourthly, Earning ability of children is a main factor for the transfer from them. As mentioned above, generational transfer from children is possible if they have enough financial resources. Therefore, productivity or income level of their children is very important.

The fifth is pension benefit of them. Public pension for employee in Japan has an earning related component; therefore the pension has a strong function to keep stable life.

The sixth is health condition. Changing for the worse in health or fitness is a shock for the elderly to exist from labor market. And illness is a cause of unexpected expenditure in life. Especially, chronic sicknesses deteriorate their ability to work.

The seventh factor is the elderly's life custom. Especially, Consumption for addiction goods, like an alcoholic drink or tobacco, hinders the rational choice for long time. Expenditure for the addiction goods may affect on the saving path in lifecycle, so that enhances the probability to apply the program.

Finally, we examine household's rational choice for benefit of the program. We use the simple consumers' problem choosing optimal solution between a luxury good and a necessity. Assume that two type households who have different preference and same income exist in this economy. (Fig. 4) Household A has a

demand function that is relatively elastic for a necessity. Household A's optimal choice is depicted in equilibrium  $E^A$ . In contrast, Household B has a demand function that is relatively elastic for a luxury. Household B's optimal choice is depicted in equilibrium  $E^B$ . Obviously, Household B consumes more necessity than household A.

When unexpected shock that decrease income of households depicted as a blue line in the figure, consumers must optimize their choice under the new budget constraint. However, both households could get alternative budget constraint in this economy, which is the Public Assistance System. The alternative budget constraint is depicted as a kinked red line in the figure. Assume that if consumer pays all of the livelihood assistance for a necessity, they can consume more necessity than the case of decreased income. Consumers, however, cannot consume the luxury beyond the limit of the system because consumers are subjected to the Rule of Standard and Extent. Under those circumstances, household A decides that they consume with their own earnings, household B decides that they apply the Public Assistance Program.

Implication of this simple model is that consumer who has strong preference for necessity is tending to apply for the Public Assistance Program voluntarily in comparison among same consumption level households.

## 5. Estimation

In this section, we examine the hypothesis mentioned above with regression analysis using the JSTAR microdata set. The estimation model is as below:

$$Welfare_{i,t} = \alpha_{i,t} + \beta_{i,t}x_{i,t} + \gamma_{i,t}h_{i,t} + \nu_{i,t}f_{i,t} + \phi_{i,t}g_{i,t} + \delta_{i,t}p_{i,t} + \varepsilon_{i,t}$$

where the explained variable,  $welfare_{i,t}$ , is a dummy variable that take 1 when the elderly is provided with the Public Assistance Program, and otherwise is 0. The explanatory variables are below:  $x$  is variables represent attributes of respondent (sex, education, residence, pension benefit),  $h$  is variables represent health condition of the elderly.  $f$  is attributes of family (transfer, child's education),  $g$  is a variable represent local government's budget condition. Finally,  $p$  is variables represent the preferences for necessity or addiction goods and social security

Each explanatory variable are specified as follows. We use age of the subject of JSTAR if he or she is single. Otherwise we take age of who earn more labor income or get pension benefit. And we use the terminal education record as a proxy of ability to earn, which is categorized in "under high school" and "above junior college". So "under high school" is a reference category of this dummy variable. And we use dummy variable for residential style of the elderly, which is categorized in "Only couple", "solitary resident", or "Other". "Other" is a reference category of this variable.

We use the terminal education record of 1st child as a proxy of ability to support from children. This dummy variable is categorized in "non-child", "Under high school", and "above junior college". In this case, "non-child" is a reference category of this variable. In addition that, we use actual amount of transfer from family members to the elderly and total pension benefit is also used as an explanatory variable as information of cash flow of the household.

Local government's debt payment ratio represents the budget condition of residential municipality. In this analysis, we use the cross effect term with age

groups of respondents. This implies that social workers' attitude is differ from age of the applicants because of working capacity. And we use the dummy variable represent the elderly's preference for the responsibility of government in income security. We use the following question in JSTAR to make dummy variable.

Question:

Who do you think should be responsible for assuring the livelihood of the elderly? Should such responsibility be borne by individuals and families or rest with the national and/or relevant local government(s)?

If respondent chooses 3 or 4, that is, they think that the national / local government are responsible for the livelihood of the elderly probably or definitely, this dummy variable takes a value of 1.

Dummy variables whether the elderly have a habit to smoke, or a habit to drink a alcoholic drink daily (5 days or more per week) represent the addiction behavior of the elderly household.

We arranged the variable to represent the ratio of expenditure for a necessity over total expenditure as following manner. JSTAR have corrected expenditure data on "food expenditure", "eating-out expenditure", "other expenditure on non-durables", "durable good without car", "out of pocket of medical expenditure", "car", "rent", and "housing loan". In this estimation, we regard "food expenditure" as an expenditure on a necessity. Thus, we define that a proportion of food expenditure over total expenditure as a proportion of a necessity over expenditure. Moreover, the beneficiaries are prohibit from holding car or house, and provided medical service through the Medical Assistance of the program without any out of pocket expense. Therefore these expenditures are deducted from total expenditure. We also noted that a portion of food expenditure is relatively low for high-income, or high-expenditure household. So we have divided all households into quintile with their expenditure by age groups for avoiding aging and Engel curve bias, and then calculated the ratio of food expenditure. That is,

$$food\_ratio_{i,t} = \frac{\frac{food_{i,t}}{other\_expenditure_{i,t}}}{\frac{food_{q,age,t}}{other\_expenditure_{q,age,t}}}$$

We used several health indexes for the estimation. Most of researches in Japan are using the subjective health condition report as a proxy of health. However the subjective health report is pointed out that this index has a problem with endogeneity in several papers. Some respondent may report the bad condition to affirm that they are out of work or receive the benefit. Especially in the elderly case, seasonal variation may happen in their report. Therefore, we use more objective indexes such as IADL and CES-D scale for evaluating health condition. In addition, we also use the clinical history of the respondent.

Firstly, we estimate the model with the subjective health report that evaluates the condition in 5 degrees (1.very good, 2. good, 3. ordinary, 4. bad, 5.very bad). Secondly, we use IADL score and CES-D flag (cut off line of CES-D score is 16). In third, number of main diseases in past and CES-D flag is used in the estimation. The main diseases referred to here are "Heart disease", "high blood pressure", "hyperlipidemia", "stroke vascular disorder," "diabetes," "chronic lung disease", "liver disease" "joint disease" "Parkinson's disease", "mental illness", "dementia", and "malignant tumor". Finally, we estimate the model using the number of three major disease for Japanese, "Malignant tumor", "stroke", and "heart disease", and the number of chronic illness, dummy variable for experience of fracture of the femur.

## 6. Estimation Results

We have estimated the model in three methods. Firstly, panel logit estimation was done with limited subsample of the eligible elderly. We could distinguish the eligible from full sample using data about family structure, income, and resident area.

Second, we carried out the logit estimation with pooled dataset. In this estimation we focused on the change of the receipt status between two interview periods, that is, 2007-2009 and 2009-2011. So, we rearranged the dataset to analyze the determinants on new receipt decision-making. Respondent who have receive the benefit in initial periods was omitted from sample. Non eligible respondents was also omitted from the sample.

Finally, we did the probit estimation with sample selection. The recipient is observed only when the eligibility is approved. In this sense, the model structure is the two-equation model with sample selection (that is Heckman Probit). In this estimation, we used the full sample but omitted the recipients in initial point.

$$\begin{aligned}
 \text{eligibility}_i &= \begin{cases} 1 & \text{if } \text{eligibility}_i^* > 0 \\ 0 & \text{if } \text{eligibility}_i^* \leq 0 \end{cases} \\
 \text{welfare}_i &= \begin{cases} 1 & \text{if } \text{eligibility}_i^* > 0 \\ 0 & \text{if } \text{eligibility}_i^* \leq 0 \end{cases}
 \end{aligned}$$

$$\begin{aligned}
 \text{eligibility}_i &= \mathbf{x}_1' \boldsymbol{\beta}_1 + \varepsilon_1 \\
 \text{welfare}_i &= \mathbf{x}_2' \boldsymbol{\beta}_2 + \varepsilon_2
 \end{aligned}$$

The estimation results are shown in figure 1, 2, and 3. The seniors living alone are likely to receive the program significantly. Educational attainment of 1st child has an impact on the probability if the child completes higher education. Transfer from family, contrary to expectation, have a positive impact on receiving the benefit. This may imply that family member of poor elderly make a transfer from the first. And this also captures the effect of guidance by welfare office for



family to support the parents, brothers or sisters. Pension benefit has also positive effect on the receiving. This result reflected the aging effect. Public Pension System in Japan is earning-related pension system basically, so that redistribution effects are relatively weak.

Consumption of addiction goods' effect on the Public Assistance is ambiguous. Smoking behavior promotes the receiving, but alcoholic drinking have negative effect on the receiving. Tobacco price in Japanese market is relatively low, but Alcoholic drink price is relatively high because of Japanese tax system. Therefore households that can afford to pay the daily drinking may do not feel a necessity for applying the Public Assistance Program.

Demand for a necessity (food expenditure) has a significant effect on receiving the benefit according to my expectations. Low-income elderly household takes a rational behavior in applying the program. This effect is also confirmed in all estimations in which sample is restricted within the relatively poor households. (Table 2) And respondent's attitudes for social security have positive effect in pooled logit and Heckman probit estimation. Note that those estimations have run with subsample which including only newly recipient. Preferences for national responsibility are important factor on decision-making.

Fiscal restriction has significant effects in the benefit decision. In all estimation, debt ratio of local government has negative effect for the benefit, so that this imply the "Defense Operation at the Border Line" is exist in the program. Japanese government should reconsider the method of redistribution of tax revenue.

Finally, effect of health condition can be captured with the subjective report. But we can sort the effect into various causes when the objective indexes are used. Especially, mental health has massive effect on the probability of receiving.

## 7. Conclusion

In this paper, We examine that what attributes does promote to receive the benefit of the Public Assistance Program using 2007, 2009, and 2011 survey of Japanese Study of Aging and Retirement. Main results are as follows.

Earning capability of the elderly and the support from family has a relatively weak effect on the behavior, but the residential style of the elderly has strong effect the probability of receiving. The elderly living alone will increase in near future because of population aging. Our results imply that the number of the beneficiary will increase further in Japan.

Fiscal restriction has significant effects in the benefit decision. In all estimation, debt ratio of local government has negative effect for the benefit, so that this imply the “Defense Operation at the Border Line” is exist in the program. The elderly’s attitudes for social security have positive effect in pooled logit and Heckman probit estimation. Preferences for national responsibility are important factor on decision-making.

Expenditure for addiction goods has ambiguous effect on the Assistance. This imply that moral of the poor may do not have concrete effect on receiving behavior. And preference for a necessity of the poor has significant effect in our estimation. Low-income elderly may apply for the program as rational behavior, not irrational behavior affected by addiction.

Physical health condition has impact for receiving the benefit, but mental health has more massive effect on the Public Assistance. Some policy package for QOL of the poor elderly should be carried out simultaneously or concurrently in Japan

## References

- Neumark, David, and Elizabeth T. Powers. (1998) "Welfare for the Elderly: The Effects of SSI on Pre-Retirement Labor Supply." *Journal of Public Economics*, Vol.78, No.1/2, pp.51-58.
- Neumark, David, and Elizabeth T. Powers. (2005) "The Effects of Changes in State SSI Supplements on Pre-Retirement Labor Supply." *Public Finance Review*, Vol.33, No.1, pp.3-35.
- Mckernan, Signe-Mary, Robert Lerman, Nancy Pindus, Jesse Valente. (2001) "The Relationship between Metropolitan and Non-Metropolitan Locations, Changing Welfare Policies, and the Employment of Single Mother." Mimeo, Urban Institute.
- Moffitt, Robert (2002) "Welfare Programs and Labor Supply." In Alan J. Auerbach and Martin Feldstein, eds., *Handbook of Public Economics*. Amsterdam: North Holland.
- Abe, Yukiko, and Keiko Tamada. (2007) "Study on the Regional Differences between Minimum Wage and the Public Assistance." *Japanese Journal of Labour Study*, No.53 pp.31-47. (in Japanese)
- Tamada, Keiko, and Fumio Otake. (2004) "Does The Public Assistance Program Stunt Labor Incentive: Comparison with United States." *Journal of Japanese Economic Study*, No.50 pp.38-62. (in Japanese)
- Tamada, Keiko, and Tomoharu Mori. (2013) "Minimum Wage and the Standard of the Public Assistance Act." RIETI Discussion Paper Series 13-J-013. (in Japanese)
- Hayashi, Masayoshi. (2011) "Cost of Public Assistance and Public Finance." CIRJE Discussion Paper Series CIRJE-J-236. (in Japanese)
- Michinaka, Takashi. (2009) "The Working Poor and the Public Assistance: Intergenerational Poverty Chain." Minerva Press, (in Japanese)

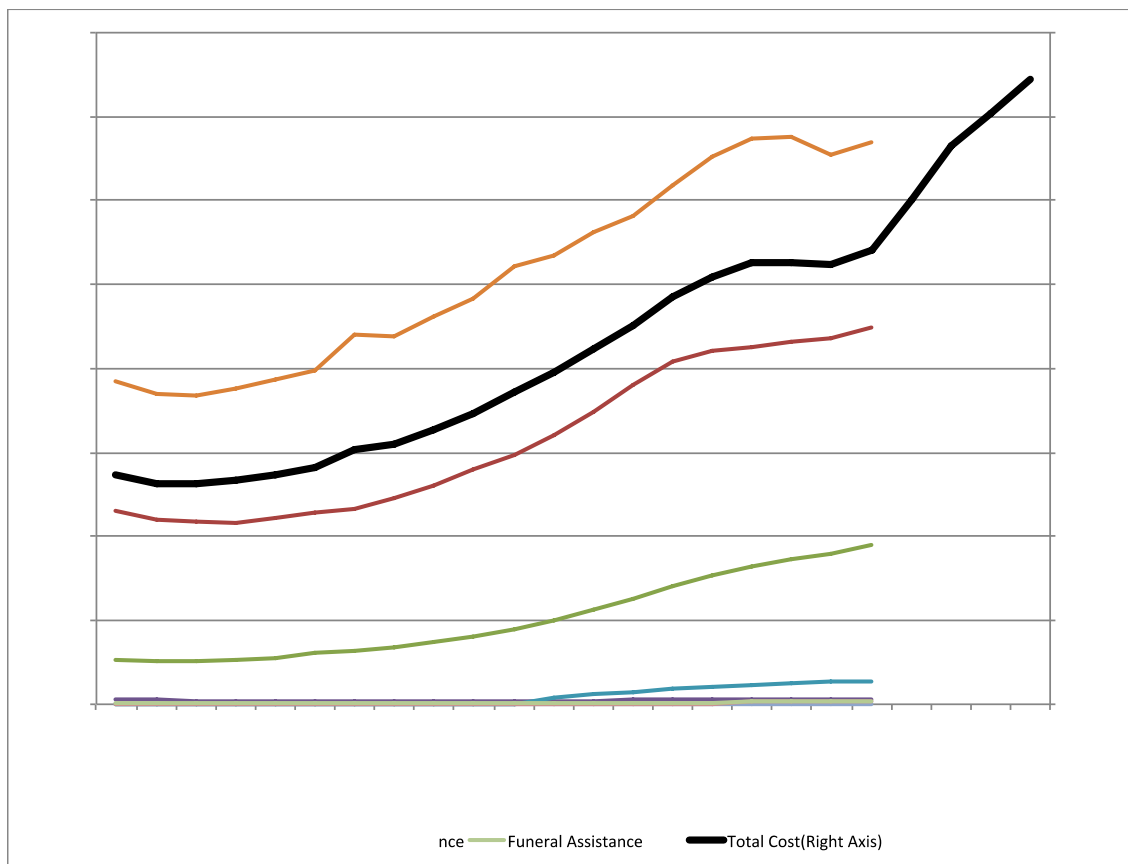


Fig.1: Trend of the Cost of the Public Assistant Program

Data source: IPSS

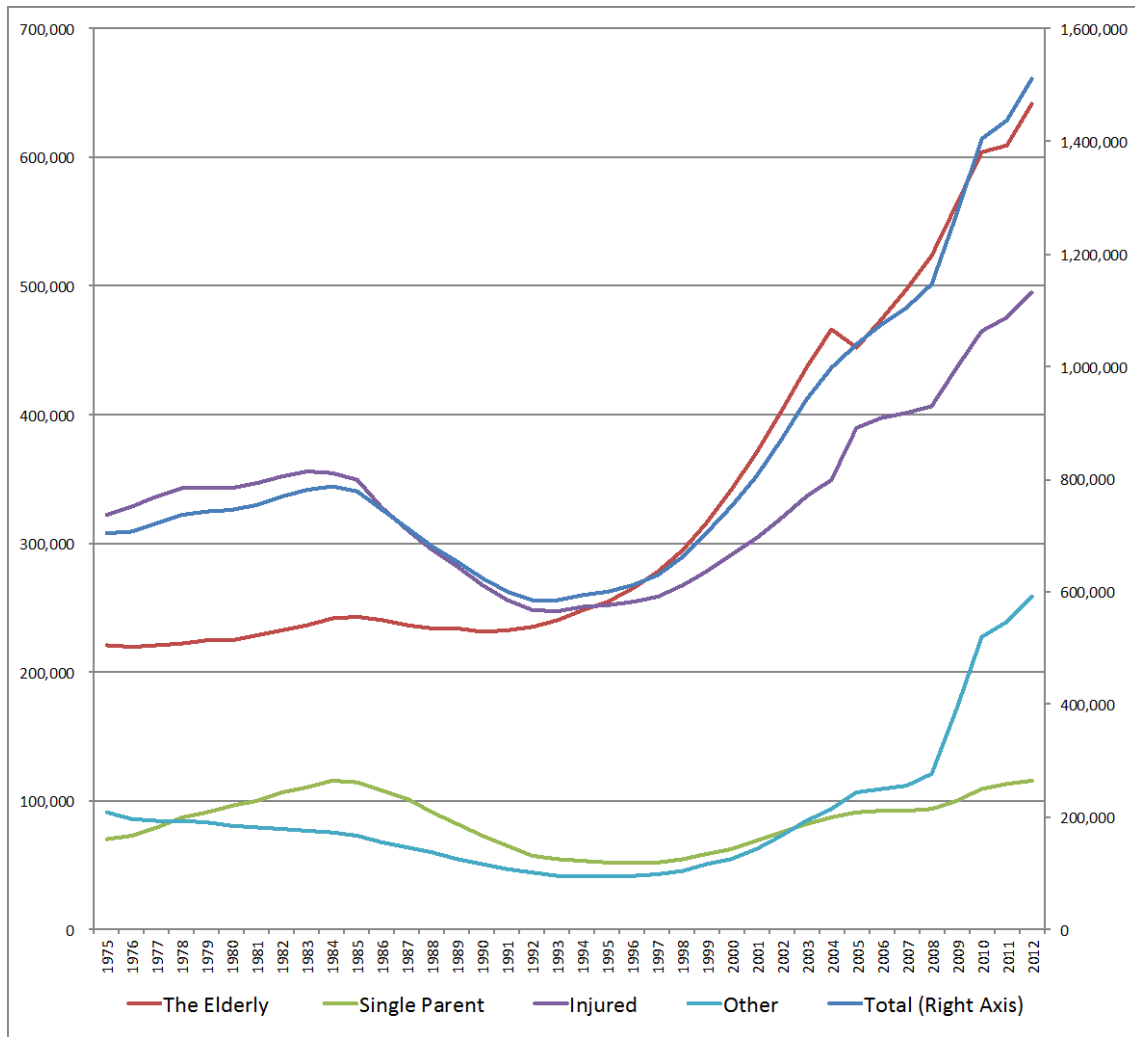


Fig. 2: Number of each type of the beneficiaries

Data source: IPSS “Statistics on the Public Assistance Program”

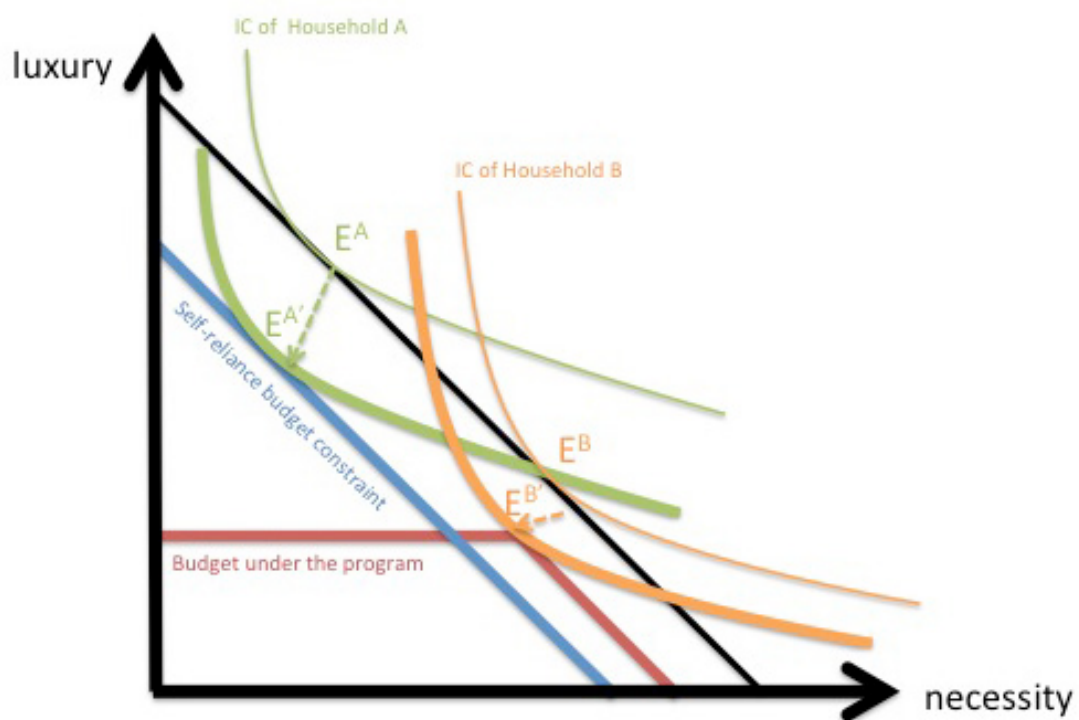
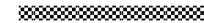


Fig. 4: Consumers Choice under the Public Assistance System

Table 1: Estimation Results (Panel Logit Regression)

	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Female Dummy	0.298	0.252	0.32	0.251	0.341	0.256	0.244*	0.204



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Table 2: Estimation Results (Logit Regression, with pooled dataset)

	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Female Dummy	0.634	0.303	0.815	0.419	0.767	0.386	0.649	0.338

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Table 2: Estimation Results (Probit Estimation with Sample Selection, Heckman Probit)

	Coef	SE	Coef	SE	Coef	SE	Coef	SE	Coef	SE	Coef	SE	Coef	SE

## Data Appendix: Summary Tables

year2007				year2009				year2011			
Age	Non Beneficiary	Beneficiary	Total	Age	Non Beneficiary	Beneficiary	Total	Age	Non Beneficiary	Beneficiary	Total
			32.3%		39.0%	53.9%	39.2%		47.0%	79.7%	47.5%
Total	3,500	13	3,513	Total	3,752	52	3,804	Total	4,917	74	4,991

App Table 1: Age Composition

year2007				year2009				year2011			
Education	Non Beneficiary	Beneficiary	Total	Education	Non Beneficiary	Beneficiary	Total	Education	Non Beneficiary	Beneficiary	Total
compulsory education	1,134	5	1,139	compulsory education	961	22	983	compulsory education	826	15	841
	32.5%	38.5%	32.5%		27.9%	45.8%	28.2%		22.7%	34.1%	22.8%
high school	1,452	7	1,459	high school	1,486	23	1,509	high school	1,531	20	1,551
	41.6%	53.9%	41.6%		43.2%	47.9%	43.3%		42.1%	45.5%	42.1%
above college	909	1	910	above college	992	3	995	above college	1,282	9	1,291
	26.0%	7.7%	25.9%		28.9%	6.3%	28.5%		35.2%	20.5%	35.1%
Total	3,495	13	3,508	Total	3,439	48	3,487	Total	3,639	44	3,683

App Table 2: Education

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year2007			year2009			year2011					
Size of City	Non Beneficiary										
0: Small City											
					61.2%		64.2%	86.5% 64.5%			
Total	3,512	13	3,525	Total	3,763	52	3,815	Total	4,887	74	4,961

App Table 3: Size of Residential Place

year2007		year2009		year2011			
Family in Same House					Other		
				15	Total		
					4,927	74	5,001

App Table 4: Coresidence with family

Expenditure	the Benefit	Obs	Mean	StdDev.
1st quintile	Non Beneficiary	2472	0.296	0.415
	Beneficiary	43	0.563	0.360
2nd quintile	Non Beneficiary	2459	0.380	0.280
	Beneficiary	79	0.294	0.094
3rd quintile	Non Beneficiary	2343	0.236	0.149
	Beneficiary	15	0.275	0.086
4th quintile	Non Beneficiary	2497	0.218	0.112
	Beneficiary	2	0.281	0.071
5th quintile	Non Beneficiary	2431	0.223	0.122
	Beneficiary	0	—	—

App Table 5: Ratio of Food Expenditure

year2007  
 Subjective  
 Health  
 Report

year2009

year2011


App Table 6: Subjective Health Status

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year2007				year2009				year2011			
CESD		Non Beneficiary									
CESD ≤ 16											
								%			
								19.6%			
Total	3,308	13	3,321	Total	3,333	34	3,367	Total	4,550	65	4,615

App Table 7: CES-D Score

year2007				year2009				year2011			
Addiction	Non Beneficiary	Beneficiary	Total	Addiction	Non Beneficiary	Beneficiary	Total	Addiction	Non Beneficiary	Beneficiary	Total
Other	2,277	12	2,289	Other	2,435	33	2,468	Other	2,472	28	2,500
	68.5%	92.3%	68.6%		70.4%	84.6%	70.6%		68.3%	66.7%	68.3%
Daily Drinking	1,049	1	1,050	Daily Drinking	1,024	6	1,030	Daily Drinking	1,147	14	1,161
	31.5%	7.7%	31.4%		29.6%	15.4%	29.4%		31.7%	33.3%	31.7%
<b>Total</b>	<b>3,326</b>	<b>13</b>	<b>3,339</b>	<b>Total</b>	<b>3,459</b>	<b>39</b>	<b>3,498</b>	<b>Total</b>	<b>3,619</b>	<b>42</b>	<b>3,661</b>

App Table 8: Habitual Practice of Alcoholic Drink

year2007				year2009				year2011			
Addiction		Non Beneficiary									
Non Smoker											
								6.1% 34.3% 16.3%			
Total	3,366	13	3,379	Total	3,410	41	3,451	Total	4,619	67	4,686

App Table 9: Habitual Practice of Tobacco