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The Effects of Family Formation on the Labour Supply of Japanese Elderly

Nobuhiko Maeda

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(Abstract) In this paper I will probe the possibilities of research into the supply of elderly labor by using the family and the household as analytical tools. I will analyze data on those in their early 60s from the three perspectives of "pension," "household" and

Adderss correspondence to Nobuhiko Maeda, The Japan Institute of Labour, 8-23 Kamishakujii 4-chome, Nerima-ku, Tokyo 177, Japan. Electronic mail may be sent via Internet to maeda@jil.go.jp.

"vocational ability." Also, I will examine and present a problem to the possibilities of the supply of elderly labor with "the family" as an analytical perspective. The significance of this paper is to do the fundamental and underlying work for building the basic model of the effects of the family and the household on the elderly's entering behavior into the labor market. The fact that the probability of employment of older persons in the extended family clearly reduces, compared with that of employment of the household of the elderly couple alone, is found by multiple logit analysis. Furthermore, some interpretation can be considered for the results that the extended family discourages employment of the elderly.

I. Introduction

In Japan there has recently been the need to focus attention on "the family" in a variety of fields, including economics as well as sociology. Looking only at the economic facets of the family, for instance, it is pointed out that individual economic resources, together with transfer of the family's assets income through intergenerational relationships, including income transfer in a broad sense, say, welfare services in the family such as nursing care, have been exchanged through the sector called the family. Especially in Japan, where the social norm of the stem family system has been on the wane, it is said that the percentage of older and younger generations who live together is high. Therefore, the bond of family members who live away from each other is also strong as represented by the concept of "the modified stem family." The continuous vertical intergenerational relationship is stressed also by the family's assets income transfer from older to

younger members. Thus, the rational individual behaviors, as seen by labor supply, based on an exchange of resources between households may be established as an analytical model.

Here it seems that "the family" constitutes an important role in analyzing labor supply. This trend is also present in East Asian countries, Japan and Korea in particular, and it can be assumed that the form of the family with a strong intergenerational relationship regulates the elderly's entering behavior into the labor market. With this in mind, in this paper I will probe the possibilities of research into the supply of elderly labor by using the family and the household as analytical tools. Below I will analyze data on those in their early 60s from the three perspectives of "pension," "household" and "vocational ability." Also, I will examine and present a problem to the possibilities of the supply of elderly labor with "the family" as an analytical perspective. The significance of this paper is to do the fundamental and underlying work for building the basic model of the effects of the family and the household on the elderly's entering behavior into the labor market.

II. Pensions and Labor Supply

One of the factors that cannot be overlooked in analyzing the supply of elderly labor is the effects of "pension." Numerous positive studies were made on the effects of the pension amount and the pensionable age, and implications of the pension system and employment of the elderly were made policywise. Seike (1992), for example, statistically clarifies the strong effects of the pension in determining the rate of the elderly's entering the labor market. In his analysis results he clarifies the fact that increasing public pensions obviously tend to discourage those between 60 and 69.

from choosing to work. He also clarifies that unearned income excluding public pensions, such as a private pension, also discourages the choice of employment among them.

Likewise, Tachibanaki and Shiono (1994) show the strongest impact of public pensions on the rate of employment for male older persons aged 60 or over. Moreover, they clarify that many of elderly people 60 or older who work as employees took lesser-paying jobs than they did before they turned 60. The system under which they have part of their pension deducted when they receive before 60 prompts them to actively choose to take smaller-paying jobs. Takayama (1992) studied the case in which the supply of elderly labor was extended to those other than employees, such as self-employed persons.

He clarified, by means of multiple logit analysis, the impact public pension has on the three choices of behavior, working as employees, being self-employed and being nonengaged. He thus statistically confirmed that public pension has the overall effects of encouraging older persons to retire from active work. As seen above, the impact of public pension as a factor which regulates the supply of elderly labor is enormous, and how the pension amount and the pensionable age will affect the development of labor supply attracts much attention in coming years.

III. The Family and Labor Supply

Meanwhile, what cannot be overlooked when employment of the elderly is seen from a broad perspective of "security for standardized living" is the role played by "the household" or "the family." There is no objection to the fact that the most fundamental and underlying element of security for the elderly's living is income security which comes from employment, and the follow-

ing three ways may be proposed to assure income for the elderly (Miyajima, 1990). One of the three ways is to draw down savings or assets older people themselves accumulated while at work, as typified by private pension, private savings and housing. The second one is Old-Age and Retirement Pension benefits payable under the government-sponsored social security system or the private agent-sponsored financial system. This type of income security, it can be said, relies on income transfer between generations, or in a broad sense of the term, from active generations to retiring generations. The third and last one is income transfer between private generations, from active members (children) to retiring elderly members (parents), of the family.

Of these three channels of income security, here I would like to focus my discussion on research into the third way of income security, or invisible transfer of income, in the family. Research has so far been made into income security by the government and income transfer through broad intergenerations solely with the individual as a unit of analysis. In recent years, however, studies are being made with emphasis placed on income transfer in the family in a narrow sense. Noguchi (1992), for instance, clarifies that the tendency for dwelling property such as land and housing to be transferred from the parents to their children in the family is observable also in recent urban society. The perspective of his analysis lies in the interfamily redistribution of property between the nuclear family and the extended family. But this perspective is also effective in clarifying the mechanism of how income is redistributed among individual members of the family.

As can be seen in many of the past studies on the influence of annuity, the impact of public pension on labor supply is enormous. However, while the annuity is payable on an individual basis or on a married-couple basis, it is predictable that depending on the form

of the household income earned by other members of the family, or children, is added to redistribute the income to individuals of the family. In this case, it can be assumed that income is redistributed to individuals as a resource in the family, including cash income as well as income transfer in a broad sense of the term like such invisible welfare services in the family as consumables, housing and nursing care. In a nutshell, there is a process in which an economic resource of an elderly individual, such as the pension, is adjusted and redistributed in the family and is thereafter restored to the individual. The result is, it is considered, a hypothetical model that the individual's employment behavior is regulated. This model suggests the possibility that the individual's pension does not directly regulate labor supply, but his or her economic resource is redistributed in the family and hence has an influence on the supply of his or her labor.

In the case of Japan, the model with the family or the household as a unit is highly effective (Miyajima 1992; Maeda, 1995, 1996). As has so far been clarified in sociology of the family and economics of the household, this is ascribable to strong ties between parents and their adult children observable especially in Japan.¹⁾ While the traditional social norm of the stem family system is at a ebb, the economic and social bond between family members continue to be strong even in households in which parents and children live together or those in which parents and children live away from each other, as represented by such concepts as the modified stem family (Nasu, 1970) and the new dynasty model (Barro, 1974; Noguchi, 1992). Accordingly, the model which explains about labor supply also needs to take into account the mechanism of resource allocation in the family. Income transfer of savings and assets, such as housing and land, role allocation and collective decision-making in the family will need to

be considered.

IV. Relative Effects of Pension, Household and Vocational Ability

1. Data and methodology

Data used in this paper are based on a Study of Lifestyle after Retirement conducted in September 1987 by the National Institute of Employment and Vocational Research (presently the Japan Institute of Labour). The survey covered 4,925 persons who retired from work at a mandatory retirement age at selected establishments across the nation during the past 5-year period, with 2081, or 42.3 percent responding.²⁾ Let me analyze here the relative effects of pension, household and vocational ability on the elderly's selection of employment, using logit model. The relative effects of such explaining variables as pension, household composition, asset and qualification were estimated by the following equation, with selection of employment of the elderly between the ages of from 60 to 64 as an explained variable.

$$\text{Log}(P/1-P) = b_0 + b_1X_1 + b_2X_2 + b_3X_3 \cdots b_nX_n \quad (1)$$

In this logit analysis, the ratio of the probability of employed persons (P) to the probability of nonengaged persons (1-P) is represented as the expectation of an event (P/1-P) and is predicted by means of some explanatory variables $X_1, X_2, \dots, X_n$. The explaining variables are categorized into 5 broad kinds, age, occupational career context, economic condition context, health status and family context. The contents of these variables are shown below.

Age: indicates the age of older persons. The larger the figure, the older the age.

Occupational career context: is composed of three variables, education, qualification and working status before retirement. Education and working status before retirement are categorized variables. For qualification, 1 indicates "yes" and 0 "no."

Economic condition context: is composed of three elements, monthly pension, savings and real estate. 1 represents "yes" and 0, "no" for each of the three elements.

Health status: denotes the health status of the elderly. 2 represents "very healthy," 1, "largely healthy" and 0, "tends to be sick." In short, the larger figure indicates "being healthy."

Family context: represents the type of the household the elderly consist of. This is the categorized variable.

As a result, explanatory variables put into logit analysis number 9 (age, education, qualification, working status before retirement, pension, savings, real estate, health status, & household composition). In addition, dependent variables indicate the labour supply of elderly, with 1 indicating "employed" and 0 "nonengaged." Descriptive statistics regarding these explanatory variables and the labour supply of elderly as dependent variables are shown in Table 1.

2. Results

The results from the effects of these explanatory variables are shown in Table 2.

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Table 1. Descriptive statistics of the dependent
and explanatory variables

Explanatory Variables		Mean (SD)
<i>AGE</i>	Age of Subjects	61.81 (1.280)
<i>OCCUPATION</i>	Education (%)	
<i>L CAREER</i>	elementary school	54.0
<i>CONTEXT</i>	Junior high school	27.7
	high school	12.4
	university or more	6.6
	Qualification (0-1)	.670 (.470)
	Working status before retirement (%)	
	executive	2.0
	manager	31.5
	assistant manager	38.4
	staff	28.1
<i>ECONOMIC</i>	Monthly pension (%)	
<i>CONDITION</i>	under ¥100,000	21.6
<i>CONTENT</i>	¥100,000 ~ ¥200,000	40.0
	¥200,000 ~ ¥250,000	30.8
	over ¥250,000	7.7
	Saving (0-1)	.220 (.414)
	Real estate (0-1)	.078 (.268)
<i>HEALTH</i>	Health status (0-2) (%)	
<i>STATUS</i>	worse	7.6
	better	62.1
	very good	30.2
<i>FAMILY</i>	Household type (%)	
<i>CONTEXT</i>	single	1.9
	husband and wife	36.4
	nuclear family	27.8
	extnded family	30.4
	other type	3.5
Dependent variables		
labor supply (0-1)		.660 (.474)

Table 2. Logit models explaining supply of
eldery age of 60~64 (N=1261)

		Coefficients (EXP)	
<i>AGE</i>	Age of Subjects	-.104*	(.909)
<i>OCCUPATION</i>	Education (%)		
<i>AL CAREER</i>	(vs elementary school)		
<i>CONTEXT</i>	Junior high school	-.008	(.992)
	high school	.652**	(1.920)
	university or more	.303	(1.354)
	Qualification (0-1)	.361**	(1.435)
	Working status before retirement (%)		
	(vs manager)		
	excutive	-.127	(.881)
	assistant manager	.116	(1.123)
	staff	-1.255**	(.285)
<i>ECONOMIC</i>	Monthly pension (%)		
<i>CONDITION</i>	(vs under ¥100,000)		
<i>CONTENT</i>	¥100,000 ~ ¥200,000	-2.778***	(.062)
	¥200,000 ~ ¥250,000	-3.306***	(.037)
	over ¥250,000	-4.265***	(.014)
	Saving (0-1)	-.746***	(.474)
	Real estate (0-1)	-.532***	(.588)
<i>HEALTH</i>	Health status (0-2) (%)	.654***	(1.923)
<i>STATUS</i>			
<i>FAMILY</i>	Household type (%)		
<i>CONTEXT</i>	(vs husband and wife)		
	single	-.369	(.691)
	nuclear family	.100	(1.105)
	extnded family	-.400**	(.670)
	other type	-.663*	(.515)
CHI-SQUARE		324.76 (<i>df</i> =18; <i>p</i> <.001)	
		*** < .01 ** < .05 * < .10	

My analysis shows that the effects of the pension are significant. As compared to those who receive a pension of less than ¥100,000 a month, the tendency is strong for those receiving a monthly pension of more than ¥100,000 to be less likely to work. For instance, the probability of employment of those receiving a monthly pension of under ¥200,000 to ¥250,000 drops to 37%, compared with that of those receiving under ¥100,000 a month. The impact of family variables is also significant. Take household composition for an example. The probability of employment of older persons in the extended family clearly reduces, compared with that of employment of the household of the elderly couple alone.

Furthermore, the effects of savings and real estate as supplementary income are also significant. This indicates the tendency that the elderly who draw down their savings as a supplementary source of income are less likely to work and at the same time, the elderly who have income from real estate are also less likely to work. Meanwhile, the impact of qualification was examined as a substitute indicator for vocational ability for convenience' sake, and this is significant, too. In short, if the other conditions are given ones, acquiring a qualification tends to raise the probability of elderly people's entering the work force.

V. Discussion and Conclusion

Here, the following three types of interpretation can be considered for the results that the extended family discourages employment of the elderly. The first possible interpretation involves the firm traditional social norm of the members of the extended family. The elderly who form the extended family possess a slightly strong traditional social norm, and they consider "they should retire

from active work once they have reached a certain specific age." At the same time, the other members of the extended family also consider "older persons should quit work and withdraw from active life." These are the collective decision-making of the family. The second possible interpretation is based on role allocation in the family. The reason is that older people in the extended family, wanting to take care of their grandchildren, retire early to make their attachment a primary matter. And the third and last possible interpretation is based on the family's economic factors. Older people who live together with their children are economically aided by the latter and are not hard up for money even if they retire early.

These interpretations, however, are a mere conjecture and nothing more even from the validity of variables used and require further examination in the years to come. But the abovementioned analysis results that the variables other than pension and especially those involving family resources have a strong influence, it seems, represent the need for analysis of the individual as well as for that of the family with consideration given to income transfer, resource allocation in the family and collective decision-making by the family.

As positive studies on intergenerational relationships so far made point out, in Japan intergenerational ties between the older generation and the younger generation are characteristically strong. In a positive research which recognizes an intergenerational relationship as part of networks, for example, it has been clarified that there exists a close network of the parents and the children who live together as well as of the adult children and the parents who live away from each other (Maeda, 1993). Furthermore, as shown in some other studies, the economic role played by income transfer between generations is large in Japan, and it can be

hypothetically considered that the household and the intergenerational relationship in effect strongly regulate an individual's behavior. In this sense, the role played by the family should be positively introduced to analyze employment behavior.

From the above examination, I will now discuss future perspectives of the analysis below. The first perspective is to probe the relationship between family trends, such as the household and the intergenerational relationship, and labor supply. The impact of pension was analyzed above, and at the same time, the influence of household composition, savings and real estate should not be overlooked. In short, an individual's pension and the family's collective economic conditions regulate the supply of labor, suggesting the need for an analytical perspective of resource allocation in the family. The above analysis shows that even with the pension being a given, the conditions of the household affect the supply of elderly labor. In other words, supposing that the other conditions are controlled, formation of the extended family significantly reduces the possibility of the elderly's entering the labor force.

Maybe this is ascribable to the fact that creation of the multi-generational household, in which the elderly live together with members of the older generation or those of the younger generation, has brought about an invisible transfer of income in the family and has thus weakened the willingness of older people to take jobs. As is apparent from how enormous are the effects of such assets as savings and real estate, redistribution of resources in the same household satisfies the economic needs of the elderly and hence predictably reduces the probability of their joining the labor force. Labor supply is based on an individual's selection, but this, it is fair to say, suggests that behind this lies a family strategy utilized by an individual who tries to satisfy the economic

needs by using a family resource available to him or her.

The second perspective is the one to elucidate the mechanism of resource distribution in the family, with changes in the family over time taken into consideration. Resources are distributed in the family not at a given point but during the course of time of the family life cycle. For instance, it is highly possible that income transfer of housing and land assets from the older generation to the younger generation is based on the tacit assumption that children will support and care for their older generation in future years. Simply stated, the exchange relationship of family resources between nursing care and live-together, it seems, is established premised on a long-term span of the family life cycle. If such changes over time are taken into consideration, it will be necessary to make up data which observe, in the course of time, how resources flow in the family and how they regulate an individual's employment behavior.

And third and lastly, I will point out that observing how resources flow in the family and regulate an individual's employment behavior is instrumental also in analyzing the effects of vocational ability. Vocational ability is developed through school education at an early age and through vocational ability-development programs from a middle-aged and elderly period on rather than at an older age. It may safely be said that to observe the effects of vocational ability in the long span, introduction of research from the life course perspective which takes into account the elapse of time is necessary.

Notes

- 1) Extensive studies have been made into the intergenerational exchange of resources in the contemporary

family, or income transfer in a broad sense in terms of economics, traditionally in the field of sociology of the family. Sussman (1959), Bengtson and Roberts (1991), Cooney and Uhlenberg (1992), for instance, may be cited as a discussion on the relationship between the family social network and resource exchange in the course of industrialization. See Nojiri (1974) and Kato (1988) for positive studies in Japan.

2) The results of analysis in this paper were recompiled by the author. Targeted for those who retired at a mandatory retirement age with limited variables available, the analysis was inevitably restricted but was employed for the purpose of preliminary considerations on future new researches. For detailed data, see National Institute of Employment and Vocational Research (1988).

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