

# Influence of Non-Labor Income on Youth Unemployment in Japan: Are Youths in Households with Larger Budgets Less Likely to Work?<sup>†</sup>

Shinsuke Ito\*  
Takahisa Dejima\*\*

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## 1. Introduction

Youth unemployment in Japan has remained more or less unchanged regardless of the recent fluctuations in the economic climate. This trend challenges the conventional wisdom that youth unemployment is a cyclic phenomenon that depends on only fluctuations in labor demand. For example, the “White Paper on the Labor Economy” published by the Ministry of Health, Labour and Welfare, which uses data from the “Labor Force Survey” conducted by the Bureau of Statistics at the Ministry of Internal Affairs and Communications, evaluates how youth unemployment changes over time. According to Labor Force Survey, the number of unemployed youths aged 15 to 34 has remained almost unchanged, with between 560,000 and 640,000 unemployed at any given point in time from 2002 to 2014 (Ministry of Health, Labour and Welfare (2015)).

It is common knowledge that if youths remain unemployed for a prolonged period of time, and particularly if there are no opportunities for education and workplace training, youth are trapped in a state of inefficient utilization of their human capital, which slows their mid- and long-term economic growth. Because of these impacts on human capital and economic growth, policies that openly support the work environment of youths tend to be favored.

However, the argument is made that through the increasing productivity and wages of individual workers, the outcome and benefits of human capital investment for individuals are returned to the households and business organizations which carry the financial load

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<sup>†</sup> This paper was revised based on the English version of Ito and Dejima (2012).

of the investment. Therefore, individuals should be free to make choices about their education, training, and work format within a given budget limit. In other words, if the labor market is sufficiently active, the profitability of human investment for individuals is reflected in potential wages and stimulates the corresponding amount of employment, while at the same time, there is no rationale for expanding public support by offering employment to the remaining unemployed people. This viewpoint also asserts that despite the youth unemployment problem, there are no grounds for supporting individual education, training, and employment opportunities with public funds.

The counterargument is made that there is a net benefit to society from strengthening public support for unemployed youths, for instance by providing education and training. If the potential earning capacity of individuals increases, they will eventually contribute more in terms of income tax, which justifies the public support for the prior human capital investment. If education, training, and employment of youths results in a positive externality (e.g., for other employees), there is a theoretical basis for public investment, and evaluating the efficiency of the investment becomes an empirical problem. Based on the above arguments, from a theoretical point of view, it is not clear whether the government should provide public support for youth employment.

One fact that is often pointed out with regard to these competing theoretical viewpoints is that for the long-term unemployed in particular, non-labor income is often available in the household in the form of asset income and labor income from other household members. As a result, some people are not willing to work when such non-labor income is available. For households with a utility function in which leisure is regarded as a normal good, when non-labor income is increased, the demand for leisure increases as a result of the income effect, and consequently labor supply decreases. Conceptually, this result shows that the deliberate choice to be unemployed tends to become easier as asset income increases.

This theoretical relationship between the availability of non-labor household income and the decision not to work may be a factor in the consistently high level of youth unemployment in Japan, and this factor cannot be ignored. First, as a result of the declining birth rate, the amount of assets that a child can be expected to inherit from his or her parents increases, and therefore from the perspective of the child, the asset income that can be expected increases. In general, the importance of non-labor income is likely higher in households with fewer children. Second, the number of households in which both parents are working is steadily increasing. In particular, if the wife earns a relatively high income, the non-labor income potentially available to the child is also proportionally higher.

When unemployment is deliberately chosen as a result of increased non-labor income, the optimal labor supply does not increase even if various forms of job assistance are provided using public funds. This pattern results in inefficiency in public investment, as the expected results from the invested funds do not materialize. Therefore, empirical examination of how asset income influences the behavior of youths in terms of employment pro-

vides meaningful insight.

The factors determining youth unemployment can be viewed from both the perspectives of labor supply and labor demand. Empirical studies have been conducted recently to clarify youth employment from the perspective of labor supply by using microdata. Since Higuichi (1991), a large number of quantitative analyses based on theoretical models have been compiled. In addition, Mimizuka (2002), Nishimura (2006), and Ito (2006, 2008, 2011, 2013, 2015) have conducted empirical studies on the relationship between younger persons' employment status and involvement in society and household attributes such as the educational background and the profession of the parents. Furthermore, Kurosawa and Genda (2001), as well as Nagase and Mizuochi (2009), examined the correlation between the employment status of youths immediately after graduating from high school and the transition to regular employment. However, few studies have investigated youth employment at the micro level from the perspective of non-labor income.

In this context, the aim of the present paper is to determine the influence of household assets and income from assets and rent on the employment behavior of youths. Specifically, by controlling various household attributes, we investigate whether the probability of a youth being unemployed increases with higher household assets and income from assets and rent. Furthermore, we quantify the influence of household assets on youth employment. In this model, we also investigate whether the composition of the parental income influences the employment status of children.

To preview our conclusions, we find that the influence of household assets on the employment status of youths is limited. Although the impact differs depending on the income level of household members, the theoretical possibility that high asset income from household assets suppresses the desire to seek employment was found only within a limited scope. This result refutes the notion that a statistically significant portion of unemployed youths live in «wealthy households.» Further, the study shows that only a limited portion of youths are naturally unwilling to work or willing to accept only well-paying jobs.

However, in terms of the employment status of the mother, which was included to control for household income, the probability of a youth being employed increases significantly as the work performed by the mother increases, even if her income is low. This finding is inconsistent with the hypothesis that the income effect suppresses the labor supply, with increased income of other household members proportionally diminishing the desire in youths to seek employment. The identification of these factors will be investigated in future studies.

This paper is structured as follows. The model is explained in Section 2, and Section 3 provides details about the data and descriptive statistics of the sample. Furthermore, the estimation results and a discussion about the associated theoretical probabilities are given in Section 4. Conclusions are presented Section 5.

## 2. Model

In this section, a theoretical analysis is conducted on the effects of non-labor income on youth employment, and propositions that can potentially be verified are examined.<sup>1)</sup> Here, non-labor income is defined as income brought by other household members (such as parents), as well as asset income derived from household assets.

Households choose their leisure  $L$  and work time  $h$  on the basis of the following budget constraint equation (2) and time constraint equation (3) such that the utility function  $U(C, L; a)$  in (1) is maximized. Here,  $a$  is a shift parameter that captures the differences between the utility functions of different households.

$$\max U(C, L; a) \quad (1)$$

$$s.t. \quad wh + V = pC \quad (2)$$

$$h + L = T \quad (3)$$

Here,  $C$ ,  $L$ ,  $w$ ,  $h$ ,  $V$ ,  $p$ , and  $T$  represent consumption, leisure, market wage rate, labor time, non-labor income, prices and exogenously available time, respectively. Non-labor income of youths includes labor income from other household members, as well as asset income (or income obtained from financial assets or real estate).<sup>2)</sup>

It is well known that the first-order condition in the utility maximization problem is,  $\frac{\partial U}{\partial L} / \frac{\partial U}{\partial C} = \frac{w}{p}$ , from which the derivative  $L^*(w, V, p, T; a)$  of the leisure demand function and the derivative  $h^*(w, V, p, T; a)$  of the labor supply function can be obtained.

According to comparative statics,  $\frac{\partial h^*}{\partial V} < 0$  when leisure is regarded as a normal good. Intuitively, this arises since an increase in non-labor income does not affect the relative price of leisure and consumption, resulting in only an income effect. This is the first assumption analyzed in this paper.

1) See Blundell and MaCurdy (1999), Cahuc et al.(2014), and Creedy and Kalb (2006) for theoretical model about influence of non-labor income on employment.

2) In terms of non-labor income, asset income can be divided into two major categories, namely income gain (interest, dividends, income from rent) and capital gain (trading profits). However, according to the "National Survey of Family Income and Expenditure," which is used below, the portion of income gain that is generated monthly such as land or building rent can be determined precisely, but other types of income gains such as stock dividends and bond interest that are usually distributed twice per year and marketable securities that do not generate income at regular intervals cannot be precisely accounted for. Therefore, the best option is to use the invested amount (for items such as stock) as an explanatory variable and to exert caution in interpreting the estimated coefficient.

However, one point to be cautious about is that for the income effect of leisure, it is a necessary and sufficient condition for the sign of the partial derivative to be positive. If there are households for which the income effect of leisure is negative or extremely close to zero, a theoretical contradiction does not arise even if a significant negative effect is observed for non-labor income and labor supply. Further discussion is necessary with regard to the interpretation of this point.

Incidentally, with regard to the suppressing effect of non-labor income on labor supply, in a household if a wife views the income of her husband as her own non-labor income, her probability of entering the workforce decreases in proportion to the income of the husband. This is known as the Douglas–Arisawa law, and precise measurements have been obtained with this law for years, as in the survey by Kawaguchi (2002), for example. However, even though the effect of household assets and asset income, which constitute non-labor income to youths, is analogous to the example above of a wife’s non-labor income, virtually no studies have measured the effect of these non-labor sources of income on youth employment. Measuring and analyzing the effects on non-labor income on youth unemployment is the subject of investigation in the present paper.

As mentioned above, one of the aims of this paper is to determine whether household asset income suppresses the labor supply of youths, as well as to quantify the extent of this effect in the event that it does exist.

### 3. Data and descriptive statistics

This paper uses anonymous data from the “National Survey of Family Income and Expenditure” (NSFIE) as conducted in 1989, 1994, 1999, and 2004.<sup>3)</sup> This survey is the largest statistical survey of its kind in Japan, with a sample size of 55,000 households (excluding single-person households), and its aim is to collect detailed information on household consumption and savings. Subjects provided information on their annual income, assets and liabilities as well as quarterly household accounts. The usefulness of this survey for this paper lies in the fact that it provides information about all household members, including whether they are employed, unemployed, or seeking employment, as well as information about their work industry and occupation. The survey provides unique government statistics and offers a picture of labor income and work occupation together with information such as household assets and asset income.

Of the previous studies on labor supply, many studies have investigated the employment

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3) Various anonymization processes were used in preparing these data, for example, deleting personal information such as the prefecture where the household is located. As mentioned later in this paper, although it was necessary to exercise caution with regard to top coding of the savings amount, we did not encounter any substantial difficulties.