Essays on Wage Determination Factors and Individual Heterogeneity
—Evidence from Japanese Panel Data—

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Abstract

This dissertation presents three essays related to factors determining wage. Verifying factors influencing wage levels and changes in wage rate has remained a key issue in labor economics. Since Mincer (1974) proposed his famous Mincer earnings function on the basis of human capital theory in his book "Schooling, Experience, and Earnings," many empirical studies have shown that these years of schooling and labor market experience are major factors determining wages in the United States and several other countries (Burusku 2006).

Studies analyzing the role of returns of education, work experience, and job tenure on wage apply the Mincer equation to tackle the problems of omitted variables and individual heterogeneity of biased estimates (Altonji and Shakotko 1987; Abraham and Farber 1987; Marshall and Zarkin 1987). These problems also apply to the case of Japan. This dissertation investigates factors affecting wages by conducting a Japanese panel data analysis. As Hsiao (2003) and Baltagi (2013) note, panel data analysis can remove potential sources of time-invariant unobservable individual heterogeneity, which cannot be controlled for using time-series or cross-sectional data.

There are several potential factors influencing wages, including family and social environment and habituation. Recent economists have investigated the influence of behavioral factors on economic decision-making. In this thesis, we investigate the effects of two behavioral factors, smoking and marriage, on wages. We use two methods to measure personality traits as potential unobservable individual heterogeneity to assess the validity of these unstable variables in an economic empirical analysis. In fact, several recent studies, particularly in the field of economic behavior, use unstable variables such as time discount rate, risk aversion rate, and a locus of control or other personality traits as proxy variables of individual unobservable heterogeneity.

The analysis results reveal that individual unobservable heterogeneity affects wage determination through two behavioral factors: smoking and

intra-household specialization. It is important to carefully interpret estimation results when using unstable variables such as the Big-Five personality traits as a proxy variable for individual unobservable heterogeneity.

In Chapters 2 and 3, we use Japanese panel data to verify factors contributing to the wage disparity between smokers or non-smokers and between married males who have a full-time housewife and those unmarried or whose wives also have full-time or part-time jobs (hereinafter "other male"). More specifically, Chapter 1 provides an overview of our research question and summarizes each chapter.

Chapter 2 analyzes smoking behavior and its effects on wage rate. It is widely known that smoking has negative health effects and to discourage the practice, governments frequently implement policies such as tax increases and restrictions on public smoking. To evaluate these policies, it is necessary to understand the economic benefits and costs of reducing the number of smokers. We conduct a panel data analysis while controlling for unobserved heterogeneity and in Chapter 2, show that smoking is not the main factor causing observed wage differentials between smokers and non-smokers in Japan.

In Chapter 3, we attempt to answer our research question "Do wedding bells bring wealth?" In Japan, it is commonly believed that marriage increases men's income level and a cursory view of the data suggests that this holds true, particularly if the spouse is a full-time housewife. Further, Becker (1991) argues that women have a comparative advantage over men in housework, and thus, focusing on their job after marriage can result in a male wage premium. Previous studies, however, provide no observed effects of marriage on male wages in Japan and tend to emphasize marital status and the obvious differences in housework between males and females in Japan. Therefore, we believe there is scope for an examination of the effects of marriage-related factors on male wages. Using Japanese panel data, Chapter 3 investigates the relationship between intra-household specialization and wage rates for men and finds that when unobserved heterogeneity is controlled for, intra-household specialization has no significant effect on wage.

In Chapters 2 and 3, we find that wage differences between smokers and nonsmokers and between married males who have full-time housewives and other males emanate from people's individual unobservable differences even after controlling for schooling, work experience and job tenure effects.

In Chapter 4, we focus on the Big-Five personality traits—extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience —to test the validity of unstable factors when using them as proxy vari-

ables for individual unobservable heterogeneity in an economic empirical analysis: this is an established method to measure personality in the field of psychology. We use two datasets, one with a 10-item inventory and the other with 44, to measure the Big-Five personality traits. In general, the procedure to measure personality includes the 44-item questionnaire, which is a time-consuming yet commonly used method in psychology studies. The 10-item questionnaire, on the other hand, is a newly developed method and can save time for researchers and respondents. Both procedures are certified as a sufficient method to measure personality traits in psychology analyses; however, this does not mean that both provide similar outcomes in economic analyses. In Chapter 4, we estimated the Mincer equation with personality traits to compare the effects of personality on wages among the Big-Five variables, estimated using the 10 and from 44-item questionnaires. The results show that one personality traits, agreeableness differs between the 10 and 44-items, which can be attributed to differences in the expressions of each item between the two questionnaires. The key finding of the analysis in this chapter is that short questions save time for respondents and have a consistent effect on economic in comparison to the widely used, time-consuming questions; however, this holds true for "some" personality traits, not all. When using measuring procedures with short questions in economic empirical research, it is important to pay careful attention to the expression of each item in the questionnaire, particularly for agreeableness.

In Chapter 5, we summarize the thesis and offer concluding remarks.

We recommend that further research attempt to elucidate the mechanism underlying the relationship between wages and smoking, marriage, individual unobservable heterogeneity. It is also necessarily to have a more detailed panel data survey to verify the mechanism of wage determination in Japan, which we leave for future works.