

The Choice of Self-employment and the Role of Risk Tolerance

Though the overall proportion of self-employment decreased during last 40 years, it still occupies about a third of employment in Korea and the share of the employer with employees increased during 1990s. Using the KLIPS, this study analyzes determinants of the choice of self-employment considering risk tolerance. Descriptive statistics shows that the proportion of taking risk is higher for the self-employed than for the employed. The Probit analysis indicates that the risk tolerance indicator plays a significant role in being self-employed for both men and women.

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Backgrounds of the Study

One of the main characteristics of the Korean labor market is the high share of self-employment. The overall proportion of self-employment decreased from 61% in 1970 to 32% in 2007. More specifically, it declined rapidly during 1960s-1980s due to industrialization and urbanization while it went up during 1991-2002. During the 1990s, the share of self-employment increased rapidly for men but not so rapidly for women and the proportion of employers increased from 9% to 21%. Typically self-employment is considered as an alternative employment or the last resort of work for survival in the labor market especially when it is tight. However, choosing self-employment is recognized as an opportunity for innovative entrepreneurship during 1990s. In this context, this study focuses on the role of risk tolerance in the choice of self-employment. Self-employment has played an important role in the Korean labor market, but only a few studies on it have been done and none with considering risk tolerance.

Studies on Self-employment in Korea

Studies on self-employment in Korea can be summarized as three categories. Several researchers have explored about why they choose self-employment? Is self-employment an innovative entrepreneurship or the last resort? Or is it a bridge employment before retirement or to get a stable wage jobs? Ryu & Choi (1999, 2000) found an increase in self-employment in the 1990s due to individuals' active choices. Kim (2000) investigated self-employment status in detail using options such as the employer, own account workers, and regular or irregular workers. Anne (2000) considered self-employment as an alternative of the job-losers. Sung (2002) focused on female self-employment in order to balance work and family. Moon, Sung & Anne (2002) examined many aspects of female self-employment to suggest the policy implications to raise women's labor supply. Keum & Cho (2000) concluded that the self-employed were mainly individuals who couldn't get their jobs due to their low skill levels (inferior employees). Chun (2003) used a push-out hypothesis to show a positive correlation between the unemployment rate and self-employment. Sung & Anne (2004) examined self-employment as a bridge employment. Second category is about what determines its growth/performance. Sung & Anne (2002) analyzed the relationship between entrepreneurship and economic performance and satisfaction. Third category is about what causes its closure. Moon, Sung & Anne (2002) and Anne & Sung (2003) estimated determinants of closing business and duration of self-employment. There has been no study on self-employment considering risk tolerance mainly due to no data with information on risk tolerance in Korea that we use in this study.

Data: the Korean Labor and Income Panel Study

This study uses the KLIPS (Korea Labor and Income Panel Study), which is a longitudinal survey of the representative sample of Korean households and individuals, conducted by the Korea Labor Institute since 1998 (the 10th wave in 2007) to trace out their characteristics over economic and social activities, work history, etc. The sample of the KLIPS consists of 5,000 households and 13,321 individuals (aged 15 and over) in the sample households. The KLIPS includes information on the households and individuals, especially detailed information on labor and income status. This study uses its 7th wave, which asked five questions to measure risk tolerance, i.e., do you prefer cash or a lottery.

Methodology

The Probit Model of Self-employment

We use a Probit model to analyze determinants of choosing self-employment and the effect of risk tolerance on the choice. The dependent variable is a dichotomous variable representing whether an individual is self-employed or not, i.e.,

$$Y_i^* = X_i\beta + R_i\gamma + \varepsilon_i \quad (1)$$

where Y_i^* = a latent variable of being self-employed, X_i = variables affecting the decision to be self-employed, R_i = a measure of risk tolerance, β and γ = parameters to be estimated, $\varepsilon_i \sim N(0, \sigma^2)$ = error terms. In estimation, $Y_i = 0$ for those who are employed while $Y_i = 1$ for those who are self-employed.

The Measure of Risk Tolerance

To measure individual's risk tolerance level, five questions are given by asking whether individual chooses cash or a lottery and each of five lotteries has a different probability and reward. The probability of risk and their expected value are shown in Table 1. To estimate the overall risk tolerance level, we construct the risk tolerance indicator (RT) by giving different weights for them, i.e., $RT = \sum \omega_i(\text{Risk } i)$, $I = 1, 2, 3, L, \text{ and } H$, where each risk tolerance (Risk i) is coded into three levels: 0 for choosing cash, 1 for indifference between cash and a lottery, and 2 for choosing a lottery.

Table 1
Risk Variables

	Risk 1	Risk 2	Risk 3	Risk L	Risk H
Probability of Win	50%	50%	20%	40%	60%
Amount: Win	15	20	50	20	20
Amount: Lose	5	0	0	0	0
Expected Value	10	10	10	8	12
Variance	25	100	400	96	96
Standard Deviation	5.0	10.0	20.0	9.8	9.8
Weights for Overall RT	0.1	0.2	0.35	0.25	0.1

Descriptive Analysis

Risk Tolerance by Gender and Education

Table 2 shows the risk tolerance level by gender and the level of education. The overall share of choosing a lottery is 14.1% for male while it is 5.1% for female and they are lower for female in all the educational levels. Among the educational level, it is highest for junior college graduates in both male and female.

Table 2
Proportion of Taking Risk (Risk 2) by Gender and Education Levels

	Male			Female		
	Lottery	Indifferent	Cash	Lottery	Indifferent	Cash
Total	14.1	2.5	83.4	5.1	1.4	93.5
High School Drop	16.8	2.4	89.9	2.7	1.1	96.2
High School Graduated	7.7	2.4	89.9	7.1	1.3	91.6
Junior College Graduated	19.0	2.9	78.1	8.0	1.6	90.4
College Graduated	16.6	3.1	80.3	5.3	2.2	92.5
Graduate School Graduated	7.5	1.9	90.6	5.8	1.9	92.3

Table 3 shows the proportion of taking risk by the employment status. The proportion of choosing lottery is highest for the employer with workers as 17.3%, which implies that those who are running the business can

be the innovative entrepreneurs. On the other hand, the proportion of choosing a lottery is lower in own account workers compared with wage earners such as permanent workers. Since own account workers are not in the stable financial status, they are more likely to be risk averse in the choice.

Table 3
Proportion of Taking Risk by Employment Status

	Workers Total	The Employed			The Self-employed		
		Permanent	Temporary	Daily	Employer	Own Account	Unpaid
N(%)	11,661	3,309(28.4)	449(3.9)	499(4.3)	508(4.4)	1,051(9.0)	468(4.0)
Risk 2							
Lottery	10.1	14.0	11.4	11.2	17.3	10.4	5.3
Indifferent	2.3	2.9	2.4	2.0	4.7	2.7	0.9
Cash	86.9	82.5	85.3	86.4	77.8	76.9	93.2

Probit Results

Probit results show that age and education have positive effects and their squares are negative effects on the choice of self-employment. Those who are middle aged are most likely to be a self-employed than those who are younger or older since they have more work experiences to start their own businesses. Also, the never-married are less likely to be self-employed than the married with spouse. Those who have children aged between 2 and 6 or elderly who are aged over 70 and needs care are more likely to be self-employed and its effect is significant for women but not for men. If individuals are care-providers to the family members, they want more flexible work time and arrangement by keeping self-employment status. Real estate and debt of the household show a positive effect on the choice of self-employment. The effect of a single risk tolerance (Risk2) on being the self-employed is not so significant while its effect on being the employer against the employed is significant for both men & women. The risk tolerance indicator (RT) plays a significant role in being self-employed for both men and women. The results imply that empirics without considering risk preference would be subject to an error of omission of the relevant variables.

Further Research Directions

Based on this study, we can start further research with a question. If individuals are more risk-taking, do they have a better performance in their business? To answer this question, more research should be done in two folds. More information on the risk tolerance should be provided in a panel survey to study the dynamic aspects of the risk tolerance and its effect. Also, more theoretical and empirical studies focus on measuring the risk preference and its effect on the economic decisions can be examined to explain the role of risk tolerance.

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Endnotes

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