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A DYNAMIC MECHANISM ON EMPLOYED WORKER'SJOB CAREER CHOICE PATH: BECOMING AN ENTREPRENEURS VS. MAINTAINING AN EMPLOYED STATUS

Abstract. The paper develops an infinitely repeated game-theoretic model in order to scrutinize the entrepreneurial career path transition of employed workers. First, employed workers, trying to avoid entrepreneurial risks, have a conservative attitude on entrepreneurship generically. Second, even if the degree of individual specific technology or know-how is high enough, the likelihood of employed worker's career path transition can be decreased interacting with individual-wise risk aversion. Third, it is demonstrated if employed workers are more likely to transit to entrepreneurial career path as the younger the employed workers are or the higher the gains from entrepreneurship are expected. The predictions of the model are empirically tested using a cross-country panel data collected from Global Entrepreneurship Monitor. Main empirical findings support the theoretic predictions. As long as it is socially more efficient to transit those employed workers to entrepreneurs rather than incubating nascent entrepreneurs, a government needs to put a more emphasis on enlightening entrepreneurial courage rather than encouraging innovations or technologies to novice entrepreneurs, which is, to the least, a way to decrease society-wise opportunity costs. This implicit effect needs to be more importantly considered than casually quoted the direct effect of entrepreneurship, i.e. job creation effect.

Keywords: entrepreneurship, career path, sustainability, risk aversion, education, and repeated game.

JEL Classification: L26

1. Introduction

Entrepreneurship is understood as a concrete pathway to provide continued economic growth through job creation (Van Praag and Versloot, 2007; Perren and Jennings, 2005) saying that entrepreneurship is a complementary policy to support job creation while active entrepreneurship is a synonym of creating self-employed individuals. When it comes to job creation, two long-standing issues are concerned.

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First, transiting employed workers to self-employed entrepreneurs draws an important political attention because those who have previous work experiences can minimize set-up costs required to upward mobility through entrepreneurship compared to novice entrepreneurs (Aghion and Bolton, 1997; Banerjee and Newman, 1994and 1993).Obviously, it is socially more advantageous to transit employed workers to entrepreneurs because efficient entrepreneurial resource allocation can explore new profit opportunities (Gifford, 1998); managers with embodied knowledge, skills, and technologies through previous work experiences are less likely to fail by circumventing set-up costs for entrepreneurship.

De Fraja's (1996) early work provides some noteworthy implications in understanding why employed worker's career path transition to self-employed path would be more socially efficient. Initially, individuals, exploring innovative projects, can be better off if they work as managers because they can take advantage of internal endowments but, in the long-run, principal-agent problem is inevitable; however, once located in entrepreneurial career path, they become to invest more efforts taking advantage of their embedded technologies acquired through work experiences. Further, they are more inclined to devote best efforts in a sluggish economy. By this respect, Ghataket al. (2001) argue that all individuals must begin as workers, and then they can have an option to become entrepreneurs. According to Lazear(2005), those individuals with balanced skills are more likely to become entrepreneurs compared to those individuals with narrowly focused skills only.

Second, a critical myth prevailing amongst entrepreneurs, investors and policy-makers is that raising entrepreneur can guarantee sustainable entrepreneurship. For obtaining sustainable entrepreneurship, a dynamic mechanism of generation-to-generation entrepreneurship is required; a second-mover group of entrepreneurs is able to identify entrepreneurial incentives from a first-mover group of entrepreneurs.

Unfortunately, there is a fundamental conflict in the career path transition of employed workers. A clue on this problem can be sought from Parker (2003) who demonstrates that entrepreneurs are inevitably required to make over-investments in credit market due to asymmetric information that lies between investors, which can frequently discourage entrepreneurial courage. In reality, raising capital is the biggest obstacle to become an entrepreneur and he must afford exogenous control over his business scheme if he needs to rely on non-private capital markets (Blanchflower and Oswald, 1998). Further, the more the entrepreneurs depend on non-private investors, the less likely they can utilize individual-specific technologies because uncertainty on projects rises (Dessein, 2005). In this context, managers are inclined to maintain current job status enjoying a lower cost of capital than exploring own business opportunities (Bootet al., 2006).

By this respect, skepticism on entrepreneurship as a stimulus to stainable economy is pervasive(Martinez *et. al*., 2010). Oosterbeek *et al*. (2010) and Ghatak

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et al, (2001) assert that entrepreneurship education does little or even nothing to enhance skill, knowledge, and technology. Rather, entrepreneurship education should be focused on enlightening the entrepreneurial courage of employed workers.

Acknowledging these discussions, this paper scrutinizes strategic pathway for inducing employed workers or managers to choose self-employed career paths. For this purpose, an infinitely repeated game-theoretic model is constructed, which develops some testable propositions. The model has three salient features. First, it is carefully analyzed under which condition social preference can be weighed more on a self-employment career path. Second, it is scrutinized if employed workers are likely to choose a self-employed career path while the individual-wise degree of risk aversion is distinguished from an individual-specific technology. Third, age effect in terms of creating new startup combined with an initial capital requirement is analyzed taking discounted value is taken into consideration.

The theoretic predictions of the model are tested empirically by probit models using Adult Population Survey(APU) database from Global Entrepreneurship Monitor(GEM). To my best knowledge, APU is the most reliable public panel dataset, which is collected from more than 100 countries. This paper is organized as follows. In section 2, social preference to entrepreneurship is discussed. In section 3, a static career path along with an incentive mechanism to induce employed workers to choose self-employed career path is presented. Section 4empirically examines the model's testable propositions on sustainable entrepreneurship and section 5summarizes the main findings of the paper along to a few policy implications.

2. Social Preference

The model is constructed using an infinitely repeated game model and t represents each time horizon that is characterized by total n time economic activities where $t = \{1, \cdots, n\}$. $i$is an employed worker and i can earn n-time income consistently in each t. If he decides to found own start up, he can earn entrepreneurial rents up to n times with his technology available during t, and then he does another n times with a newer expertise available for the next$t + 1$period, and so on.[1]

In order to obtain an economic gain $y$at t, i needs to invest one-shot capital investment (x)in the 1st stage of t and another x in the 1st stage of $t + 1$ no matter

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[1]In terms of technology, n represents a product life cycle available at t and another product life cycle begins at $t + 1$. For instance, an entrepreneur can invest for the mth generation of telecommunication technology at t, which brings total n-time economic rent to the entrepreneur. A newer investment for the $m + 1$th technology at $t + 1$ can bring another n-time rent during $t + 1$. This investment-and-harvest behavior can be iterated until his entrepreneurial investments are expected to be profitable.

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what his career path choice would be.This one-shot investment occurs recursively as long as i wants to earn y continuously in each t.

Let $z(x,y)$ be i's payoff investing x for obtaining the income of y where $z(x,y)$ is increasing and strictly concave but with decreasing return to scale in x: $z'_x(x,y) > 0$ and $z''_x(x,y) < 0$. Without the loss of generosity, we assume that i prefers a higher y and thus it is assumed to be $z'_y(x,y) > 0$ and $z''_y(x,y) > 0$.

An employed i can earn y_m as a return of the investment of x_m and this employed path is denoted as $\{EM\}$, whereas i can earn y_p investing x_p if his career choice is to run own startup, which is denoted as $\{EP\}$. The future income stream of $\{EM\}$ is relatively stable but that of $\{EP\}$ follows a stochastic income stream. Let the lower-and upper-income bounds of $\{EP\}$ be y_p^- and y_p^+, respectively. y_p^+ represents the income from successful entrepreneurship with social prestige and fortune. On the other hand, y_p^- represents the income from $\{EP\}$ when i falls into daily worker status with irregular income.

The expected gain from $\{EP\}$ depends on α: $y_p = \alpha y_p^+ + (1-\alpha)y_p^-$ where $0 \le \alpha \le 1$. Note that job stability and venture sprit trades off each other. So, the degree of risk aversion affects vocational social norm between $\{EP\}$ and $\{EM\}$. Therefore, i under $\{EM\}$, can earn a weighted gain of $y_m = (y_p^+ + y_p^-)/\beta$ where β is the degree of risk aversion. α represents the probability to earn y_p^+ under $\{EP\}$, which represents i's technology level. So, the higher the α is, the more likely i is to take entrepreneurial risk while β measures i's propensity to avoid entrepreneurial risk.[2]

One can rewrite the $\hat{y}_m$ of i as the linear function of $\hat{y}_m = \{y_p + (1-2\alpha)y_p^+\}/(1-\alpha)\beta$, which reveals that the more risk averse i is, he becomes to receive a lower gain from $\{EM\}$. In fact, i's salary under $\{EM\}$ will be lowered if he prefers being employed and *vice versa* given that $\partial^2 \hat{y}_m/\partial\alpha\partial\beta > 0$ where $\partial \hat{y}_m/\partial\alpha = -(y_p^+ - y_p^-)/[(1-\alpha)\beta] < 0$. Thus, one can say that employed workers are generically conservative; individuals prefer being employed as smaller capital investments are required as shown in Lemma 1.[3] Hence, currently losing entrepreneurship popularity in Korea, Japan, and Taiwan, *i.e.* those countries once highly appraised to have raised active entrepreneurship as a new growth fuel for national economy, can be understood as a natural phenomenon.

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[2] Bauernschuster *et al.* (2010) points out that access to social capital helps entrepreneurs to overcome resource constraints, which can decrease risk aversion implicitly.

[3] The self-employed ratio of OECD countries remains at 15-18 percent in 2000s but that of Korea peculiarly remains above 35 percent; its surging self-employed ratio originates from continued job instability *ex post* IMF financial crisis occurred in 1997.

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Lemma 1. *The higher the entrepreneurial success is expected, the lower the gain from $\{EM\}$ will be; nevertheless, maintaining current job status becomes to be dominant to employed workers as long as they are risk averse.*

Note that $\partial \hat{y}_m / \partial y_p^+ > 0$ if $\alpha < 0.5$ but $\partial \hat{y}_m / \partial y_p^+ \leq 0$ if $\alpha \geq 0.5$ where $\partial \hat{y}_m / \partial y_p^+ = (1 - 2\alpha)/(1 - \alpha)\beta$; hence, y_p^+ can substitute $\hat{y}_m$ if i 's own technology is high enough and *vice versa*. Interestingly, $\partial^2 \hat{y}_m / \partial y_p^+ \partial \beta = -(1 - 2\alpha)/(1 - \alpha)\beta^2 > 0$ under $\alpha \geq 0.5$; even when the chance to win y_p^+ high, individuals still prefer being employed if they are risk averse, which suggests Lemma 2.

Lemma 2. *The impact of the top entrepreneurial succession employed worker's compensation depends on the chance to win the top success while the degree of risk aversion adjusts the scale of the impact.*

Based on employed worker's conservative attitude on entrepreneurship, it is not too much to assume $x_p^* > x_m^*$.[4]Revoking that $z(x, y)$is increasing and strictly concave in x, then Condition 1 holds up. Condition 2 represents an incentive mechanism to enable$i$to choose $\{EP\}$;however, it is uncertain if i would choose $\{EP\}$because y_p depends on α as wells.

Condition 1. *In equilibrium, the marginal gains from $\{EM\}$w.r.t. capital investment would be greater than that from $\{EP\}$, i.e. $z'_{x_m}(x_m^*, y_m^*) > z'_{x_p}(x_p^*, y_p^*)$.*

Condition 2. *In equilibrium, the marginal gains from $\{EP\}$ w.r.t. income would be greater than that of$\{EM\}$, i.e.$z'_{y_p}(x_p^*, y_p^*) > z'_{y_m}(x_m^*, y_m^*)$.*

Any capital investment x requires an opportunity cost v and thus total investment is given to vx.[5] Denote the opportunity cost of $\{EM\}$ by v_m and that of $\{EP\}$by v_p[6]. A transition cost c_p occurs only when i transits to $\{EP\}$.Under $\{EP\}$,

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[4]Entrepreneurs need to invest own pocket money while they have to manage entire value chain independently. In contrast, employed workers can specialize into professional vocations with comparatively smaller capital expenditures. Further, entrepreneurs have to bear all sorts of business risks but workers have limited responsibilities in their work places. By this reason, Yim (2012 & 2008) suggest that rapidly growing startups aggressively take advantage of such strategic behaviors as diversification, merger and acquisition, strategic alliance, and niche marketing.

[5]$v$is unavoidable under $\{EM\}$as he needs to devote resources for earning higher salary and rank.

[6] The opportunity costs of both $\{EP\}$ and $\{EM\}$ are increasing by age because job offering

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i solves $\max\limits_{x_p} z(x_p, y_p) - v_p x_p - c_p$ and i solves $\max\limits_{x_m} z(x_m, y_m) - v_m x_m$ under $\{EM\}$, which yields $z'_{x_p}(x_p^*, y_p^*) = v_p$ and $z'_{x_m}(x_m^*, y_m^*) = v_m$. By Condition 1, $v_m^* > v_p^*$ holds up; the opportunity cost of $\{EM\}$ is higher.

3. Model
3.1. The Static Career Path

In the model, we assume that i has only one life-time chance to change his career path. If i decides to change his career path from $\{EM\}$ to $\{EP\}$ at t, it must be done in the 2nd stage during t as it stays as an employed in the 1st stage at t.[7]

From the perspective of entrepreneurial efficiency, $\{EP\}$ is better off because those entrepreneurs who have accumulated own field experiences are more likely to achieve y_p^+ rather than novice young entrepreneurs. Also, $\{EM\}$ is worse when it comes to job creation.[8] The net present value of i under $\{EP\}$ is given to equation (1) where δ is a discount factor while that under $\{EM\}$ is given to equation (2).

$$V_{\{m|p\}} = z(x_m, y_m) - v_m x_m + \frac{\delta - \delta^n}{1-\delta} z(x_p, y_p) - v_p x_p - c_p \qquad (1)$$

$$V_{\{m|m\}} = \frac{\delta - \delta^n}{1-\delta} z(x_m, y_m) - v_m x_m \qquad (2)$$

3.2. The Mechanism Design

The discounted net present values of the $\{EP\}$ and $\{EM\}$ path are defined as (3) and (4) where δ is a discount factor.

$$\hat{V}_{\{EP\}} = \frac{\delta}{1-\delta} z(x_p, y_p) - \frac{1}{1-\delta^n} v_p x_p - c_p + z(x_m, y_m) - v_m x_m \qquad (3)$$

$$\hat{V}_{\{EM\}} = \frac{\delta}{1-\delta} z(x_m, y_m) - \frac{1}{1-\delta^n} v_m x_m \qquad (4)$$

The incentive mechanism design must satisfy $\hat{V}_{\{EP\}} \geq \hat{V}_{\{EM\}}$. Defining $\tilde{V} = \hat{V}_{\{EP\}} - \hat{V}_{\{EM\}} \geq 0$ as the likelihood for i to create own startup, then

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would be limitedly available to aged workers, and therefore individuals tend to be risk averse as they are aged. In the model, discounting factor can reflect age effect.

[7] In the model, individuals may be able to freely change their job status in each t but such career path is one of contingent paths available in infinitely repeated game by Folk theorem. For simplicity, I consider a trigger strategy that enables i to change his career path once in a life time. For instance, Plehn-Dujowich (2010) considers three occupational choices for serial entrepreneurship; 'maintaining current entrepreneurship,' 'shutting-down and enter labor market to be hired,' and 'shutting-down and beginning new venture.'

[8] According to Mukoyama (2014), the reallocation of workers through job-to-job transition decreases total factor productivity (TFP) by 0.4–0.5% annually from 2001 to 2009 in US.

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$$\tilde{V} = \frac{\delta}{1-\delta} z(x_p, y_p) - \frac{1}{1-\delta^n} v_p x_p - c_p - \frac{\delta}{1-\delta} z(x_m, y_m) + \frac{\delta^n}{1-\delta^n} v_m x_m \quad (5)$$

An important policy implication for entrepreneurship is drawn from Proposition 1. Actually, the degree of risk aversion can discourage i to choose $\{EP\}$ regardless of individual specific entrepreneurial competitiveness. Hence, a government, once it wants to encourage entrepreneurship, needs to put an emphasis on mitigating the degree of risk aversion through exploring entrepreneurial spirit.

Proposition 1. *Individual specific technology is necessary to encourage* $\{EP\}$*; however, a lower degree of individual-wide risk aversion is sufficient to activate* $\{EP\}$.

Proof. Plugging $y_m = \frac{2y_p^+ + (1-\alpha)y_p^-}{(1-\alpha)^2}$ into $\tilde{V}$, then $\frac{\partial \tilde{V}}{\partial \alpha} = \frac{\delta}{(1-\delta)} \Big\{ (y_p^+ - y_p^-)v_p + \Big(\frac{(3-\alpha)y_p^+ - (1-\alpha)y_p^-}{(1-\alpha)^2 \beta} \Big) \Big\} > 0$ because $(3-\delta)y_p^+ > (1-\delta)y_p^-$ holds up. Thus, $\frac{\partial^2 \tilde{V}}{\partial \alpha\, \partial \beta} = -\frac{\delta}{(1-\delta)} \Big\{ \frac{(3-\alpha)y_p^+ - (1-\alpha)y_p^-}{(1-\alpha)^2 \beta^2} \Big\} < 0.$

Given $x_p^* > x_m^*$, the sign of $v_p x_p - v_m x_m$ is not clearly determined as $v_m > v_p$ by Condition 1. An intriguing question is how $\tilde{V}$ responds to n when $v_p x_p \geq v_m x_m$. Intuitively, this question can explore how to make young employed workers, having a longer life-time span, transit to $\{EP\}$ when they have to afford larger entrepreneurial investments. Proposition 2 clearly exhibits that a younger i is expected to choose $\{EP\}$ path as longer he is expected to work. In our context, the younger the i is, he is more likely to decide to run own startup.

Proposition 2. *The younger the employed is, the more likely he transits to an entrepreneurial career path.*
Proof. If n increases to $n+1$, $\tilde{V}|_{n+1} - \tilde{V}|_n = \frac{\delta^n (1-\delta)}{(1-\delta^n)(1-\delta^{n+1})}(v_p x_p - v_m x_m)$. $\tilde{V}|_{n+1} > \tilde{V}|_n$ if $v_p x_p \geq v_m x_m$ and *vice versa.*

A naturally intriguing question is then what if $v_m x_m \geq v_p x_p$. This means that i pays a huge sunk investment in current job place, which suggests that he will be reluctant to choose $\{EP\}$ unless he can fully retrieve $v_m x_m$ from $\{EM\}$. This highlights 'tied-in' effect in i's current job. For instance, an executive in a large corporation with a strong social reputation is less inclined to run own startup. The tied-in effect is generically affected by $v_p x_p - v_m x_m$. For instance, Korea is so called a strong bureaucratic country inheriting strong Confucianism heritage, which drives its young generation to pursue such socially prestigious jobs as doctor, lawyer, professor, or government officer. In contrast, young generation in China is

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not reluctant to become black-hand entrepreneurs affording $v_p x_p$ actively. It is because the opportunity cost of investing x_m is comparatively larger in a rapidly growing economy and *vice versa*. Propositions3 and 4 supports Lemma 1 and Lemma 2.

Proposition 3. *As higher the capital investment is required for running own business, the less likely an employed transits to a self-employed career path.*

Proof. Note that $\frac{\partial \tilde{V}}{\partial x_p} = \frac{\delta}{1-\delta} z'_{x_p}(x_p, y_p) - \frac{1}{1-\delta^n} v_p$. Thus, $\frac{\partial \tilde{V}}{\partial x_p} = \left\{ \frac{-1+2\delta-\delta^{n+1}}{(1-\delta)(1-\delta^n)} \right\} v_p$ plugging $z'_{x_p}(x_p, y_p) = v_p$. For any $0 \le \delta \le 1$, it is always $-1 + 2\delta - \delta^{n+1} \le 0$, Thus, $\frac{\partial \tilde{V}}{\partial x_p} \le 0$.

Proposition 4. *When the successful entrepreneurial gain is high, the employed is more likely to transit to a self-employed career path when he owns competitive technology.*

Proof. Plugging $y_m = \frac{2y_p^+ + (1-\alpha)y_p^-}{(1-\alpha)^2}$ into $\tilde{V}$, then $\frac{\partial \tilde{V}}{\partial y_p^+ \partial \alpha} = \frac{\delta}{1-\delta} z'_{y_m}(x_m, y_m) \frac{1}{(1-\alpha)^2 \beta} > 0$

4. Empirical Works
4.1. Dataset and Equations

For empirical tests, APU (*Adult Population Survey*) dataset is collected through adult population survey from *Global Entrepreneurship Monitor*(GEM). Unfortunately, a majority of survey categories are composed of discrete-choice questions along to categorical questions, which lacks in information on respondents' characteristics. To accommodate this limitation, probit models are constructed for testing propositions in the previous section.

In (6) and (7), y_i represents those currently employed but planning to be involved in *TEA* (total early-stage entrepreneurial activity), which is a proxy for$V_{\{EP\}}$. o_d is a OCED dummy. α_d is a dummy that measures whether i has the knowledge, skill and experience required to start a new business, which is a proxy for α. β_d is a dummy variable that gives the value of one if the fear of failure prevents i from starting a business, which is a proxy for β. fn_i measures informal funds (indexed by US dollar) in the last three years. Intuitively, the larger the fn_i isrequired, the more i would be reluctant to choose $\{EP\}$. hs_i is the size of permanent household; it is chosen as a proxy for an opportunity cost to choose$\{EP\}$. ic_c is a categorical variable classifying the income levels of three groups into 33 percentile and 67 percentile.

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In (7), $\alpha_d * \beta_d$ measures how β_d interacts with α_d. In (8), $\alpha_d * nb_d$ represents a scenario where i has a knowledge, skill, and experience to start a new business while most people think that starting a new business is a desirable career choice in his country (nb_d). $\beta_d * eq_d$ represents a scenario where i has a strong fear of failure given that a similar standard of living is preferred in his country (eq_d).

$$y_i = o_d + \alpha_d + \beta_d + fn_i + hs_i + ic_c + \varepsilon_i \qquad (6)$$
$$y_i = o_d + \alpha_d + \alpha_d * \beta_d + fn_i + hs_i + ic_c + \varepsilon_i \qquad (7)$$
$$y_i = o_d + \alpha_d * nb_d + \beta_d * eq_d + fn_i + hs_i + ic_c + \varepsilon_i \qquad (8)$$

Equations (9) and (10) test the impact of $non\ \tilde{V}$. ag_i measures i's age but $ag_d^{25\_34}$ is a dummy when i is 25 to 34 years old where ag_d^{45+} is a dummy when i is older than 45. $ag_d^{35\_44}$ is similarly defined.

$$y_i = o_d + ag_i + \alpha_d + \beta_d + fn_i + hs_i + ic_c + \varepsilon_i \qquad (9)$$
$$y_i = o_d + ag_d^{25\_34} + ag_d^{35\_44} + ag_d^{45+} + \alpha_d + \beta_d + fn_i + hs_i + ic_c + \varepsilon_i$$
$$(10)$$

In (11) and (12), st_d is a proxy for y_p^+ that gives the value of one if successful entrepreneurs can enjoy higher social status and respects in a country; hence, $\alpha_d * st_d$ represents the interaction effect between y_p^+ and α.

$$y_i = o_d + \alpha_d + st_d + hs_i + ic_c + \varepsilon_i \qquad (11)$$
$$y_i = o_d + \alpha_d + st_d + \alpha_d * st_d + hs_i + ic_c + \varepsilon_i \qquad (12)$$

4.2. Results

According to Table 1, OECD countries show more conservative entrepreneurial attitudes. It turns out that α_d dominates β_d but their interaction effect is negative, which supports Proposition 1; unless risk aversion can be mitigated, own knowledge and skill cannot make the employed transit to $\{EP\}$. When the knowledge and skill level of the employed (nb_d) are high and societal value on running own business is highly valued at the same time, the employed can choose $\{EP\}$. In contrast, the employed is less likely to choose $\{EP\}$ when the degree of risk aversion is strong while a societal value on a similar standard of living is stressed out. Evidently, the more the capital investment is required to enter TEA, the less likely the employed transits to TEA career path. It is fundamentally because capital investment required for $\{EP\}$ deteriorates entrepreneurial courage. In fact, such opportunity cost would be proportional to family size and this, accordingly, deters career path transition. Table 1 demonstrates this feature exactly.

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Table 1. Probit Analysis: Scenario Approach on the{EP} Path

	Eq. (6)		Eq. (7)		Eq. (8)	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect	Coefficient	Marginal Effect
o_d	-0.2046*** (0.0369)	-0.0623*** (0.0111)	-.20532*** (.0368)	-.06303*** (.0112)	-0.3852*** (0.0517)	-0.1103*** (0.0139)
α_d	0.4064*** (0.0406)	0.1158*** (0.0106)	.5353*** (.0417)	.1501*** (.0104)	-	-
β_d	-0.3629*** (0.0385)	-0.1058*** (0.0105)	-	-	-	-
$\alpha_d * \beta_d$			-.3128 (.0456)	-.0895*** (.0120)		
$\alpha_d * nb_d$	-	-	-	-	0.2400*** (0.0414)	0.0718*** (0.0123)
$\beta_d * eq_d$	-	-	-	-	-0.3865*** (0.0542)	-0.1064*** (0.0134)
fn_i	-0.0858*** (0.0066)	-0.0262*** (0.002)	-.0953 (.0065)	-.0293*** (.0019)	-0.0542*** (0.0078)	-0.0163*** (0.0023)
hs_i	-0.0928*** (0.0289)	-0.0284*** (0.0088)	-.1264 (.0286)	-.0389*** (.0087)	-0.1267*** (0.0346)	-0.0381*** (0.0103)
ic_c	0.0011 (0.0172)	0.0003 (0.0052)	-.0091 (.0171)	-.0028 (.0052)	-0.0318 (0.0202)	-0.0095 (0.0061)
Obs.	6,502		6,502		4,578	
Log Like-lihood	-3435.9		-3,457.4		-2,391.2	

1. The numbers in the parentheses are standard errors.
2. *, **, and *** are significant at 90%, 95%, and 99%.

   In Table 2, the younger the employed is, he can pursue entrepreneurship more easily. In particular, those aged workers between 25 to 34are most likely to choose {EP} but those aged above 45 turn out to be insignificant. This result is parallel to Obschonkaa *et al.*(2011) who argue that early entrepreneurial competence in adolescence has a positive effect on making progress in venture creation process, which supports the age effect predicted by Proposition2. In addition, in both Tables 1 and 2, one can see that entrepreneurial career path is less likely to be pursued as the more the entrepreneurial investment is required, which supports Proposition 3.

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Table 2. Probit Analysis: The Impact of on the {EP}Path

	Eq. (9)		Eq. (10)	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect
o_d	-0.1781*** (0.0380)	-0.0522*** (0.0111)	-0.2203*** (0.0374)	-0.0669*** (0.0113)
ag_i	-0.0209*** (0.0013)	-0.0061*** (0.0003)	-	-
$ag_d^{25\_34}$	-	-	0.1698*** (0.0496)	0.0540*** (0.0163)
$ag_d^{35\_44}$	-	-	0.1413*** (0.0490)	0.0446*** (0.0159)
ag_d^{45+}	-	-	-0.0857 (0.0586)	-0.0255 (0.0170)
α_d	0.4896*** (0.0430)	0.1315*** (0.0103)	0.4024*** (0.0407)	0.1145*** (0.0107)
β_d	-0.3126*** (0.0398)	-0.0880*** (0.0106)	-0.3655*** (0.0386)	-0.1063*** (0.0105)
fn_i	-0.0142* (0.0082)	-0.0042* (0.0024)	-0.0872*** (0.0068)	-0.0266*** (0.0020)
hs_i	-0.0597** (0.0301)	-0.0175** (0.0088)	-0.1053*** (0.0292)	-0.0321*** (0.0088)
ic_c	0.0455** (0.0181)	0.0133** (0.0053)	-0.0005 (0.0172)	-0.0001 (0.0052)
Obs.	6,339		6,502	
Log Likelihood	-3,217.9		-3,424.4	

1. The numbers in the parentheses are standard errors.
2. *, **, and *** are significant at 90%, 95%, and 99%.

Table 3 reveals that the employed does not pursue $\{EP\}$ simply because y_p^+ is expected to be higher. Rather, interacting together with their knowledge and technology, y_p^+ can enhance the likelihood to pursue $\{EP\}$, which supports Proposition 4.

Table 3. Probit Analysis: The Interaction Effect of y_p^+ and α on the {EP}Path

	Eq. (11)		Eq. (12)	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect
o_d	-.1977*** (.0387)	-.0613*** (.0119)	-.1955*** (.0398)	-.0596*** (.0119)
st_d	-.1524*** (.0382)	-.0486*** (.0124)	-.6776*** (.0592)	-.2262*** (.0207)
$\alpha_d * st_d$	-	-	.6773*** (.0571)	.2044*** (.0163)

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β_d	-.4007*** (.0401)	-.1188*** (.0111)	-.3327*** (.0413)	-.0977*** (.0115)
fn_i	-.0549*** (.0068)	-.0171*** (.0021)	-.0567*** (.0069)	-.0174*** (.0021)
hs_i	.0056 (.0305)	.0017 (.0095)	-.0010 (.0306)	-.0003 (.0095)
ic_c	.0288 (.0181)	.0089 (.0056)	.0298* (.0182)	.0091* (.0057)
Obs.	5,799		5,714	
Log Likelihood	-3,154.1		-3,034.5	

1. The numbers in the parentheses are standard errors.
2. *, **, and *** are significant at 90%, 95%, and 99%.

5. Conclusion

The paper scrutinized, under which mechanism, those currently employed workers become to choose entrepreneurial career path and how such entrepreneurial challenge can be sustainable using an infinitely repeated game structure. The most salient feature of the model is that individual-wise entrepreneurial success is distinguished from the individual-wise degree of risk aversion while the order of entry taken into consideration.

There are three important implications. First, well-organized entrepreneurial infrastructure is neither enough to make the employed transit to entrepreneurs nor to secure sustainability unless it is coordinated with societal value on entrepreneurial success which can mitigate risk aversion. This argument suggests an important policy implication; government driven venture boom may not be self-sustainable as long as career path transition is stressed out because entrepreneurial courage for encouraging upward mobility through entrepreneurship is required as a sufficient condition. Alternatively speaking, a career path transition is achievable if entrepreneurial infrastructure is designed to enhance the chance of entrepreneurial success while lowering the degree of individual-wise risk aversion.

Henceforth, the governmental-driven entrepreneurship may not be self-sustainable unless it is designed to improve societal value on entrepreneurship. When entrepreneurial courage is encouraged, society-wide spreading entrepreneurial ambition can explore young generation's entrepreneurial gains, which can make generation-to-generation entrepreneurship be self-sustainable.

Korea's venture industry policy is a good example. Since 1998 financial crisis, the Korean government has aggressively pursued a variety of government-driven venture programs; however, only a handful venture firms like NHN, Daum, AhnLab, and Humax have grown to be large corporations. It is fundamentally due to lack in individual-wise entrepreneurial spirit; becoming an entrepreneur is regarded as a risky career path amongst Korean young generations and, as a result, job stability is acknowledged as the most important factor for career choice. By

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this respect, US is so called the most dynamic economy incubating the market-driven entrepreneurship. For instance, such resources as stock market, IPO service, underwriter, angel investor, M&A service, and venture capital are well-organized; they are able to mitigate the degree of risk aversion and to encourage entrepreneurial courage highlighting "American Dreams" through a self-sustaining invisible hand mechanism.

Second, entrepreneurship education should encourage entrepreneurial courage rather than stress out acquiring skills for managers because tolerating individual-wise risk aversion is a fundamental factor for sustainable entrepreneurship (Peterman & Kennedy, 2003).

Entrepreneurship is associated with a variety of multi-definitional characteristics such as technology, venture sprit, budgeting, innovation, organization, and mergers and acquisitions; this is the reason why entrepreneurship education has been mostly designed to acquire knowledge on such dimensions. However, previous works criticize that entrepreneurship education does not have direct effects on skills and motivations (Oosterbeek *et al.*, 2010; Honig and Samuelsson, 2008; Van Praag and Versloot, 2007). Martin*et al.* (2013) even concluded that it is not training-focused entrepreneurship but academic-focused entrepreneurship education that can produce long-term entrepreneurial outcomes.

The paper was intended to highlight courage and risk aversion reflecting discounted time values. In the future study, it will be approached which one between incubating novice entrepreneurs and transiting the employed to entrepreneurs would be more socially desirable.

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