

## Impact of MBA on Entrepreneurial Success: Do Entrepreneurs Acquire Capacity through the Program or Does MBA Only Signal Gifted Talent and Experience?

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### Abstract

When people obtains MBA degree, can he/she performs better in founding a firm than ones without it? If so, is it because of prestigious signal of MBA degree or because of acquired capability through the MBA program? In order to answer this question, we originally collected a survey of 1503 entrepreneurs in Japan via internet. We divide MBA degree effect on entrepreneurial activity into three effects; gifted talent, occupational experience and acquirement through MBA program. Gifted talent and occupational experiences of an individual enable him/he to entry a MBA program while this talent also enhance possibility to be a successful entrepreneur. When only these two effects matter on entrepreneurship, it leads that an MBA program signals that the entrepreneur is talented in nature and occupationally experienced but her/his capability acquired through the program do not matter on entrepreneurship. In our data, however, it is clarified that after controlling the effects of gifted talent and occupational experience, MBA still impacts entrepreneurship. This result implies that acquirement through MBA program positively affects on success of start-ups. This insight is useful for candidates of MBA program, who are also targeting to be entrepreneurs in the future and certificates that the program is worth to be invested for them.

**Keywords:** MBA; Entrepreneurship; Gifted talent; Experience JEL Classification L25; L26; J24

### Introduction

MBA (Master degree of Business Administration) programs have attracted millions of business focusing students for decades in the world. Among varieties of appealing points of business schools for recruiting candidates as providers of MBA programs, advantage of starting-up own business has been always a major point. However, in academics, there are few studies examining the impact of MBA degree on entrepreneurship. We approach a question whether MBA programs itself impact an entrepreneurial activity.

In this thesis, using original survey of entrepreneurs and non-entrepreneurs, we gauged the impact of MBA on entrepreneurship. The survey is collected online and covers 7023 people, including 1,503 entrepreneurs, within Japan. Do MBA holders perform better than the ones without it? If the answer is yes, the next question is whether the better performance origins from MBA program or not. Even when it superficially boosts entrepreneurs' success, it is possibly because of gifted talent, which helps them enter MBA programs or because of occupational experience, which also helps the entrance. In these cases, MBA degrees just certificate the talent and/or experience of MBA holders but not accomplishment in the program for two years. Harmon et al. [1] explains that if it is true, the degree is only a signaling of productive potentials of entrepreneurs, which is not what they acquire through the MBA program.

As above, we divided the impact of the degree into three aspects. The one is MBA as signals of gifted talent which is mainly explained with academic scores, the second is occupational experience of holders and the third is acquired skills thorough MBA program. We carefully analyzed the data by excluding the effects of talent and experience, and discuss the value of acquiring the degree. The verification of the true value of the program will attract potential MBA candidates and encourage them to spend two years in the program at the cost of other occupational choices.

This thesis is structured as follows. The Chapter Two reviews the previous literature of entrepreneurial skills and effects of MBA. There are not few literatures for both of the issues but the relationships of the two are scarcely discussed through data. One of the reason of the rarity of the relationships discussion is lack of data connecting the two. It is not easy to follow the MBA degree alumni until they start-up and even after they started up. The Chapter Three explains our survey of entrepreneurs and statistical methodology as well. The Chapter Four follows the estimation results and verifies the effect of MBA on start-ups and we conclude in the Chapter Five.

### Literature Review

#### MBA effects on entrepreneurship

Regarding being a successful entrepreneur, Charney and Libecap [2] collected data from alumni of Business school of Arizona state university. Analyzing the data of sales and size of start-ups of alumni entrepreneurs, they empirically showed that MBA alumni performs better than those of other master degree programs. However, their analysis do not identify the impacts of MBA program effect with other latent effect of such as talents and skills.

As Lange et al. [3] discuss the effect of MBA on entrepreneurship, although obtaining MBA degree and an entry into ventures are positively

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correlated as a whole, why and how the program effect on students bear various ways of interpretations. Simpson et al. [4] suggests that while leaving previous position and replacing professional identity, Chinese MBA alumni who obtained the degree in the United Kingdom earned creativity thorough the program. While Lerner and Ulrike [5] focus on peer effects among classmates, Krishnan et al. [6] is on self-monitoring which enables an entrepreneur to be more self-monitoring; managing one's internal states, impulses and emotions.

In application process, a MBA candidate is usually selected with academic talent and occupational experiences. They are both effective to entrepreneurial success as many previous literature mention. By differentiating with effects of these personal propensities from effect of accomplishment of MBA program, we contribute to the why and how issues as above.

### Entrepreneurial success factors

Previous literature, such as Davidsson and Honig [7] commonly reassembly the factors of an entrepreneur's performance into four parts; human capital, social capital and financial capital of an entrepreneur and the firm's character. Each factors are proxied by entrepreneurs'/ firm's indicators. We utilize this framework of three kinds of capitals of an entrepreneur in the following chapters.

Rich human capital affects positively on his/her entrepreneurial performance as well as other two entrepreneur's capitals do Shane [8], Bosma et al. [9], Colombo et al. [10], Parker and Van Praag [11]. Entrepreneurs' talents and experience we mentioned is included in these proxies of human capital. Van Der Sluis et al. [12] reveal that there is positive relationships between academic performance and entrepreneurial outcomes. Previous work experience such as management professional experience in a previous firm is essential. Brush et al. [13] indicates that by exercising management skills before start-up an entrepreneur's own business enhance the possibility of success. Also, duration of service as an ordinary employee, not as a manager, positively affects the performance of a start-up Davidsson and Gordon [14] Bosma et al. [9] indicate that skills and experience of particular industry in which he/she starts-up is advantage for an entrepreneur. This suggests that investor experience as an angel investor or a venture capitalist and starting up in the same industry in which he/she was employed before can positively affect the entrepreneurial performance.

Secondly as for social capital, Nahapiet and Ghoshal [15] and Adler and Kwon [16] define it is linkage with friends or acquaintances which bring us information and/or knowledge thorough communication with them. Adler and Kwon [16] explain that thorough social capital, we can access variety of information, enhance credibility of information and shorten the duration until we get necessary information. Ostgaard and Birley [17] verified that social capital of an entrepreneur positively impact on sales, profit and size of employee of the start-up. Honig [18] also verified that social capital positively impact on revenue of an entrepreneur.

Thirdly an entrepreneur needs financial capital when he/she starts the business and invests thereafter. When a founder obtained richer financial capital, the performance of the start-up becomes better Cooper et al. Hsu [19,20]. The financial capital can be owned by an entrepreneur her/himself or by his/her family, and can be invested by venture capital or loaned by commercial banks.

Lastly, firm characteristics are not surprisingly critical to firm performance as much as three capitals of an entrepreneur. Kaplan et al.

[21] furthermore suggest that firm characteristics affects more than the others even when the firm has just founded.

## Survey Data and Methodology

### Survey data

This thesis utilizes the "Internet Survey on Entrepreneurship at Start-ups" jointly conducted in 2012 by the Research Institute of Economy, Trade and Industry (RIETI) and Kazuyuki Motohashi, professor in the Faculty of Engineering, University of Tokyo. The survey questionnaire was sent to 135,059 individuals, out of whom a total of 85,007 people aged 22 to 60 and who are graduates from 14 universities<sup>1</sup> were selected for statistical analysis. A total of 7,023 valid responses were obtained, including 1,501 respondents<sup>2</sup> with experience in starting a business.

The average age of the respondents is 44.5, the median is 45.0, and the standard deviation is 9.0. As Figure 1 shows, their ages range from 22 to 60, and are concentrated between 35 and 55, while there are a few below age 35. The 1,501 respondents with entrepreneurial experience, as Figure 2 shows, have an average age of 46.2 years, the median is 47.0, and the standard deviation is 8.8; there are fewer respondents aged below 35 compared to the entire sample, and more aged 45 or older. As Figure 3 shows, the average age of starting up is 34.8, while the median is 34, and the standard deviation is 8.6. For serial entrepreneurs who had started multiple businesses, the age at which the first business was started was considered to be the age at which they started their business. The oldest age is 60, while the lowest is 13. Some of the entrepreneurs are responding regarding the currently running business while others are responding retrospectively 3.

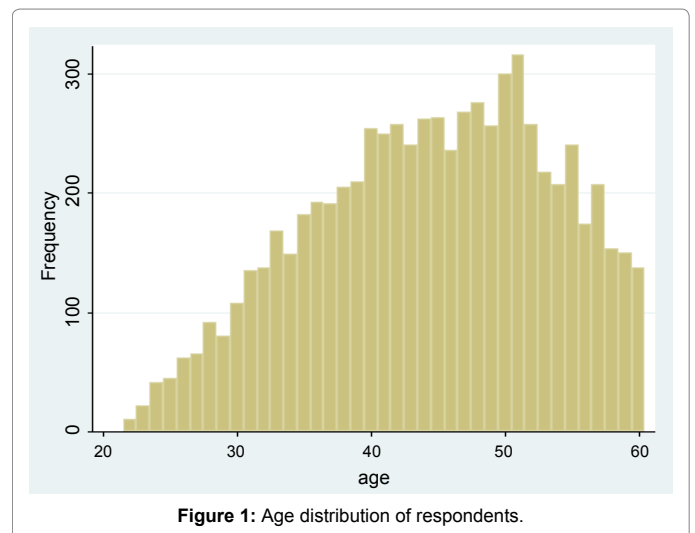


Figure 1: Age distribution of respondents.

<sup>1</sup>The 14 universities include The University of Tokyo, Keio University, Waseda University, Kyoto University, Osaka University, Hitotsubashi University, Tokyo Institute of Technology, Doshisha University, Sophia University, Chuo University, Aoyama Gakuin University, Tohoku University, Meiji University and Tokyo University of Science. Japan Venture Research Co., the biggest entrepreneurial data base company in Japan, compiled data of domestic entrepreneurs. It sorted entrepreneurs by alma maters and selected these 14 universities as above, from which more than 10 entrepreneurs graduated and not from other universities. Since we analyze effects of MBA which is hardly gained by other universities' alumni, we focused on these universities.

<sup>2</sup>The 1,501 entrepreneurs among the 7,023 valid responses is an excessively high ratio compared to the average ratio of entrepreneurs in Japan. This is because Transcosmos Inc., which was commissioned to conduct the survey, allowed less time for respondents with no entrepreneurial experience compared to those with experience, since the focus of the survey is on collecting data of entrepreneurs.

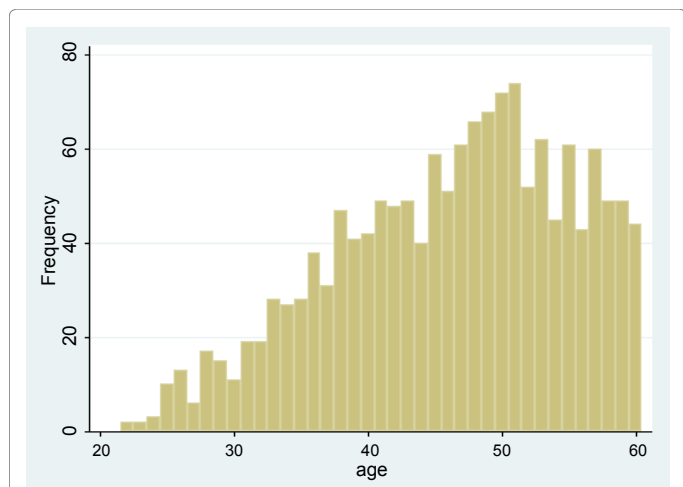


Figure 2: Age distribution of entrepreneurs.

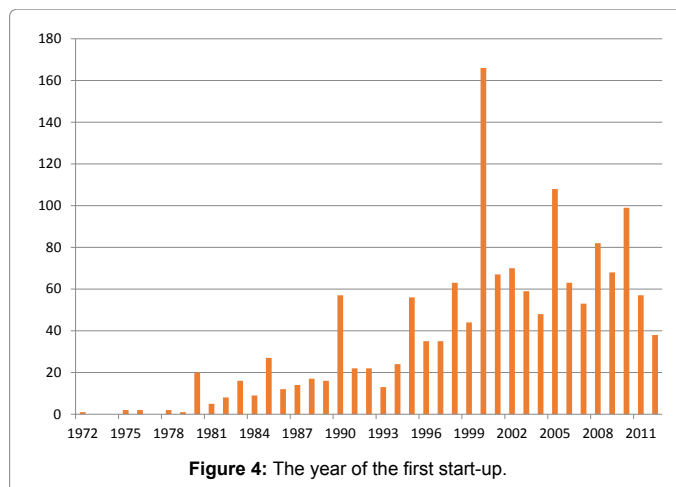


Figure 4: The year of the first start-up.

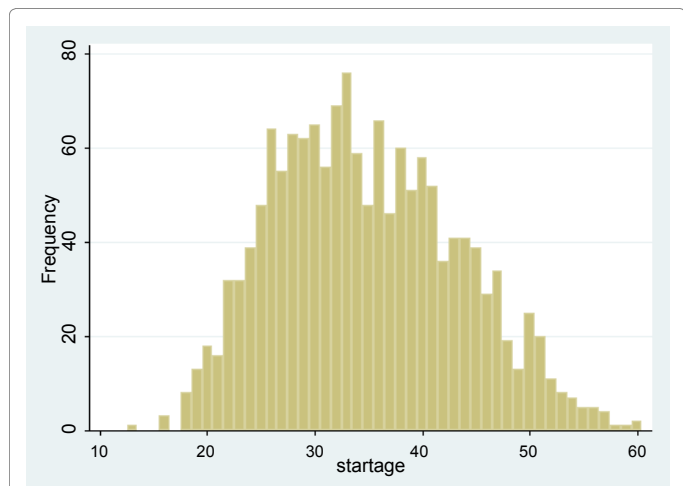


Figure 3: Age distribution of the first start-up.

Industries	Number of firms
Material	27
Electoral Precision	55
Transportation	8
Food	43
Automobile	12
Living ware	30
Financial	105
Real Estate, Construction	152
Energy	20
Leisure, Entertainment	63
Service	377
Distribution	67
Media	25
Local Governments Related	9
ICT, Telecommunication	252
Others	360

Table 1: Industries of start-ups in our survey.

Among the 7,023 who gave valid responses, 5,694 have a bachelor’s degree, while 1,329 have either a graduate or doctorate degree including MBA. MBA holders count 90. The survey subjects had a higher academic background compared to the average entrepreneur in Japan since we focused on MBA effects.

Figure 4 shows the distribution of the timing at which the respondents started a business. The earliest is 1972, while the latest is 2012. The number of instances increased around the year of 2000. The distribution of the industry sectors for their first start-up is shown in Table 1. There are more start-ups in the Service industries and Information and Communication Technology (ICT) industries compared to other industries. The distribution of the industry sectors for their first start-up is shown in Table 1. There are more start-ups in the service and IT industries compared to other industries.

As a whole, out of the sample of 7,023 respondents, 1,501 started a business, 962 made a profit.

### Models

In this thesis we decompose the effect of MBA into gifted talent effect, occupational experience effect and acquired skills through MBA program. Model 1 examines whether MBA impact on

entrepreneur’s performance as whole. Model 2 and 3 estimates the impact after excluding effects of occupational experiences. In Model 4 and 5, by controlling gifted talent and occupational experiences, we test whether MBA still affect entrepreneurial success. Model 3 checks the robustness of Model 2 and Model 5 does Model 4 by replacing the dependent variable.

In Models 1, 2 and 4, the probability function  $\pi(y_i=1|x_i)$  of being profitable for an entrepreneur  $i$  is defined as below.  $x_i$  describes attributes of an entrepreneur  $i$ , which consist from human capital, social capital and financial capital in this thesis. Firm characteristics is included in the control factors.

$$\pi(y_i = 1 | x_i) = \ln \left( \frac{\pi(y_i = 1 | x_i)}{1 - \pi(y_i = 1 | x_i)} \right) + \varepsilon_i$$

$$= f(\text{human capital}_i, \text{social capital}_i, \text{control variables}_i) + \varepsilon_i$$

An index whether an entrepreneur holds MBA or not is categorized in human capital. In Model 1,2 and 4, the profitability here is defined that if an entrepreneur realized operating profit so far, that becomes  $y_i=1$  and if not so far at all, equals 0. The dependent variable is described as “profit”. In Model 1, we only used control variables, foundation year dummies and an industry dummy to see simply the effect of MBA. In Model 2, we add human capital and social capital related to occupational

experiences, and dummy variables. Then in Model 4, we adopt a variable of an entrepreneur’s gifted talent which is proxied by academic scores in the universities where he/she graduated from prior entering MBA curriculum. Also we adopt a variable whether an entrepreneur obtains a family member who is also an entrepreneur as the other proxy of his/her gifted status for being a successful entrepreneur. We adopted binary probit regression for these estimations.

These three models divide the sample into the 886 respondents whose startup is successful and 421 respondents whose startup is not successful. In order to prevent our study from failing to capture business with future potentiality only because a profit had not yet been procured Davidsson and Gordon [14] respondents who launched two or more businesses were given the dependent variable of 1 if they made a profit in their first company and excluded 95 respondents who started their first business in 2011 or later.

Models 3 and Model 5 use ordinary least squares regressions in order to test robustness of Model 2 and Model 4 for each by replacing a binary dependent variable into an integer dependent variable (rating), which is based on ten scaled rating of performance of a start-up by an entrepreneur him/herself. In these regressions, too, first start-ups created in 2011 and later were excluded. Respondents who launched two or more businesses were given the dependent variable of the first start-up.

### Independent variables

For the configuration of the independent variables, we used Davidsson and Honig [7] and Honig B and Karlsson [22], Hsu [20] and Ostgaard and Birley [14] in Table 2. All of these studies used questionnaire survey results. Our all variables are described in Table 3.

Regarding independent variables we use whether the respondent have a MBA degree (mba) in order to estimate whether a MBA degree matters on success of entrepreneurship. We use three categorical variables of academic scores (score) in university to gauge gifted academic talent. By adding this variable to estimations, we can

exclude the effect of what is gifted to entrepreneurs regardless of MBA program from what is acquired in the program. An index of whether an entrepreneur’s family member is also an entrepreneur (familyentre) is included to the effect of gifted as well.

As for other variables related to human capital, we used the years of employed (yrsexp), years in managerial positions during the years employed (yrsmanager), experience in investing venture capital funds (investor exp). We also added parameters asking whether the respondent had started a business in the same industry he/she was in during the employed period (preexp). These four variables are all categorized to explain the effect of occupational experience of an entrepreneur. We mention chronological order of these experience variables later in this chapter. Except for the categorical variable of academic score, ten scaled rating and the number of years, all the other variables are binary. As Van der Sluis et al. [12] suggest, years of education is also worth considered as an independent variable to verify the relationship between the human capital of an entrepreneur and his/her performance, however, since in our survey, respondents are all graduated from universities, we do not adopt it as a variable.

As for social capital, we used binary independent variables for the answers “yes” (=1) and “no” (=0) to questions asking whether the respondents had friends/acquaintances (friends-entre) who are founders/CEOs when respondents started a firm. The variable of “family-entre” we described above is also included in social capital. As Davidsson and Honig [7] explain, family members provide daily management advice to an entrepreneur while friends provide more fresh information and knowledge which is not ever heard before, since they don’t see often compare to family members.

As much as human capital and social capital, financial capital is also an important factor in entrepreneurship. While Davidsson and Honig [7] and Ostgaard and Birley [14] did not use variables related to financial capital, Hsu [20] set two binomial control variables on whether the respondent 1) received funds from “angel” investors and 2) received written offers for funds in the past. The survey does not

	Ostgaard & Birley1996	Davidsson & Honig 2003	Hsu 2007
<b>Dependent Variables</b>	<ul style="list-style-type: none"> <li>• Sales, growth of sales</li> <li>• Profit, growth of profit</li> <li>• Employment, growth of employment</li> </ul>	<ul style="list-style-type: none"> <li>• Foundation of a firm</li> <li>• Sales &amp; profit within 18 months after foundation</li> <li>• Progress of gestation process</li> <li>• Progress of gestation process within 18 months after foundation</li> </ul>	<ul style="list-style-type: none"> <li>• Valuation of a firm</li> <li>• Investment from VC</li> </ul>
<b>Human Capital</b>	<b>Firm level</b> <ul style="list-style-type: none"> <li>• Pre-college level education</li> <li>• Years since foundation</li> <li>• Numbers of employer at the foundation</li> </ul>	<b>Entrepreneur level</b> <ul style="list-style-type: none"> <li>• Years of education</li> <li>• Management class enrollment</li> <li>• Years of employer</li> <li>• Years of manager</li> <li>• Previous entrepreneurial experiences</li> </ul>	<b>Entrepreneurial team level</b> <ul style="list-style-type: none"> <li>• MBA</li> <li>• Ph.D.</li> <li>• Years since foundation</li> <li>• Number of firms to raise in the past</li> </ul>
<b>Social Capital</b>	<b>Entrepreneur level</b> <ul style="list-style-type: none"> <li>• Numbers of affiliated export association and industry association</li> <li>• Numbers of consultees in recent 6 months</li> <li>• What to consult (acquisition of new sellers, investors and customers)</li> <li>• Time spent on networking</li> <li>• Numbers of acquaintances who are engineers or experts(diversity)</li> </ul>	<b>Entrepreneur level</b> <ul style="list-style-type: none"> <li>• Parents who are founders/CEOs</li> <li>• Mental support from friends and family members</li> <li>• Neighbors and close friends who are founders/CEOs</li> <li>• Close communication with start-up support association</li> <li>• Affiliated a start-up team in the past</li> <li>• Affiliated a social club or a chamber of commerce married</li> </ul>	<b>Entrepreneurial team level</b> <ul style="list-style-type: none"> <li>• Among the board members in post foundation, the ratio of persons who have acquainted to the original founding team members</li> </ul>
<b>Result</b>	<ul style="list-style-type: none"> <li>• Pre-college level education is positive on scale of profit and growth of sales.</li> <li>• Information for acquisition of investment and customers are positive on growth of profit.</li> <li>• Longer time spent of networking are positive on numbers of employers.</li> </ul>	<ul style="list-style-type: none"> <li>• Human capital is positive on a start of a business.</li> <li>• Social capital, especially being affiliated to a social club or a chamber of commerce is positive on a profit and sales.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of business to start in the past and social capital of a founding team are positive on valuation of a firm.</li> <li>• In a sector of internet business, founding team members’ doctoral degrees are positive on valuation of a firm.</li> </ul>
<b>Data</b>	Questionnaire survey	Questionnaire survey	Questionnaire survey

Table 2: Explanatory Variables of Previous Research.

reveal if the respondents had financial capital, but it asked whether they had “made a request to raise funds (=1)”. We assigned it as a proxy of the availability of financial capital and used it as a control variable (finance).

As for gender control, Brush et al. [13] and Rietz et al. [23,24] suggest that performance of entrepreneur is heterogenetic between male and female. The assigned dummy variables, dummy70, dummy80

Variables	Definition
Profit	If a respondent achieved operational profit so far, it equals 1 and if not, equals 0
Rating	Ten scaled self-rating by an entrepreneur regarding his/her start-up
MBA score	If a respondent holds MBA degree, it equals 1 and if not, equals 0 Three categorized academic scores in undergraduate The higher, the better
Yrs exp	Years of work experience as an employee
Yrs manager	Years of work experience as an employed manager
Investor exp	If a respondent obtains work experience as an investor or venture capitalist
Pre exp	If a respondent obtains work experience in the same industry where a respondent started-up, it equals 1 and if not, equals 0
Friends entre	If a respondent have friends who are entrepreneurs, it equals 1 and if not 0
Family entre	If a respondent have family member who are entrepreneurs, it equals 1 and if not 0
Finance	If a respondent made a request to raise funds, it equals 1 and if not 0.
Gender	If a respondent is male, it equals 1 and if female, it equals 0
Dummy70	If an entrepreneur's start-up is founded in 70's, it equals 1 and if not 0
Dummy80	If an entrepreneur's start-up is founded in 80's, it equals 1 and if not 0
Dummy90	If an entrepreneur's start-up is founded in 90's, it equals 1 and if not 0

Table 3: Description of Variables.

and dummy90, are for every 10 years in order to control longitudinal changes in the number of business foundations. The baseline is foundation in 2000-2009. As we mentioned earlier, we dropped respondents who started up after in 2010 to avoid truncated bias that they can be successful given enough time. We also adopted industry dummy (ict) to control gap between ICT industries and the others as Colombo et al. [10] suggested.

In this study, we assume a sequence in which entrepreneurs first go universities and then succeeded with their entrepreneurial activity. Respondents who were employed for the first time after they found firms are not few, 116 among the 1,501. This means that when these respondents started their firms, they had not experienced being employed or working in managerial positions, and also did not have investment experience or being employed in the same industry. Therefore, we drop these respondents from our estimations. Similarly, we drop respondents who launched at an early age such as 13 or 16, because they did not have a bachelor's degree or higher, including an MBA, and it is impossible to see the effect of MBA on entrepreneurial activity.

Some of the correlations of independent variables in Table 4 are worth considering. Because when applying MBA program, academic scores in university is always screened. This fact possibly leads that the variable “score” and “mba” be correlated each other. Also human capital and social capital, human capital and financial capital, and social capital and financial capital can be correlated each other according to previous literature<sup>3</sup>. Albeit with these concern, there are no high correlation coefficients between these variables and these statistics lead us to treat them as independent of each other, just as assumed by Davidsson and Honig [7].

## Estimation Results

### Effects of MBA on entrepreneurial success

The results of estimation are shown in Table 5. First of all, it is verified that a MBA degree matters on entrepreneurial success. The

	Obs	Mean	Std. Dev	Min	Max	Profit	Rating	MBA	Score	Yrs exp	Yrs manager	Investor exp	Pre exp	Friends entre	Family entre	Finance	Gender	Dummy 70	Dummy 80	Dummy 90
Profit	1307	0.0678	0.467	0	1															
Rating	1307	5.679	2.337	1	10	0.405														
MBA	1307	0.035	0.184	0	1	0.061	0.119													
Score	1307	2.082	0.692	1	3	0.07	0.176	0.133												
Yrs exp	1307	7.9	8.372	0	37	-0.019	0.024	0.007	0.045											
Yrs manager	1307	4.936	7.421	0	40	0.089	0.082	0.009	0.025	0.425										
Investor exp	1307	0.144	0.351	0	1	-0.053	0.061	0.229	0.074	-0.024	-0.007									
Pre exp	1307	0.314	0.464	0	1	0.089	0.019	-0.004	-0.028	0.164	0.183	0.024								
Friends entre	1307	0.487	0.5	0	1	0.132	0.026	0.021	0.031	0.077	0.106	-0.012	0.07							
Family entre	1307	0.286	0.452	0	1	0.063	0.067	0.044	0.006	-0.069	-0.007	0.035	-0.016	0.185						
Finance	1307	0.147	0.354	0	1	0.059	0.095	0.05	0.042	0.037	0.058	0.013	0.088	0.024						
Gender	1307	0.871	0.335	0	1	0.019	-0.058	0.011	-0.13	0.14	0.114	0.008	0.092	0.073	0	0.043				
Dummy70	1307	0.006	0.078	0	1	-0.009	0.036	-0.015	-0.009	-0.032	0.021	-0.004	-0.053	0.041	0.015	-0.033	-0.029			
Dummy80	1307	0.11	0.313	0	1	0.122	0.073	-0.054	-0.028	-0.099	0.022	-0.068	-0.022	0.082	0.134	0.054	0.026	-0.028		
Dummy90	1307	0.284	0.451	0	1	0.093	0.012	-0.019	-0.016	0.004	0.116	-0.05	0.028	0.018	-0.016	0.026	0.049	-0.049	-0.0222	
Ict	1307	0.174	0.38	0	1	0.058	0.043	0.076	0.056	-0.028	-0.045	0.053	0.185	0.04	-0.019	-0.009	0.038	-0.036	-0.027	-0.044

Table 4: Fundamental Statistics and Correlation Matrix.

<sup>3</sup>For example, (Bosma et al. 2004) and (Glaeser, Laibson, and Sacerdote 2002) suggest that people who have excellent human capital tend to spend more time obtaining social capital.

	Model 1	Model 2	Model 3	Model 4	Model 5
Dependent variable	Profit	Profit	Rating	Profit	Rating
MBA2	0.556*	0.635**	1.37***	0.559*	1.126**
Score	-	-	-	0.135*	0.510***
Yrs exp	-	-0.011**	0.002	-0.011*	-0.055
Yrs manager	-	0.016**	.024**	0.016*	0.265
Investor exp	-	-0.239**	0.252	-0.256*	0.515**
Pre exp	-	0.210**	0.018	0.218*	1.314
Friends entre	-	0.283***	0.550***	0.266***	0.626**
Family entre	-	-	-	0.078	0.167
Finance	-	0.169	0.011	0.16	0.23
Gender	0.02	-0.034	-0.541***	0.008	0.001
Dummy70	0.088	-0.009	1.28	0.001	0.023*
Dummy80	0.728***	0.645***	.654***	0.641***	0.194
Dummy90	0.389***	0.323***	0.163	0.325***	0.053
Ict	0.224*	0.177	0.276	0.164	-0.388*
_Cons	0.215*	0.123	5.66***	-0.195	4.460***
Observations	1,307	1,307	1,307	1,307	1,307
-2LL	54.18 (6)	93.23 (13)	-	100.13 (14)	-
(Degree of Freedom)					
Adjusted R <sup>2</sup>	-	-	0.036	-	0.076

\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

Table 5: Estimation results.

coefficients of a MBA degree (mba) on profitability and self-evaluation of a start-up are all positive. MBA holders more likely to success in start-ups than ones without it.

After controlling the effect of occupational experiences in Model 2 and Model 3, the coefficients of a MBA degree are still positively significant. Furthermore we exclude the effects of what is gifted, the effects of MBA are still positively significant in Model 4 and Model 5.

Since the MBA effects are divided into gifted, experience and acquirement through a MBA program, these estimation results mean that acquirement thorough MBA program positively boost entrepreneurial success.

### Other variables effects

As for human capital, length of employment in years (yrsexp) has negative impact on success of start-ups mainly in Models 2 and Model 5. By contrast, the length of experience as a manager (yrsmanager) and vocational experience in the same industry (pre-exp) has a positive impact. Experience as an investor (investor-exp) differs between dependent variables.

Having friends who are entrepreneurs/CEOs (friends-entre) positively affect profitability meanwhile having a family who are entrepreneurs/CEOs (family-entre) has no bearing on the profitability and scale of performance. As for financial capital (finance), effects are insignificant in our estimations.

As for dummy variables, females are slightly less successful than males. Entrepreneurs who started up in 80s and 90s compared to 70s and 2000s are more positive on performance. Starting up in ICT industries only shows vague effects.

We mention the fitness of models for the last, as Table 5 shows, a chi-squared test confirms that null hypothesis that all the coefficients equal to zero is rejected in each estimation model of Models 1, 2 and 4. In Model 3 and Model 5, p-value associated with the F value confirms

that the independent variables over all reliably predict the dependent variable in each estimation.

### Conclusion

From five estimations of performance, we verified that MBA holders have advantage on starting up a new business. The reasons is not that MBA holders are privileged with gifted talent or occupational experience but that MBA holders gain resource through the MBA program. There are some arguments that being an alumna is the all you should do with the degree. It implicates that MBA degree is certification that you have talent of being good entrepreneur and enough experience to be so even without schooling the program very ironically. However instead this thesis completely denies this argument. MBA program is worth completion because even when we controlled the gifted talent and experience, it still heightens performance of an entrepreneur.

This conclusion encourages potential applicants of MBA program by explaining that MBA program is worthwhile of investing their two years as students. Meanwhile it does not always guarantee that MBA education is effective. Since we mentioned in the Chapter Two, the mechanism of MBA program impacts on entrepreneurial activity is still vague. MBA programs are possibly effective because the education gives a student creativity, leadership or other essential sense as an entrepreneur whereas, they are possibly effective because of peer network encompassed through classmates. Further empirical research is expected in this mechanism discussion.

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