

TAM 및 TRA을 기반으로 한 ‘용이성’과 ‘경험’의 관점에서 벤처지원 정책의 효율성 연구

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A Study on the Efficiency of VSP(Venture Support Policy) from the Concept of ‘Ease of Use’ and ‘Experience’ Perspective, Using Integrated Model with TRA and TAM

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요약 본 합리적 행동이론(TRA)과 기술수용이론(TAM)을 기반으로, SMEs가 벤처지원정책을 수용하는 요인이 무엇인지를 밝히고, 정부가 효율적 방법으로 정책 지원하고 있는지를 알아보며, 지속성의 관점에서 SMEs를 위한, 효율적인 벤처정책 지원 방향을 제시하고 있다. 주요 결과를 살펴보면, 첫째, Experience가 Ease of Use에 영향이 있었고, 둘째, EASE of Use가 Usefulness는 영향이 있지만, Intention to Use에 대하여 영향이 없었으며, 셋째, Usefulness가 Intention to Use에 직접적 매우 강한 영향을 미치고 있을 뿐 아니라, 다른 많은 변수를 매개하고 있다는 것을 알 수 있다. 한편, 정책 수용 의지(Intention to use)에 영향을 미치는 요인을 분석한 결과, Output Quality가 Usefulness에 영향을 미치고 있음을 알 수 있었다. 이는 정책수행의 결과가 선택하고 수행 할 때는 기업 입장에서 이해득실에 대한 많은 것을 고려 하고 있는 지극히 이성적으로 행동하는 기업이라는 것을 알 수 있다.

Abstract This study is to examine constructs influencing the acceptance of SMEs for VSPs and the efficiency of VSPs, based on the two theories theory of reasoned action (TRA) and technology acceptance model (TAM) in the context of venture support program in Korea. This study concentrates on the government’s venture support policy (VSP), namely the examination of the efficiency of current government VSPs in terms of preferential treatment for SMEs experiencing many other venture support programs (the EXP policy), and the reduction of documents/processes related to venture support programs for SMEs so that they are easily accessible and implementable (the EASE policy). Additionally, this paper will suggest an effective way to encourage SMEs to succeed by analyzing the fundamental reasons for their acceptance of VSPs to attain their long-term goals.

Key Words : Venture Support Policy, Theory of Reasoned Action, Technology Acceptance Model, Ease of Use, Experience

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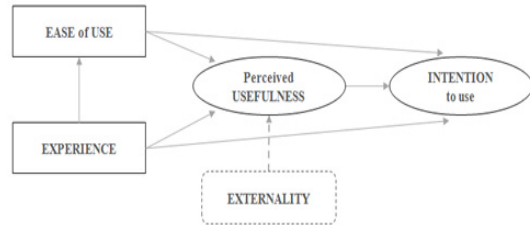
1. Introduction

In general, most previous researches on VSP, from macroscopic point of view, focused on studying the negative/positive relationship between the variables such as venture support programs (e.g. direct or indirect financing for R&D, financing for overseas marketing, R&D reference, consulting, etc.) and firms' performance/innovative performance (e.g. sales volume, the number of start-up companies and patents and amount of R&D expenditure, etc.). (강종구 and 정형권, 2006; 서창적 and 이찬형, 2007; 경종수 and 이보형, 2010; 김현욱, 2004). However, these approaches were suitable to generate the visible/tangible outputs of VSP in short-term based on quantity, but not suitable to search high-quality performance and to find fundamental reasons why SMEs accept VSP in long-term goals. Hence, against the previous researches, this study focused on improving the efficiency of VSP, employing a microscopic perspective which is to analyze the reasons why SMEs accept VSP based on theoretical model of the reasoned action theory (TRA) and technology acceptance model (TAM).

(See figure 1) In summary, this study addresses three issues: first is to understand why SMEs try to accept VSPs, second is to examine that current VSPs were operated in an efficient way, and then third is to suggest an efficient/effective way to provide/deliver VSPs to SMEs from the sustainable perspective. In addition, this study will try to figure out the relationship between VSPs and 'Zombie' firms, based on a research model integrated with TRA and TAM (including extended TAM).

The contributions of this article are twofold. First of all, it can increase the understanding on the venture support policies (VSPs) by an empirical study through examining the constructs influencing intention to use (INTU) VSPs based on theoretical model of TRA and TAM. Second, it provides a strategic implication for government to increase SMEs' performance and to

carry VSPs out to SMEs efficiently and effectively. Added to academic implication, the practical implications of this article also will benefit government policy makers, governmental agencies, and CEO of SMEs.



[Fig. 1] Conceptual Framework

2. Theoretical Background and Hypothesis

2.1 Output Quality

: definition of output quality is referred to as “people will take into consideration how well the system performs those tasks”(Venkatesh and Davis, 2000, p.191; Davis, 1985). Empirically, the relationship between perceived output quality and perceived usefulness has been shown before (Davis et al., 1992). However, extended TAM indicates there is significant difference among job relevance, usefulness, and output quality, even they look like similar, because they have basically different decision process based on accumulated reliability on a system or an system operator. On the image theory, output quality is less likely to be used for excluding options from consideration. However, in contrast, job relevance has a tendency not to be considered as one of systems, if when a system is judged not to be job-relevant (Beach and Mitchell, 1996; Beach and Mitchell, 1998). Based on the concept of the characteristic of output quality, in this article, OQ is employed as a construct of profitability based on accumulated reliability on VSPs. SMEs having high expectation on output quality when operating a program have tendency to take usefulness

on a program as well as actually to accept the program to increase their profits. So, we expect that output quality will be positively related to accept VSPs and also be positively associated with perceive usefulness on VSPs.

H1-1. output quality (OQ) will have a positive effect on perceived usefulness (USEF)

H1-2. output quality (OQ) will directly have a positive effect on intension to use (INTU)

2.2 Job Relevance

: definition of job relevance is referred to as "individual's perception regarding the degree to which the target system is applicable to his or her job" (Venkatesh and Davis, 2000, p.191). Job relevance is an important task to evaluate whether VSPs are suitable for SMEs, comparing SMEs' goals with VSPs' goals. From the job relevance, Kieras and Polson (1985) and Polson (1987) indicated person, who implemented their job, have the knowledge regarding job situations and using for determining which jobs can be performed. The existence of distinct knowledge on the job goals is supported by studying personnel psychology (Burke et al., 1989). In this article, job relevance is considered as an important judgment criteria influencing a direct effect on 'perceived usefulness' (USEF). Meanwhile, user acceptance has been associated with other studies dealing similar variables such as job relevance (Leonard-Barton and Deschamps, 1988; Vessey and Galletta, 1991; Hartwick and Barki, 1994; Goodhue and Thompson, 1995). From those existing research and characteristic of job relevance, in this article, JR is employed as a variable directly influencing USEF on VSPs. So, we expect that job relevance will be positively associated with usefulness on VSPs.

H2. Job relevance (JR) will have a positive effect on perceived usefulness (USEF)

2.3 Image

: definition of job relevance is referred to as "the degree to which use of an innovation is perceived to enhance one's ... status in one's social system" (Moore and Benbasat 1991, p. 195). Meanwhile, Kelman (1958){Kelman, 1958, Compliance', identification', and internalization: Three processes of attitude change} argued that individuals tend to respond to social-normative-influences in order to imprint or keep a good image among the related groups. Davis (1985) suggested through the extended TAM that subjective norm may have positive influence on the image. Using an unique or some special tool/system will tend to increase a person's position or standing within related groups (Blau, 1964; Kiesler, al al., 1969). On the other hand, a high degree of interdependence to implement their works in social system would increase their status within the reference group and would become a bottom of power through some stages such as social network and exchange, alliance, and resource allocation (Blau, 1964; Pfeffer, 1982). The increased power produced from an upraised status influences high productivity. These verified effects were employed in the extended TAM and intensifying the effect on the images on perceived usefulness. So, we expect that image, which is honorable status felt by implementing important projects, would lead to improvements in their job performance. From those previous research and characteristic of image, in this article, image is employed as a construct directly influencing USEF on VSPs.

H3. Image(IM) will have a positive effect on perceive usefulness (USEF)

2.4 Experience

: the knowledge generated and accumulated directly/indirectly by the past experience can diminish any perceived risks and predict any event to be happened

(Bagozzi, 1981). Pullman and Gross (2004) found that the past experience would control the perceived risk by analyzing the perception gap on the risk of using a medium between early buyer and repeated buyer. However, meanwhile, because experience is not objective and very dependent on surrounding environment, knowledge generated by experiences accumulated should be controlled and accepted in a obvious and objective way. Meanwhile, Lewicki et al. (1998) said, trust has been developed as time passes through relationship with others. This trust generated for a long time becomes a base of someone's experience. So, Lewicki et al. (1998) indicated the experience is needed to develop trust. Based on the previous researches, this article employed experience as construct influencing perceived usefulness and ease of use. Because experience can reduce any perceived risks as well as unrecognized or unknown risks when implementing VSPs, SMEs can save extra works and reduce anxiety about unknown fields. So, we can expect that SMEs experiences on implementing other VPSs recognize high usefulness on VSPs and feel comfortable on implementing and applying for VSPs. So, we build up hypotheses on association between EXP and USEF on VSPs as well as between EXP and EASE.

H4. Experience (EXP) will have a positive effect on perceive ease of use (EASE)

H4-1 Experience (EXP) will have a positive effect on perceive usefulness (USEF)

2.5 Perceived ease of use

: definition of perceived ease of use is referred to as "the degree to which the user expects the target system to be free of effort" (Davis et al, 1989, p. 985). Davis et al. (1989) indicated that extended TAM took the variable of EASE from TAM as a direct factor influencing perceived usefulness, because it may increase their job performance without additional

efforts to use a system/certain tool. Meanwhile, empirical study to verify that EASE is significantly associated with USEF and INTU through USEF as a mediating factor (Davis et al., 1989; Venkatesh, 1999)(Venkatesh, 1999, Creation of favorable user perceptions: exploring the role of intrinsic motivation). Many researchers have begun to study, even beyond the range of extended TAM, to model perceived ease of use as being core concept, as well as to use external factors as independent variables in order to explain the usability from the directive experience using the specific system (Venkatesh and Davis, 1996). In this article, the concept of EASE is employed as to evaluate the government policies on SMEs which believe that the easer SMEs apply for and implement VSPs, the more opportunity for success SMEs get. So, we expect that EASE will lead to improvements in the job performances by using VSPs as well as usefulness on VSPs. From those previous research and characteristic of perceived ease of use, in this article, perceived ease of use is employed as a variable directly influencing to both USEF and INTU on VSPs.

H5-1. Perceived ease of use (EASE) will have a positive effect on perceive usefulness (USEF)

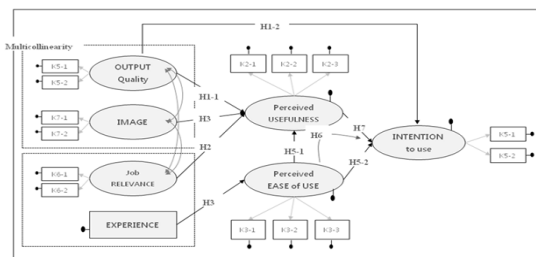
H5-2. Perceived ease of use (EASE) will have a positive effect on intension to use (INTU)

2.6 Perceived usefulness

: definition of perceived usefulness is referred to as "subjective probability that using a specific application system will increase his or her job performance within an organizational context" (Davis et al., 1989, p. 985). Though TAM, Davis (1985) explained that both perceived usefulness and perceived ease of use are associated with intention to use. The concept of USEF this article employed is the same as the perceived usefulness used of TAM (extended TAM) as a construct to measure serviceability and efficiency. So, this article makes hypotheses about between USEF and

INTU and between USFE and EASE based on TAM

- H6. Perceived usefulness (USEF) will have a positive effect on intention to use (INTU)
- H7. Perceived usefulness (USEF) will mediate between perceived ease of use (EASE) and intention to use (INTU).



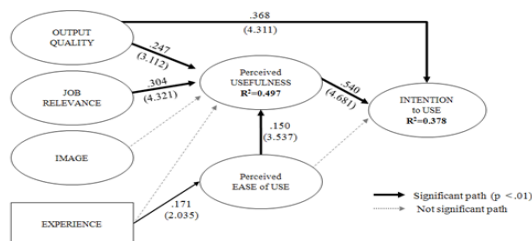
[Fig. 2] Research Model

3. Research Model

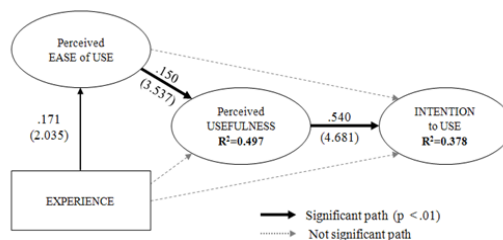
This article suggests an integrated research model in order to examine what factors make SMEs accept VSP. The integrated research model is modified with TRA and TAM (extended TAM). The objects of the research model have two purposes. First, verify the efficiency on current approach of government policies related to EXP and EASE which has a purpose to promote the visible and short-term output of government support: a policy related to EXP is to give preferential treatment to SMEs having many past experience implementing VSPs when they apply for VSPs and the other policy related to EASE is to reduce complicated administrative documents required in the apply, screen and selection processes and/or to simplify the administrative procedures in order to offer equally the benefits or opportunities to many SMEs. Second, in order to find what external factors (e.g. OQ, JR, EXP, and IMG) directly associated with USEF influencing INTU on VSPs as well as to prove that whether USEF has directly strong effect and played a mediated role on INTU: if there is a significant relationship between USEF and INTU, the research model is appropriate for studying other causal relationship between constructs and structures based on TRA and TAM because the results is the same as the results of existing studies such as TRA and extended TAM.

4. Results

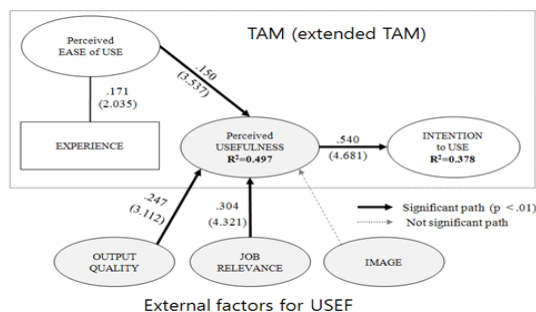
The following figures are the results of this study.



[Fig. 3] Structural model results



[Fig. 4] Test for association with EASE and EXP (current policy)



[Fig. 5] External factors for USEF

This article provides two parts: one is to verify efficiency on current venture support policies, and the other is to identify the factors influencing USEF which has strong relationship with INTU. First is to evaluate efficiency on current government support policies related to EXP and EASE. The results show that while EASE is associated with USEF, EASE has no direct relationship with INTU. On the other hand, while EXP has weakly positive relationship with EASE, EXP has no association with both USEF and INTU. Meanwhile, USEF has direct effect on INTU as well as indirectly plays a role of mediate factor for OQ and JR against INTU. From this result, government could know what factor plays a crucial role when SMEs accept VSPs. Meanwhile, we can learn that current VSPs focused on EASE and EXP, which is to give preference to SMEs experiencing other VSPs and to reduce and simplify the processes and documents, are ineffective. Second is to figure out the factors influencing USEF. From this study we can know that OQ is positively associated with USEF as well as is accumulated by trust which is increased by the government sound efforts to foster SMEs e.g. continuously managing the outputs from existing VSPs. Based on the characteristics of OQ, government should establish a long-term plan to increase OQ and trust on government behaviour. On the other hand, JR has positive association with USEF. That is, USEF may be increased when the purpose of both VSPs and SMEs is coincided. However, in reality, there are more than a few abnormal cases e.g. even though JR of both VSPs and SMEs is not matched, SMEs can enjoy the good money or benefits without any additional efforts. If these abnormal cases are continuously repeated, SMEs may lose their competitiveness and turn into "Zombie" stage. Meanwhile, we can learn both EXP and IM have no relationship with USEF. From the results we can infer that SMEs makes a decision based on rational behavior for archiving the purpose of maximizing firm's benefits.

However, in reality, we can often see that both EXP and EASE usually show a positive relationship with INTU e.g. SMEs employed 'short-term cash/money' rather than 'long-term benefits' as criteria when making decision. In addition, under current policy-evaluation-system, government officers seem to be forced to find an easy and safe way when carrying out a policy forgetting the purpose of VSPs. While these abnormal situations can give short-term and easy money/benefits to SMEs without extra efforts, if the situation lasts long repeatedly, SMEs unconsciously will lose their competitiveness, finally they will turn into 'Zombie' which does not survive without any government supports.

5. Conclusion

The fourth chapter addressed the government's VSP and the relationship between the VSP and the reasons SMEs subscribe to it (rather than the relationship between the VSP and its outcomes). We learnt that the two current policy formats (EXP and EASE) are not efficient enough, because they allow a high possibility of moral hazards for both the government and the SMEs. In addition, government support may pervert the market to a certain degree. Because excessive support may increase SMEs' dependence on government policy and decrease their risk perception, it may consequentially lead to the failure of the government support policy as well as market failure. Under perverted markets, SMEs may enjoy good profits or benefits without any additional efforts. If these abnormal events last long or occur repeatedly, SMEs may lose their competitiveness and become "zombies." However, as this study helps us to infer, SMEs also make decisions based on rational behavior. Thus, in order to achieve the objective of maximizing benefits for SMEs as well as increasing their productivity, the government should establish a

long-term plan to increase the quality of outputs (rather than the quantity) and boost SME trust in government behavior.

The fourth chapter concentrates on the efficiency of the current government venture support policy (VSP) focused on the concept of 'quantitative outputs', e.g. the EXP policy and the EASE policy. Additionally, this chapter suggest an effective way to encourage SMEs to succeed by analyzing the fundamental reasons for their acceptance of VSPs to attain their long-term goals. This paper's academic contribution is to find the reasons for SMEs availing of VSPs as well as to verify the factors and the structure that influences the acceptance intention of VSPs, using the integrated model of the TRA and the TAM (i.e., the extended TAM). Simultaneously, this article shows how/why SMEs go through a "zombie" stage. Practically, this article indicates that current policies, such as EXP and EASE, which are focused on visible and short-term effects, may be not be appropriate to support SMEs. Instead of such ineffectual efforts, the government should try to build upon the trust in its VSPs with a long-term view.

The fourth chapter concentrates on the government's venture support policy (VSP), namely the examination of the efficiency of current government VSPs in terms of preferential treatment for SMEs experiencing many other venture support programs (the EXP policy), and the reduction of documents/processes related to venture support programs for SMEs so that they are easily accessible and implementable (the EASE policy). Additionally, this paper will suggest an effective way to encourage SMEs to succeed by analyzing the fundamental reasons for their acceptance of VSPs to attain their long-term goals.

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– Appendix –

#.1 Data

		frequency	%	Accumulate
Industry Segmentation	High Tech. Industry	51	19.5	19.5
	Traditional Industry	61	23.4	42.9
	Commercialization Stage	28	10.7	53.6
	Start up Stage	26	10.0	63.6
	Renewable	29	11.1	74.7
	R&D Stage	66	25.3	100.0
	Total	261	100.0	

#.2 Model Fits

Fit index	Results in this study
Sample size	225
χ^2	155.923
Degree of freedom	81
P value	.000

	Recommended criteria	Results in this study
Normed χ^2 (χ^2/df)	< 3	1.913
CMIN/DF	< 2	1.925
NFI	> 0.9	0.924
IFI	> 0.9	0.962
CFI	> 0.9	0.961
RMSEA	< 0.1	0.064

#.3 Results

Hypothesis	Path		Path Analysis				(Supplementary Analysis) multiple-regression-analysis			
			Estimate	S.E.	C.R.	P	p	Tolerance	model	
H3-1	EASE	<-	EXP	.171	.084	2.035	.040*	.052*	-	R2 : 0.018
H5-1	USEF	<-	EASE	.150	.042	3.537	***	***	-	R2 : 0.106
H1-1	USEF	<-	OQ	.247	.079	3.112	.002 **	***	0.593	R2 : 0.497 F : 45.855 P: ***
H2	USEF	<-	JR	.304	.070	4.321	***	***	0.556	
H3	USEF	<-	IM	-.069	.033	-2.100	.039*	.960	0.869	
H3-2	USEF	<-	EXP	-.042	.047	-.908	.364	.982	0.984	
H7	INTU	<-	USEF	.540	.115	4.681	***	***	0.904	R2 : 0.378
H5-2	INTU	<-	EASE	-.116	.062	-1.884	.059	.249	0.904	F : 59.961 P: ***
H1-2	INTU	<-	OQ	.368	.085	4.311	***	***	-	R2 : 0.24

*** p < .001, ** p < .01, * p < .05 level (two-tailed)