Centre Emile Bernheim
Research Institute in Management Sciences

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Creativity and entrepreneurial efforts in an emerging economy

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While much research has focused on entrepreneurship and creativity in developed economies, the notions of both topics are still embryonic in many emerging economies. This paper focuses on entrepreneurs in one such economy, Vietnam, to understand the perceptions of entrepreneurs about the role that innovation and creativity may play in their own entrepreneurial ventures and success. This is important because before reaping benefits from entrepreneurship, entrepreneurs need to decide when and on what conditions they start based on their calculations of required resources and predictions of likely outcomes. The research also sought to understand how "creativity," broadly applied ("innovation" and "creative performance") affects the ways that entrepreneurs think about and anticipate their own success and decisions. In essence, the study suggests that the higher the entrepreur's creativity is, the more likely she or he is to start a new business and believe success will result. Future research could examine whether history, industry and geographic location matter in entrepreneurs' perceptions as well as whether transition/emerging economies like Vietnam may have different views altogether about the two key concepts.

Keywords: Creativity/innovation, entrepreneurship, economic conditions, emerging economy, Vietnam

JEL codes: M13, O33, P21, P27.

CEB Working Paper N° 15/052
December 2015

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This draft: v15 — December 20, 2015

Abstract:
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This is important because before reaping benefits from entrepreneurship, entrepreneurs need to decide when and on what conditions they start based on their calculations of required resources and predictions of likely outcomes. The research also sought to understand how "creativity," broadly applied ("innovation" and "creative performance") affects the ways that entrepreneurs think about and anticipate their own success and decisions.

In essence, the study suggests that the higher the entrepreur's creativity is, the more likely she or he is to start a new business and believe success will result. Future research could examine whether history, industry and geographic location matter in entrepreneurs' perceptions as well as whether transition/emerging economies like Vietnam may have different views altogether about the two key concepts.

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1. Introduction

Entrepreneurship has been long considered a critical component of market economies and increasingly in transiditon and emerging economies. Entrepreneurial processes nurture emerging business ideas, amass resources for implementing them, create jobs and help transform resources into goods and services for society's consumption. Also, as Schumpeter points out, the creative performance by entrepreneurs is the cause of economic change (Frank 1988). So at the heart of the entrepreneurship system lies “creativity,” and its variants: "creative performance" "innovation" "technological change," for example.

While much research has focused on entrepreneurs and creativity in developed economies, the whole notion is still nascent in emerging economies. This paper focuses on entrepreneurs in one such economy, Vietnam, to understand the perceptions of entreneurs about he role that innovation and creativity may play in their own entrepreneurial ventures and success. Vietnam is a good economy to study because the ideas are still new enough that research can begin tracking how they develop and evolve, and it could be a place where new models of entrepreneurship development and its research may occur.

In particular, the paper aims to communicate results from research on the perception of Vietnamese entrepreneurs about the likelihood of success/failure and decisions on their own entrepreneurial attempts. This is important because before reaping benefits from entrepreneurship, entrepreneurs need to decide when and on what conditions they start based on their calculations of required resources and predictions of likely outcomes. The research also sought to understand how "creativity," broadly applied ("innovation" and "creative performance") affects the ways that entrepreneurs think about and anticipate their own success and decisions.

The paper has four main parts. It begins with with a brief literature review examining key variables in subsequent modeling efforts. The next part presents the statistical model employed in investigating research questions. Third, the paper describes the data set and analysis. The article closes with a discussion of key insights and suggestions for future research.

2. A brief literature review

Creativity has become key in strategic management and a rich theme of research (Runco 2014), although the definition for it is not universally standard (Runco & Jaeger 2012). For entrepreneurs, creativity constitutes a major dimension to define strategic entrepreneurship that helps deal with limitation entrepreneurial firms usually face in terms of longer-term implementation of business plan (Ireland, Hitt & Sirmon 2003; Napier, & Vuong 2013). It is the nature of the complex social system of entrepreneurship that makes creativity both elusive and difficult to take advantage of (Woodman, Sawyer & Griffin 1993). Entrepreneurs' creative performance can generally be classified into radical and non-radical (or increasemental) types. The former focuses on "novelty" of products, services and business processes (including management structure) while the latter tends to emphasize continuous improvement that meets market demands thanks to relevance to the consumer, more competitive products, and cost reduction. The two types require different types of resources and structure of management in terms of commercialization of creativity (Frank 1998), therefore our subsequent analysis will control for the difference to explore changing impacts of other factors on entrepreneurs' perceptions about the outcome of their attempts.

Entrepreneurs need networks, social and professional, to support their performance through combining skills, experiences and creativity capacity (Basadur & Basadur 2013; Basadur, Gelade & Basadur 2014). In

entrepreneurs' networking efforts (Runco 1994; Perry-Smith & Shalley 2003), the communication of ideas and information are likely to help improve creativity (Perry-Smith & Shalley 2003; Runco 2014; Vuong & Napier 2014b). Harryson (2008) also introduces "strategic navigation" through the use of so-called transformation networks, and articulates the concept of "networked innovation". In light of this, social networks will subsequently enter our analytical models as an element that possibly exerts influence to entrepreneurs' decision and perceived likelihood of success.

Fillis & Rentschler (2010) suggest that entrepreneurship is subject to randomness, uncertainty and ambiguity, which can be better understood when put in wider socio-economic contexts. Also, creativity is a process embedded in entrepreneurship, linked to entrepreneurs' personality and cognitive style (Ward 2004; Woodman, Sawyer & Griffin 1993). In addition, for both creativity and entrepreneurial efforts to take off, entrepreneurs require patience (Fillis & Rentschler 2010; Napier, Vu & Vuong 2012; Woodman, Sawyer & Griffin 1993).

Although for developed economies the coupling of entrepreneurship and creativity has been established and studied, both theoretically and empirically, the policy frameworks that focus on entrepreneurship and creativity still lack cohesion and need further empirical evidence (Audretsch & Link 2012). The issue is even more acute in developing economies. Developing economies, especially those in stages of transition, often face a lack of innovation, which can lead to weak and inefficient entrepreneurship waves, inefficiencies, and a waste of scarce innovation "resources" (Vuong & Napier 2014).

In an emerging economy like Vietnam, the association of creativity and socio-cultural factors in determining business efficiency is verified, and stronger influence of creativity is confirmed for a firm in their entrepreneurial stage (Vuong, Napier & Tran 2013). Therefore, it is more efficient to examine determinants of entrepreneurship outcomes with presence of a control variable like "creativity" factor (radical and non-radical). This is particularly practical as there is strong evidence of short-term opportunity-based value creation processes while theoretically it is possible to say that that novelty and relevance/usefulness may have different degrees of influence on entrepreneurial performance as well as require more that serendipitous opportunities (Vuong & Napier 2014).

This review sought to identify key factors (i.e. predictor variables) that may relate to outcomes from entrepreneurial efforts in Vietnam's emerging market. Those variables include financial constraint, assessment of socio-economic conditions, an entrepreneur's involvement in social networks, work experience (skill-related), patience, and self-reported degree of creative performance. Entrepreneurship outcomes, which will serve as dependent ("response") variables in our investigation, include: perceived chance of success, how decisive ("soon") they are in making an actual entrepreneurial attempt, and time lag to their first actual revenue.

3. Research framework and questions

Our investigation of the likely effects of the predictor (independent) variables on entrepreneurship outcomes employs the analytical framework of baseline-category logits (BCL). The BCL modeling with a full description of its technical treatments are provided in Agresti (2013). Below, we present key ideas of the framework and the way impacts of indepedent variables on responses are investigated.

<u>The BCL method</u>:
The BCL method employed in this study is estimated as a multivariate generalized linear model (GLM) taking the form:

$$\mathbf{g}(\boldsymbol{\mu}_i) = \mathbf{X}_i\boldsymbol{\beta},$$

where, $\boldsymbol{\mu}_i = \mathrm{E}(\mathbf{Y}_i)$, corresponding to $\mathbf{y}_i = (y_{i1}, y_{i2}, \dots)'$; row h of the model matrix $\mathbf{X}_i$ for observation i contains values of independent variables for y_{ih}.

Following this method, as $\pi_j(\mathbf{x}) = P(Y = j|\mathbf{x})$ represent a fixed setting for predictor variables, with $\sum_j \pi_j(\mathbf{x}) = 1$, count data are distributed over J categories of Y as multinomial with corresponding probabilities $\{\pi_1(\mathbf{x}), \dots, \pi_j(\mathbf{x})\}$. The BCL model aligns each response (dependent) variable with a baseline category: $\ln[\boldsymbol{\pi}_j(\mathbf{x})/\boldsymbol{\pi}_J(\mathbf{x})]$, with $j = 1, \dots, J-1$.

As $\ln[\boldsymbol{\pi}_a(\mathbf{x})/\boldsymbol{\pi}_b(\mathbf{x})] = \ln[\boldsymbol{\pi}_a(\mathbf{x})/\boldsymbol{\pi}_J(\mathbf{x})] - \ln[\boldsymbol{\pi}_b(\mathbf{x})/\boldsymbol{\pi}_J(\mathbf{x})]$, the set of response probabilities from multinomial logits $\{\boldsymbol{\pi}_j(\mathbf{x})\}$, can be computed from the formula:

$$\boldsymbol{\pi}_j(\mathbf{x}) = \frac{\exp(\alpha_j + \beta_j^{\mathrm{T}}\mathbf{x})}{1 + \sum_h^{J-1} \exp(\alpha_h + \beta_h^{\mathrm{T}}\mathbf{x})}.$$

The categorical variables used in our models are both dichotomous (e.g., the control variate "inno" and "diff" takes value of "yes" or "no") and multinomial (e.g., factor "econdf" takes "fav","somewhat" or "unfav"). Their coded names and values are described in the corresponding data set in the data section. A relevant example of real-world analysis employing actual survey data is given in Vuong (2015).

Research questions:
RQ1: What are the relationships between entrepreneurs' perceived economic conditions, financial constraints and degree of creativity and decisions by the same entrepreneurs about whether to pursue entrepreneurial venture/effort, controling for "creativity"?
RQ2: What, if any, impact do work experience, strategic patience and degree of creativity appear to have on the likelihood of success, as perceived by extant/prospective entrepreneurs?
RQ3: To what extent do work skills, involvement in social entrepreneurship networks and creativity relate to an entrepreneur's ability to estimate time to first dollar revenue?

The results reported for investigation of RQ1-RQ3 are estimated using software R. All relevant statistics are provided in corresponding result tables. Subsequent empirical results then help establish relationships between polytomous response variables and discrete (multinomial or binomial) explanatory variables. Then we move on to compute specific probabilities upon specific "events" of hypothetical influence.

4. Data, estimations and results

4.1. Data
The survey was conducted through a series of conferences and meetings that were organized in five economic centerss in Vietnam (Hanoi, Ho Chi Minh City, Da Nang, Buon Ma Thuot, Can Tho) through the Vietnamese Federation of the Youth and Students, Trung Nguyen Coffee Group, the Center for Business Study and Assistance under a joint initiative on youth entrepreneurship. Participating entrepreneuers who were willing to share their thinking and experience were given questionnaires by authorized personnel. Answers were collected only after participants had completed their participation and been well informed.

An estimated number of 50,000 entrepreneurs attended these events, and about 10,000 were randomly approached during the survey period, from March to May 2015. The data sample contained 3071 observations, answered in full or in part (thus the actual relevant data subset for each estimation is smaller than the total number of observations received).

The data are categorical by both research nature and design. As each research question deals with part of the full data set, in what follows each subset of data for a specific set of research question (i.e., RQ1-3) is presented together with proper explanations, after adjusting for missing data.

Data for RQ1:

The data subset for RQ1 contains 2494 responses that can be used to estimate the impacts of entrepreneurs' perception about economic conditions ("econdf"), financial constraints ("finance") and degrees of creativity ("inno" or "diff") on their decisions to start business or not. This data set is provided in Table 1.

The factor "econdf" takes categorical values of "fav" (favorable), "somewhat" (somewhat favorable) and "unfav" (unfavorable) to represent the perception by the surved entrepreneur about how favorable the socioeconomic conditions are for their current/coming attempt. The issue presented by the group "finance" deals with only two states "shortage" and "noshortage"; the answer basically shows if an entrepreneur feels constrained by the availability of finance.

It is noteworthy that "creativity" here is defined as taking two different values for distinct states of creativity. Value "inno" represents a highly creative assessment as shown by radical innovation; and "diff" a somewhat creative, enough to show differences in products, services, or business processes that help bring value to an entrepreneurial business but not with substantial novelty. Each of these two factors takes value of "yes" or "no". The values of factor "creativity" serve to be a control variate for outcome.

The last factor is "startplan" representing when the respondent estimates he or she will start his/her own business, with four categorical values: "a" (currently operating one), "b" (within the next 12 months), "c" (only with favorable conditions), "d" (will not start). This factor serves to be response variable in our model, and the probability of event will be computed against independent categorical variables described above, following empirical modeling employing data given in Table 1.

Table 1 (Data for RQ1). Contingency table of entrepreneurial decisions following socioeconomic conditions, availability of finance, with control variate of "inno"

"econdf"	"finance"	"inno"	"startplan"			
			"a"	"b"	"c"	"d"
"fav"	"noshortage"	"no"	8	14	25	11
		"yes"	44	54	43	16
	"shortage"	"no"	4	12	17	3
		"yes"	28	28	34	6
"somewhat"	"noshortage"	"no"	19	60	257	104
		"yes"	77	162	251	61
	"shortage"	"no"	10	39	188	35
		"yes"	64	121	210	30
"unfav"	"noshortage"	"no"	9	15	85	49
		"yes"	10	18	54	21
	"shortage"	"no"	2	5	72	25
		"yes"	11	12	58	13

Likewise, the data subset for modeling conditional probabilities of responses (entrepreneurial decisions) following socioeconomic conditions, availability of finance and control variate value of "diff" is constructed and provided in Appendix A, with "diff" taking value of either "yes" or "no", the same way Table 1 controls for radical creativity ("inno").

Data for RQ2:
The data subset for RQ1 (provided in Table 2) contains 2759 responses that can be used to estimate the impacts of past entrepreneurial attempt ("starthis"), patience ("tforstart") and creativity on perceived likelihood of success ("chance"). In Table 2, factor "starthis" takes three categorical values of "running" (currently operating one), "dropped" (used to operate one) and "notyet" (no startup experience); factor "tforstart" evaluates an entrepreneur's patience in this particular attempt, taking three categorical values of "less12" (<12 months), "b1224" (from 12 to 24 months), "g24" (> 24 months, if so required).

An entrepreneur's self-evaluation of likelihood of success ("chance") takes one of the three values: "high" (>80%), "med" (50-80%), "low" (<50%), and serves as the response variable in the model, where factor creativity remains as the control variate, for state of "inno" or "diff" (each taking value of "yes"/"no").

Table 2 (Data for RQ2). Contingency table of perceived likelihood of success following past startup experience, strategic patience, with control variate value of "inno"

"starthis"	"tforstart"	"inno"	"chance"		
			"high"	"low"	"med"
"dropped"	"b1224"	"no"	19	23	53
		"yes"	39	17	91
	"g24"	"no"	118	61	225
		"yes"	176	50	246
	"less12"	"no"	6	10	15
		"yes"	16	8	29
"notyet"	"b1224"	"no"	15	16	43
		"yes"	24	14	67
	"g24"	"no"	101	79	171
		"yes"	110	27	148
	"less12"	"no"	3	7	15
		"yes"	7	9	17
"running"	"b1224"	"no"	7	4	21
		"yes"	31	7	67
	"g24"	"no"	60	13	68
		"yes"	167	24	156
	"less12"	"no"	2	4	6
		"yes"	16	8	23

Table 2 suggests that 2000 entrepreneurs (out of 2759), or nearly 72.5%, plan to be patient with their entrepeneurial attempt, giving themselves more than 24 months (until success), and 53% evaluate their chance to be 50-80% ("med": 1461 responses). In the same way, the table in Appedix B provides the data subset for RQ2 with control variate "diff" instead of "inno".

Data for RQ3:
The subset for RQ3 (in Table 3) contains 2714 data points, involving answers about previous work experience of the respondent, factor "job", with 3 values "adhmr" (admin/HRM), "tech" (experience with technical skills: finance, accounting, production and operations, marketing, and so on) and "none" (no experience). An entrepreneur is assessed in terms of activeness in social network of entrepreneurs (both extant and prospective), through factor "member", taking one of three values: "all" (many or all networks/societies), "some" (participating in several networks), and "none".

Response variables are "tot1strev" (time needed for the entrepreneurial operation to receive the first revenue), which takes value: "a" (currently generating revenue), "b" (within 12 months), "c" (uncertain).

Table 3 (Data for RQ3). Contingency table of lead time to first entrepreneurial revenue, following past experience, activeness in social networks, with control variate value of "inno"

"job"	"member"	"inno"	"totst1rev"		
			"a"	"b"	"c"
"adhmr"	"all"	"no"	8	31	14
		"yes"	21	75	25
	"none"	"no"	16	99	113
		"yes"	29	87	57
	"some"	"no"	8	34	33
		"yes"	10	87	38
"none"	"all"	"no"	2	15	22
		"yes"	7	32	24
	"none"	"no"	3	102	180
		"yes"	9	86	101
	"some"	"no"	4	36	37
		"yes"	9	42	37
"tech"	"all"	"no"	18	38	21
		"yes"	64	147	31
	"none"	"no"	19	118	88
		"yes"	66	188	51
	"some"	"no"	17	56	35
		"yes"	61	122	41

The model has the same control variate factor "creativity" with Table 1 showing variable "inno" (radical innovation) and Appendix C showing "diff" (incremental innovation).

4.2. Estimations and results

Estimations and results for RQ1:
The first set of results considering the problems stated in RQ1 is reported in Table 4a. All estimated coefficients are statistically significant, with p-value <0.01.

Table 4a. Estimated coefficients for RQ1 with associated statistics

	intercept	"econdf"	"finance"	"inno"

		"fav"	"somewhat"	"shortage"	"yes"
	β_0	β_1	β_2	β_3	β_4
logit(a|e)	-2.334*** [-9.465]	1.739*** [5.966]	0.744** [3.226]	0.487** [2.852]	1.779*** [9.420]
logit(b|e)	-1.537*** [-7.849]	1.615*** [6.127]	1.148*** [5.910]	0.430** [2.915]	1.302*** [8.916]
logit(c|e)	0.528*** [4.073]	0.227 [1.009]	0.433** [3.142]	0.629*** [4.959]	0.387** [3.181]
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1, z-value in square brackets; baseline category for: "econdf": "unfav"; "finance": "noshortage"; and, "inno": "no". Residual deviance: 14.62 on 21 degrees of freedom.					

Table 4a suggests that entrepreneurs' perception about socio-economic conditions, financial constraint and degree of creative performance all together are related to their subjective plan of making an entrepreneurial attempt. To have a deeper understanding of the results, the following set of stylized facts are constructed from the coefficients with associated conditions as stated by the BCL model given in equations RQ1.1-1.3.

$\ln\left(\frac{\pi_a}{\pi_d}\right) = -2.334 + 1.739\text{favEcondf} + 0.744\text{swEcondf} + 0.487\text{shortFin} + 1.779\text{yesInno}$	Eq. (RQ1.1)
$\ln\left(\frac{\pi_b}{\pi_d}\right) = -1.537 + 1.615\text{favEcondf} + 1.148\text{swEcondf} + 0.430\text{shortFin} + 1.302\text{yesInno}$	Eq. (RQ1.2)
$\ln\left(\frac{\pi_c}{\pi_d}\right) = 0.528 + 0.227\text{favEcondf} + 0.433\text{swEcondf} + 0.629\text{shortFin} + 0.387\text{yesInno}$	Eq. (RQ1.3)

Eq. (RQ1.1) indicates that radical innovation capacity exhibits the single largest effect that decides if a respondent is currently running an entrepreneurial operation, with β_4=1.779 (p-value<0.0001). In contrary, from Eq. (RQ1.3) for those who tend to wait until the conditions become more favorable, the largest impact falls into the issue of financial constraint, with β_3=0.629 (p-value<0.0001). For a complete probability distributions over "events" to be observed, Table 4b is constructed from computed conditional probabilities using coefficients of Eqs. (RQ1.1-3). In other words, entrepreneurs who have already begun a venture tend to see themselves as depending upon more radical creativity and those who have not begun see financial constraints as a more critical element in future action.

Table 4b. Probability distributions of entrepreneurial undertaking conditional upon perceived economic conditions, financial constraint, with control variate of creative performance ("inno")

"startplan"	"running" (a)				"soon" (b)			
"inno"	"yes"		"no"		"yes"		"no"	
"econdf" | "finance"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"
"fav"	0.290	0.287	0.119	0.116	0.334	0.349	0.220	0.227
"somewhat"	0.140	0.141	0.046	0.045	0.273	0.291	0.143	0.151
"unfav"	0.119	0.118	0.034	0.032	0.155	0.163	0.071	0.071
"startplan"	"only with favorable conditions" (c)				"not to start" (d)			
"inno"	"yes"		"no"		"yes"		"no"	
"econdf" | "finance"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"

"fav"	0.321	0.275	0.529	0.447	0.055	0.089	0.132	0.210
"somewhat"	0.515	0.450	0.674	0.581	0.072	0.118	0.137	0.223
"unfav"	0.598	0.514	0.681	0.564	0.128	0.205	0.214	0.333

Table 4b suggests that even if facing financial shortage, the likelihood of currently operating an entrerpreneurial firm is still reasonably high, approximately 29%, when the positive business climate is felt and the entrepreneur is confident in his/her innovative capacity. Computed values also reconfirm that prospective entrepreneurs tend to delay their attempt when socio-economic conditions are considered less favorable, or even decide not to start, as suggested by subtables (c) and (d). Effects of other factors on entrepreneurial decisions can be examined in similar ways, using subtables of Table 4b.

Now we will turn to issues of primary concern: role of creativity. Empirical probabilities confirm that entrepreneurs with signficant innovation capacity tend to be more decisive in their entrepreneurial attempt than those without it, see Fig. 1 (constructed from Appendix D).

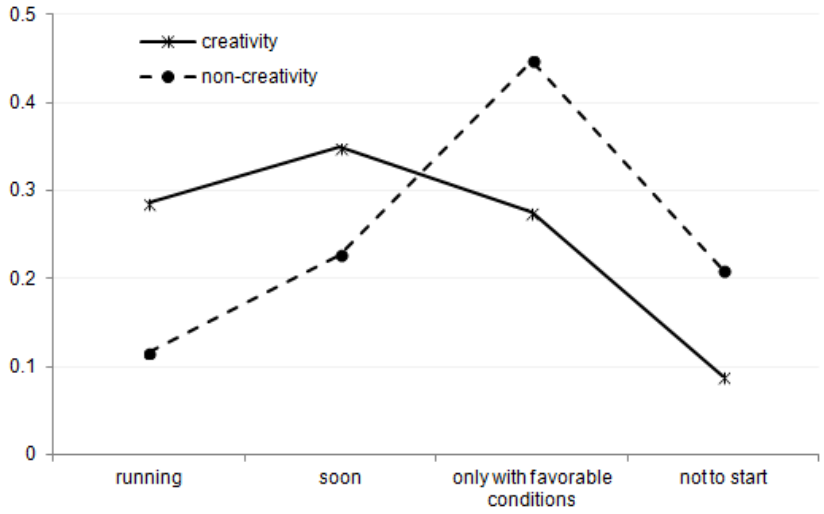


Figure 1. Propensity to start business for those with and without significant innovative capacity, holding equal the conditions of favorable economic conditions and no financial constraint.

As we have the control variate of "inno" vs. "diff" as described earlier, a comparison between entrepreneurs' behavior regarding this control is likely to provide us further insight. For this task, empirical distribution of conditional probabilities for control variate value of "diff" are computed in Table 5, using estimated coefficients of logistic regressions reported in Appendix E.

Table 5. Propensity to start conditioned on value "diff", economic conditions and financial constraint

"startplan"	"running" (a)				"soon" (b)			
"diff"	"yes"		"no"		"yes"		"no"	
"econdf" | "finance"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"
"fav"	0.274	0.270	0.117	0.111	0.321	0.338	0.205	0.209
"somewhat"	0.125	0.126	0.043	0.042	0.256	0.275	0.132	0.138
"unfav"	0.111	0.110	0.034	0.032	0.149	0.158	0.068	0.068
"startplan"	"only with favorable conditions" (c)				"not to start" (d)			

"diff"	"yes"		"no"		"yes"		"no"	
"econdf" | "finance"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"	"shortage"	"noshort"
"fav"	0.345	0.295	0.516	0.428	0.06	0.097	0.162	0.252
"somewhat"	0.545	0.477	0.662	0.562	0.074	0.122	0.163	0.258
"unfav"	0.616	0.532	0.660	0.538	0.124	0.200	0.238	0.362

It is easier to look at the following graph (Fig. 2) presenting the differences of entrepreneurial attempts in cases of radical versus non-radical innovation capacity.

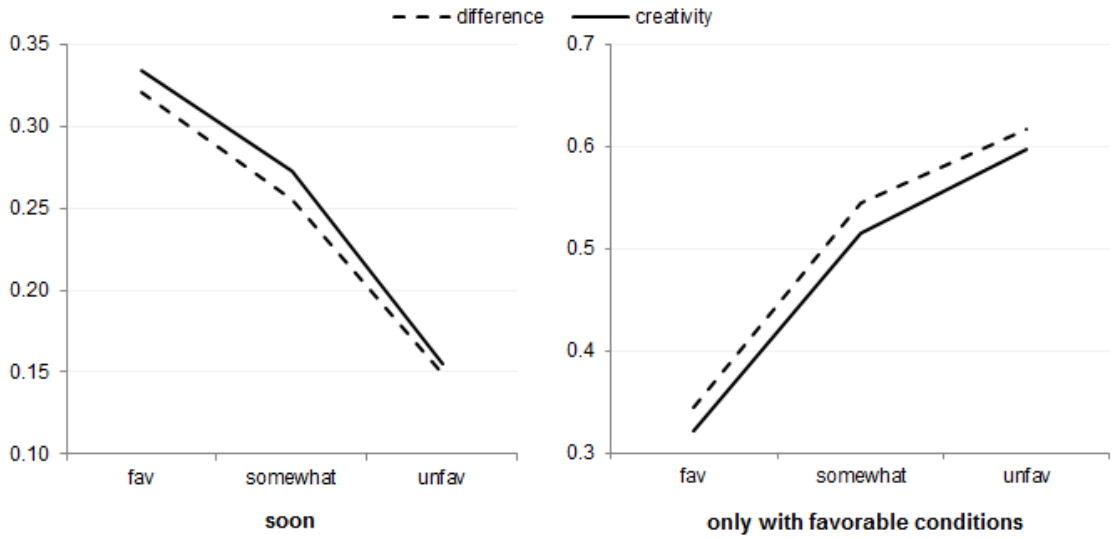


Figure 2. Probabilities of starting a venture with radical and non-radical creativity, facing financial shortage and seeing economic conditions as favorable (Appendix F data)

Fig. 2 considers two sets of empirical probabilities: i) of near-time entrepreneurial start (left); for those who only make attempts if seeing the context as favorable (right). In both graphs, both probability lines for "diff" and "creativity" move in the same direction. In Fig.2(left) the "creativity" line is above the "difference" line, while the two lines swap positions in Fig.2(right). In Fig. 2(left), for entrepreneurs who decide to start business "soon", the probability to make such decision drops from >30% when "fav" to <30% (less favorable), then to 15% when situation is unfavorable. In all circumstances, the probability of making an early start for those with radical innovation capacity is always higher. Reading Fig.2(right) tells us that the probability of "hesitation" (i.e. those who only act when seeing favorable conditions) for "non-radical" is always higher than those with radical innovation. In addition, when the context changes from favorable ("fav") to unfavorable ("unfav") the level of hesitation jumps from ~35% to ~60% (for both groups).

Estimations and results for RQ2:
The following estimations have "chance" as response variable and 3 groups of predictor variables: "starthis", "tforstart", "inno" as seen in Table 6.

Table 6. Estimated impacts of past experience, strategic patience on likelihood of success evaluated by entrepreneurs, with the control variate of "inno"

	Intercept	"starthis"	"tforstart"	"inno"

		"notyet"	"running"	"b1224"	"g24"	"yes"
	β_0	β_1	β_2	β_3	β_4	β_5
logit(high|low)	-0.562* [-2.402]	-0.206 [-1.469]	0.654*** [3.781]	0.498* [1.973]	1.139*** [5.129]	0.812*** [6.330]
logit(med|low)	0.483* [2.390]	-0.218 . [-1.701]	0.300 . [1.799]	0.657** [3.012]	0.665*** [3.441]	0.558*** [4.687]
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1. z-value in square brackets. Baseline category for "tforstart": "less12"; "starthis": "dropped"; and "inno": "no". Residual deviance: 14.31 on 24 d.f.						

All coefficients in Table 6 have shown statistical significance at the conventional level of 10%, and in 9 (out of 12) coefficients are significant at any level ($p<0.01$). The largest coefficient observed in Table 6 is "g24" indicates a high importance of "patience", $\beta_4=1.139$ ($p<0.0001$). Empirical relationships (RQ2.1-2.2) are constructed from Table 6:

$\ln\left(\frac{\pi_{\text{high}}}{\pi_{\text{low}}}\right) = -0.562 - 0.206\text{notyet} + 0.654\text{running} + 0.498\text{b1224} + 1.139\text{g24} + 0.812\text{yesInno}$	Eq. (RQ2.1)
$\ln\left(\frac{\pi_{\text{med}}}{\pi_{\text{low}}}\right) = 0.483 - 0.218\text{notyet} + 0.300\text{running} + 0.657\text{b1224} + 0.665\text{g24} + 0.558\text{yesInno}$	Eq. (RQ2.2)

These relationships enable the computing of empirical distributions of probabilities of success against past work experience, patience, with control variate of "inno", as in Table 7.

Table 7. Distribution of probabilities of success for RQ2

"chance"	"high"					
"inno"	"yes"			"no"		
"tforstart"|"starthis"	"notyet"	"running"	"dropped"	"notyet"	"running"	"dropped"
"g24"	0.376	0.478	0.381	0.291	0.395	0.300
"b1224"	0.242	0.327	0.246	0.178	0.257	0.185
"less12"	0.242	0.339	0.251	0.168	0.256	0.179
"chance"	"med"					
"inno"	"yes"			"no"		
"tforstart"|"starthis"	"notyet"	"running"	"dropped"	"notyet"	"running"	"dropped"
"g24"	0.509	0.460	0.524	0.509	0.490	0.531
"b1224"	0.618	0.593	0.637	0.588	0.601	0.617
"less12"	0.527	0.524	0.554	0.471	0.511	0.508
"chance"	"low"					
"inno"	"yes"			"no"		
"tforstart"|"starthis"	"notyet"	"running"	"dropped"	"notyet"	"running"	"dropped"
"g24"	0.115	0.062	0.095	0.200	0.115	0.169
"b1224"	0.14	0.080	0.117	0.234	0.142	0.198
"less12"	0.231	0.137	0.195	0.361	0.233	0.313

Table 7 reveals a reasonable chance for a new entrepreneur, who believes in their innovation capacity, has "average" expectation, and can be patient with the entrepreneurial attempt: ~51% of success. In addition,

"innovation" continues to exert its positive influence on increasing confidence of entrepreneurs in their startup projects, shown in trends of increasing probabilities of high success when moving from "no" to " yes"; in opposite, subjective probabilities of poor performance expectation show a declining trend. Next Table 8 provides empirical distributions of values with the control variate "diff" (non-radical creativity) instead of "inno" (radical), using estimations provided in Appendix G.

Table 8. Estimated chance for entrepreneurs conditional on past experience, patience, with control variate of "diff" (non-radical innovation capacity)

"chance"	"high"					
"diff"	"yes"			"no"		
"tforstart"|"starthis"	"notyet"	"running"	"dropped"	"notyet"	"running"	"dropped"
"g24"	0.358	0.461	0.364	0.293	0.400	0.302
"b1224"	0.233	0.316	0.237	0.185	0.266	0.191
"less12"	0.231	0.325	0.239	0.168	0.257	0.177
"chance"	"med"					
"diff"	"yes"			"no"		
"tforstart"|"starthis"	"notyet"	"running"	"dropped"	"notyet"	"running"	"dropped"
"g24"	0.531	0.475	0.538	0.493	0.468	0.506
"b1224"	0.640	0.605	0.650	0.577	0.578	0.595
"less12"	0.544	0.532	0.560	0.447	0.477	0.471
"chance"	"low"					
"diff"	"yes"			"no"		
"tforstart"|"starthis"	"notyet"	"running"	"dropped"	"notyet"	"running"	"dropped"
"g24"	0.111	0.064	0.098	0.214	0.132	0.192
"b1224"	0.127	0.079	0.113	0.238	0.156	0.214
"less12"	0.225	0.143	0.201	0.385	0.266	0.352

Generally speaking, the tendency shown in Table 8 is similar to what has been learned from the case of more radical innovation (i.e., control value of “inno”). However there are still some noteworthy differences, taking Fig. 3 (drawn using computed data in Appendix H) as an example.

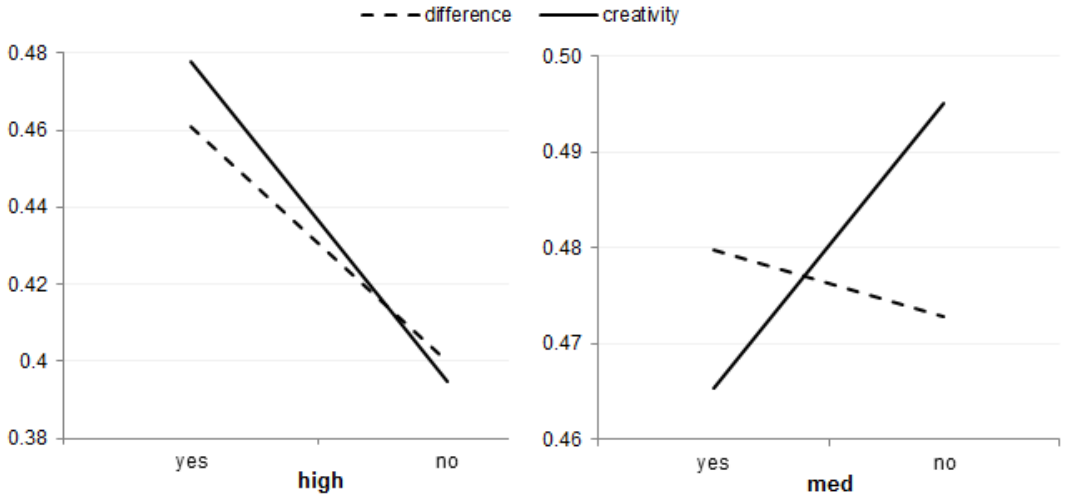


Figure 3. Likelihood of success (high vs low) for those who are operating entrepreneurial firms, patient with business plan, with control variate values: "inno" (creativity) and "diff" (incremental innovation).

Although the absolute change in probabilities is not large in these empirical observations, the control value "diff" tends to increase chance of success for extant entrepreneurs in both high- and medium-success clusters, while "inno" exerts only significant positive influence with cohort of higher-performing ones. Still the contribution of the creativity factor to increase in the likelihood of success is not very high, <10 percentage point at max.

Estimations and results for RQ3:
The last set of estimations work with the response variable "tot1strev" and predictor variables of groups "job", "member", with the control variate of "inno" (Table 9) and "diff" (Appendix I).

Table 9. Estimations for RQ3, with control variate value "inno"="yes"

	Intercept	"job"		"member"		"inno"
		"hmr"	"tech"	"all"	"some"	"yes"
	β_0	β_1	β_2	β_3	β_4	β_5
logit(a|c)	-3.264*** [-15.815]	1.228*** [5.618]	2.145*** [10.589]	0.841*** [5.094]	0.428** [2.720]	1.075*** [7.568]
logit(b|c)	-0.656*** [-7.197]	0.567*** [5.146]	1.028*** [9.610]	0.491*** [4.062]	0.219* [2.071]	0.633*** [7.085]
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1, z-value in square brackets ; baseline category : "job"="none", "member"="none", "inno"="no". Residual deviance: 37.57 on 24 d.f.						

This is to evaluate subjective probabilities of another kind of desired outcome for entrepreneurs: time to first revenue. In RQ3 estimations, factors such as work experience, activeness in social network and creativity all play positive roles in determining the outcome, with all estimates are highly significant and positive. The creativity factor is highly influential in both cases: currently generating revenue ("a") and in the next 12 months ("b"), although the past technical job experience ("tech") proves to be the singly most influential in both logits: β2=2.145 and 1.028, respectively.

$\ln\left(\frac{\pi_a}{\pi_c}\right) = -3.264 + 1.228\text{adhmr} + 2.145\text{tech} + 0.841\text{all} + 0.428\text{some} + 1.075\text{yesInno}$	Eq. (RQ3.1)
$\ln\left(\frac{\pi_a}{\pi_c}\right) = -0.656 + 0.567\text{adhmr} + 1.028\text{tech} + 0.491\text{all} + 0.219\text{some} + 0.633\text{yesInno}$	Eq. (RQ3.2)

Next, empirical relationships (RQ3.1-3.2) enable the computing of conditional probabilities in Table 10.

Table 10. Probabilities of time to the first dollar revenue conditional upon past experience, social network membership and with radical creativity factor ("inno")

"tot1strev"	"now"					
"inno"	"yes"			"no"		
"job"|"member"	"all"	"some"	"none"	"all"	"some"	"none"
"adhmr"	0.189	0.157	0.123	0.108	0.086	0.064
"tech"	0.289	0.25	0.204	0.183	0.152	0.118
"none"	0.091	0.072	0.054	0.046	0.034	0.025
"tot1strev"	"soon"					
"inno"	"yes"			"no"		

"job"|"member"	"all"	"some"	"none"	"all"	"some"	"none"
"adhmr"	0.599	0.575	0.555	0.534	0.487	0.447
"tech"	0.581	0.579	0.583	0.574	0.546	0.522
"none"	0.559	0.509	0.468	0.438	0.379	0.333
"tot1strev"	"not sure"					
"inno"	"yes"			"no"		
"job"|"member"	"all"	"some"	"none"	"all"	"some"	"none"
"adhmr"	0.212	0.268	0.322	0.358	0.427	0.489
"tech"	0.130	0.171	0.213	0.243	0.302	0.360
"none"	0.350	0.419	0.478	0.516	0.587	0.642

The largest probability observed in Table 10 is 64.2%: a prospective entrepreneur without work experience and not confident in his/her creative performance is unable to determine when the entrepreneurial attempt would bring back the first dollar revenue. We then change the control variate to "diff" (non-radical innovation) factor, using estimated coefficients in Appendix I, to compute probabilities as in Table 11.

Table 11. Probabilities of time to the first dollar revenue conditional upon past experience, social network membership and non-radical creativity factor ("diff")

"tot1strev"	"now"					
"diff"	"yes"			"no"		
"job"|"member"	"all"	"some"	"none"	"all"	"some"	"none"
"adhmr"	0.179	0.147	0.110	0.123	0.097	0.068
"tech"	0.277	0.236	0.184	0.212	0.173	0.128
"none"	0.082	0.065	0.046	0.049	0.037	0.025
"tot1strev"	"soon"					
"diff"	"yes"			"no"		
"job"|"member"	"all"	"some"	"none"	"all"	"some"	"none"
"adhmr"	0.602	0.587	0.567	0.471	0.436	0.397
"tech"	0.588	0.594	0.600	0.510	0.493	0.472
"none"	0.557	0.519	0.475	0.376	0.333	0.288
"tot1strev"	"not sure"					
"diff"	"yes"			"no"		
"job"|"member"	"all"	"some"	"none"	"all"	"some"	"none"
"adhmr"	0.219	0.266	0.323	0.406	0.467	0.535
"tech"	0.135	0.170	0.216	0.278	0.334	0.400
"none"	0.361	0.416	0.479	0.575	0.63	0.687

In general, the creativity factor is believed to significantly contribute to increase the chance of both extant and prospective entrepreneurs to get the first dollar revenue, especially those expecting first revenues within 12 months. The factor also helps reduce the probability of being uncertain about future revenue as seen in the last part of Table 11. Take the extreme case of an entrepreneur with no previous work

experience, no membership in social networks as an example. The probability of becoming uncertain reduces from 68.7% to 47.9% for those without and with non-radical creativity, respectively.

We also produce Fig. 4 from Appendix K to show differences for the control variate of "inno" and "diff" for those who anticipate first revenue soon and who are having revenues now. (Conditions: these have previous work experience in admin or HRM and are active in many social networks.)

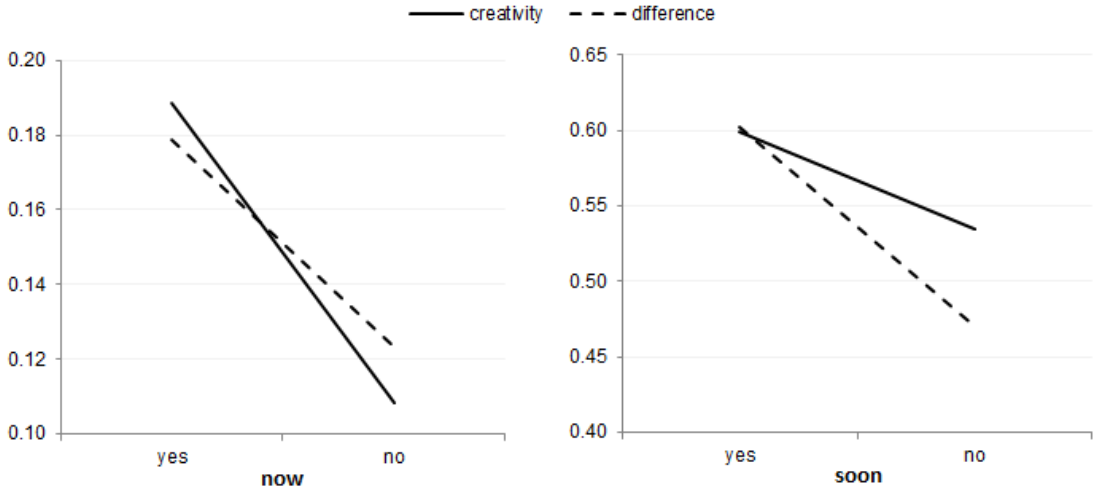


Figure 4. Probabilities of having revenues now or soon ("job"="adhrm"; "member"="all")

The creativity factor "inno" clearly has a stronger influence to increased probabilities of having revenues now. But non-radical creativity is seen to be more influential to those to anticipate revenues in near term (but not now).

5. Concluding remarks

As all research does, this study has limits but has sparked ideas for potential future examination.

First, we acknowledge the limitations of a self-report survey, used in large part because objective quantitative data of this nature are non-existent in Vietnam. Thus, it is difficult to replicate fully or compare with other countries' entrepreneurship research, at least at present. Entrepreneurship is such a young topic Vietnam but is happening so rapidly that we felt it important to at least begin some sort of documentation. As the field grows in this developing economy, we also hope that perhaps the process and approach to research will evolve and therefore see this as a possible area for contribution. Specifically, is there a way that researchers in early stages of development of a topic in a given site may take on the research and move up the learning curve faster? Further, are there models that may emerge from developing country research on entrepreneurship and creativity that are different from what has come out of more developed regions?

Future research may also tap some areas that could be useful within and beyond Vietnam. For example, has history played a role in whether some regions are more or less "entrepreneurial?" Some argue that the American presence in the southern region of the country for 25 years may have residual effects for business and entrepreneurship. Does that seem to hold over 50 years later? In essence, are there differences in entrepreneurs' perceptions about starting new firms and about creativity that may vary based upon geographic location or upon Industry type?

Another aspect that may affect transition economies in particular (and as Cuba becomes more open for study it could be an earlier stage site to examine) is the question of what the country gains and loses as its economy changes (Vuong & Napier 2015). The examples of increased pollution with the rise of vehicles and industrial production is highly evident in China and is becoming more prevalent in Vietnam. But what else may be affected—socially, culturally, politically—with the increased focus on new ventures and business? Furthermore, how are organization affected if creativity and innovation do become more widespread? Many of Vietnam's firms have been, to date, quite hierarchical, suggesting that leaders must "know the answers." If creativity is to happen, ideas might emerge from all areas of an organization but will the traditional management style squelch them? If children begin to learn about creativity in school, and bring it into the workplace, will entrepreneurs and other managers be ready to adapt and incorporate different ways of thinking?

The topics of entrepreneurship and creativity in Vietnam—and other emerging and transition economies—will be fascinating to investigate over the next decade.

Appendixes

Appendix A. Distribution of entrepreneurial attempts against perceptions of economic conditions, financial constraints, and non-radical innovation:

"econdf"	"finance"	"diff"	"startplan"			
			"a"	"b"	"c"	"d"
"fav"	"noshortage"	"no"	6	8	16	8
		"yes"	46	59	50	19
	"shortage"	"no"	2	5	14	4
		"yes"	29	34	37	6
"somewhat"	"noshortage"	"no"	12	55	180	69
		"yes"	84	170	326	96
	"shortage"	"no"	8	18	126	37
		"yes"	66	142	270	30
"unfav"	"noshortage"	"no"	7	7	64	48
		"yes"	13	27	69	22
	"shortage"	"no"	1	4	65	29
		"yes"	12	13	67	9

Appendix B. Distribution of responses ("chance") against past entrepreneurial attempt ("starthis"), patience ("tforstart"), with the control variate of non-radical innovation.

"starthis"	"tforstart"	"diff"	"chance"		
			"high"	"low"	"med"
"dropped"	"b1224"	"no"	17	17	33
		"yes"	41	22	111
	"g24"	"no"	70	54	143
		"yes"	225	54	328
	"less12"	"no"	4	7	11
		"yes"	18	11	34

"notyet"	"b1224"	"no"	14	14	41
		"yes"	25	13	70
	"g24"	"no"	83	67	133
		"yes"	127	36	188
	"less12"	"no"	5	5	12
		"yes"	5	12	21
"running"	"b1224"	"no"	6	2	16
		"yes"	32	9	75
	"g24"	"no"	39	9	43
		"yes"	186	28	183
	"less12"	"no"	4	2	3
		"yes"	14	10	26

Appendix C. Distribution of responses ("totst1rev") against work experiences ("job"), activeness in social networks ("member"), and non-radical innovation.

"job"	"member"	"diff"	"totst1rev"		
			"a"	"b"	"c"
"adhmr"	"all"	"no"	5	22	12
		"yes"	26	86	27
	"none"	"no"	10	53	93
		"yes"	35	135	76
	"some"	"no"	9	24	27
		"yes"	10	98	42
"none"	"all"	"no"	2	7	15
		"yes"	7	41	32
	"none"	"no"	6	67	155
		"yes"	7	122	126
	"some"	"no"	2	23	30
		"yes"	10	55	43
"tech"	"all"	"no"	8	24	9
		"yes"	75	160	43
	"none"	"no"	18	85	73
		"yes"	67	224	66
	"some"	"no"	16	41	29
		"yes"	63	137	47

Appendix D. Probabilities of entrepreneurial decisiveness of those with radical and non-radical innovation tendency, holding equal positive perception of economic conditions and facing no financial constraints.

"inno"	"startplan"			
	"running"	"soon"	"only with fav. conditions"	"not to start"
"yes"	0.287	0.349	0.275	0.089

"no"	0.116	0.227	0.447	0.21

Appendix E. Estimation results of response variables of entrepreneurial attempt against predictor variables of perceived economic conditions, financial constraints, with the control variate of non-radical innovation.

	Intercept	"econdf"		"finance"	"diff"
		"fav"	"somewhat"	"shortage"	"yes"
	β_0	β_1	β_2	β_3	β_4
logit(a|e)	-2.436*** [-9.419]	1.616*** [5.592]	0.629** [2.745]	0.485** [2.854]	1.842*** [8.816]
logit(b|e)	-1.676*** [-8.268]	1.484*** [5.651]	1.053*** [5.428]	0.419** [2.856]	1.440*** [9.296]
logit(c|e)	0.393** [2.936]	0.133 [0.590]	0.388** [2.786]	0.626*** [4.956]	0.586*** [4.843]
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1, z-value in square brackets; baseline category: "econdf"="unfav", "finance"="noshortage", "diff"="no". Residual deviance: 28.35 on 21 d.f.					

Established relationships among variables drawn upon the preceding estimated results:

$$\ln\left(\frac{\pi_a}{\pi_d}\right) = -2.436 + 1.616\text{favEcondf} + 0.629\text{swEcondf} + 0.485\text{shortFin} + 1.842\text{yesDiff}$$

$$\ln\left(\frac{\pi_b}{\pi_d}\right) = -1.676 + 1.484\text{favEcondf} + 1.053\text{swEcondf} + 0.419\text{shortFin} + 1.44\text{yesDiff}$$

$$\ln\left(\frac{\pi_c}{\pi_d}\right) = 0.393 + 0.133\text{favEcondf} + 0.388\text{swEcondf} + 0.626\text{shortFin} + 0.586\text{yesDiff}$$

Appendix F. Probabilities of early attempt decision vs. "only with favorable conditions", controling for both degrees of creativity, holding equal positive perceptions of conditions and facing financial constraints.

"startplan"	"soon"		"only with favorable conditions"	
"econdf"	"difference"	"creativity"	"difference"	"creativity"
"fav"	0.321	0.334	0.345	0.321
"somewhat"	0.256	0.273	0.545	0.515
"unfav"	0.149	0.155	0.616	0.598
Note: "creativity" and "difference" represent controls for radical and non-radical innovation tendency, respectively.				

Appendix G. Estimations of perceived likelihood of success against past attempt, patience, controlling for non-radical creativity.

	Intercept	"starthis"		"tforstart"		"diff"
		"notyet"	"running"	"b1224"	"g24"	"yes"
	β_0	β_1	β_2	β_3	β_4	β_5
log(high|low)	-0.686** [-2.872]	-0.144 [-1.012]	0.652*** [3.766]	0.574* [2.270]	1.143*** [5.178]	0.857*** [6.483]
log(med|low)	0.291 [1.404]	-0.140 [-1.069]	0.293 . [1.754]	0.731*** [3.345]	0.681*** [3.546]	0.731*** [6.013]
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1, z-value in square brackets; baseline category: "tforstart"="less12", "starthis"="dropped", "diff"="no". Residual deviance: 20.97 on 24 d.f.						

Empirical relationships established through the preceding results:

$$\ln\left(\frac{\pi_{high}}{\pi_{low}}\right) = -0.686 - 0.144\text{notyetStarthis} + 0.652\text{runningStarthis} + 0.574\text{b1224Tforstart} + 1.143\text{g24Tforstart} + 0.857\text{yesDiff}$$

$$\ln\left(\frac{\pi_{med}}{\pi_{low}}\right) = 0.291 - 0.140\text{notyetStarthis} + 0.293\text{runningStarthis} + 0.731\text{b1224Tforstart} + 0.681\text{g24Tforstart} + 0.731\text{yesDiff}$$

Appendix H. Empirical probabilities for high and medium success of extant entrepreneurs, with strong patience ("Tforstart"="g24"), controling for both values of creativity (radical and non-radical).

	"med"		"high"	
	"diff"	"inno"	"diff"	"inno"
"yes"	0.475	0.460	0.461	0.478
"no"	0.468	0.490	0.400	0.395

Appendix I. Regression results of response variable "time to the first dollar revenue" against past work experiences, activeness in social networks, controling for non-radical creativity.

	Intercept	"job"		"member"		"diff"
		"hmr"	"tech"	"all"	"some"	"yes"
	β_0	β_1	β_2	β_3	β_4	β_5
logit(a|c)	-3.334*** [-15.520]	1.269*** [5.840]	2.191*** [10.843]	0.872*** [5.325]	0.488** [3.117]	0.986*** [6.535]
logit(b|c)	-0.869*** [-8.742]	0.572*** [5.146]	1.032*** [9.596]	0.444*** [3.662]	0.229* [2.153]	0.861*** [9.242]
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1, z-value in square brackets; baseline category: "job"="none", "member"="none", "diff"="no". Residual deviance: 32.39 on 24 d.f.						

Empirical relationships established through preceding coefficients:

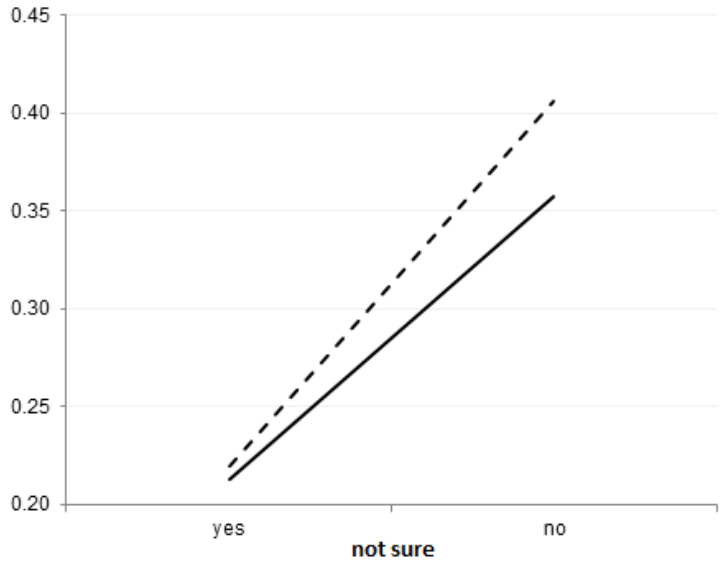
$$\ln\left(\frac{\pi_a}{\pi_c}\right) = -3.334 + 1.269\text{adhmrJob} + 2.191\text{techJob} + 0.872\text{allMember} + 0.488\text{someMember} + 0.986\text{yesDiff}$$

$$\ln\left(\frac{\pi_a}{\pi_c}\right) = -0.869 + 0.572\text{adhmrJob} + 1.032\text{techJob} + 0.444\text{allMember} + 0.229\text{someMember} + 0.861\text{yesDiff}$$

Appendix K. Probabilities of having revenues "now" or "soon" for those with previous admin/HMR experience and being active in many social networks, controling for radical and non-radical creativity:

	"now"		"soon"	
	"inno"	"diff"	"inno"	"diff"
"yes"	0.189	0.179	0.599	0.602
"no"	0.108	0.123	0.534	0.471

Figure L. Probabilities for uncertain timing to first revenue by those with previous HMR experience, active in social networks, controling for radical and non-radical creativity



Appendix M. Examples of computed numerical probabilities used in previous discussions

$\pi_a = \frac{e^{(-2.334+1.739+0.487+1.779)}}{1+e^{(-2.334+1.739+0.487+1.779)}+e^{(-1.537+1.615+0.430+1.302)}+e^{(0.528+0.227+0.629+0.387)}} = 0.290$	Table 4b; RQ1.1 ("fav","shortage")
$\pi_{med} = \frac{e^{(0.483-0.218+0.665+0.558)}}{1+e^{(0.483-0.218+0.665+0.558)}+e^{(-0.562-0.206+1.139+0.812)}} = 0.509$	Table 7; RQ2.2 ("g24","notyet")
$\pi_b = \frac{e^{(-0.656+1.028+0.633)}}{1+e^{(-0.656+1.028+0.633)}+e^{(-3.264+2.145+1.075)}} = 0.583$	Table 10; RQ3.2 ("tech","none")

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