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Entrepreneurial Human Capital in Micro and Small Enterprises in Vietnam

Souksavanh Vixathep*

Using Vietnam as a case study for developing and transitional economies, the paper attempts to look into how entrepreneurship contributes to economic development at the micro level. The study evaluates the impact of entrepreneurial human capital on firm's output (value added) and total factor productivity in micro and small enterprises (MSEs), the major players in the manufacturing. The analysis reveals that formal education (up to upper secondary school) helps owners of micro enterprises increase firm output and improve productivity. Technical specialization, including advanced vocational training, university and post-graduate education, enhances entrepreneurial performance in small enterprises, but shows some sign of over-education for the micro size. Accumulated entrepreneurial experience, in form of occupation and self-employment experience, is crucial for entrepreneur's performance. The findings pertain to enhancing education policy toward higher quality and appropriateness to help nurture entrepreneurship and develop MSEs in the country.

Keywords Entrepreneurship, Returns to human capital, Small and micro enterprise, Vietnam

1 Introduction

Economic reforms in Vietnam, known as the Doi Moi policy, have transformed the economy into multi-ownership market economy with the state, non-state and foreign sectors. The manufacturing industries are recognized as the spearhead sector in easing unemployment burden upon the collapse of the Soviet bloc, the decline of state-owned enterprises (SOEs), and demobilization of personnel in the military (Nguyen et al., 2007). The economy is characterized by the dominance of small and medium enterprises (SMEs) in the non-agricultural sectors, which have played a crucial role in promoting the country's industrialization and creating jobs for the bulk of workforce. With the official recognition in the 1990s, the private sector is relatively young at the early stage of development. Upon the enactment and enforcement of the 2000 Enterprise Law,

the domestic private sector has experienced rapid growth, particularly in number of enterprises, and drawn attention in both policy and academic discussions.

In the 1990s empirical studies tended to focus on the business environment for private sectors, obstacles to private sector development (access to finance, land and production premises), institutional weaknesses and development, technical and managerial capabilities, public attitude toward private sectors, and the like. Recently, however, attention has turned to quantitative assessment of enterprises, including growth, survival, profitability, and performance, etc. The vast majority of studies on SMEs address firm performance (technical efficiency and productivity) in light of firm characteristics (age, ownership, location) and business environment (Vu, 2003; Nguyen et al., 2007; Tran, Grafton and Kompas, 2008; Le, 2010; Le and Harvie, 2010), whereas scholarly works on entrepreneurship are still scare. This study attempts to fill this research gap and addresses the 'entrepreneurship issue' in enterprise development. The main objective is to evaluate the returns of entrepreneur's human capital, one of the prominent aspects of entrepreneurship, on business performance in micro and small enterprises (MSEs).

From a macro-level viewpoint, entrepreneurship is an important vehicle for economic development and the engine of economic growth, while at the production-level it is a mechanism that helps convert technical information into products and services. It helps generate employment, stimulate innovation and improve welfare. Many of the constraints in business are overcome by means of entrepreneurship. Yet, we actually know very little about whether or not and how entrepreneurship contributes to economic development in developing countries, because studies on entrepreneurship for developing countries and least developed countries (LDCs) are rare. On the academic platform, development economics and entrepreneurship studies have largely been treated incoherently, despite rapid progress that the two academic fields have made in the last few decades (Shane and Venkataraman, 2000; Acs et al., 2008; Autio, 2008; Naude, 2010).

In literature, performance of large firms and the underlying causes are well documented, but knowledge on MSEs in developing countries is far from adequate (Hossain, 1988; Khandker 2005; Onphanhdala and Suruga, 2010). In most MSEs the owner makes business decisions and is responsible for success or failure of her enterprise. In this context, human capital (HC), besides natural talent, is viewed as an underlying factor for entrepreneurial performance, and education is widely considered as the fundamental element of human capital (Honig, 2001).

Overall, empirical evidence on impact of human capital on entrepreneurial performance is inconclusive (Baum and Silverman, 2004). Entrepreneur's endowment of human capital is argued to enhance efficiency in business operation. To some degree, the positive relationship between

entrepreneurial performance and human capital, particularly entrepreneur's education, is well documented and empirically supported in literature (Reuber and Fischer, 1994; Van der Sluis et al., 2003; Honig, 2001; Bosma et al., 2004). A recent meta-analysis of 70 studies on human capital of 1980-2011 reveals a moderate but significant relationship between HC and business success (Unger et al., 2011).

For enterprises in developing countries returns to human capital could only be evaluated with difficulties, if not impossible, due to lack of financial records and a clear distinction between business and household transactions. Recently, more empirical examinations of human and social capital on entrepreneurial performance are possible thanks to increased availability of data (for Pakistan (Kurosaki and Khan, 2004), Laos (Onphanhdala and Suruga, 2010), and Vietnam (King-Kauanui et al., 2006; Santarelli and Tran, 2012, 2013). Major findings from these studies lend support to the positive education-entrepreneurship relationship, but the magnitude of the effect varies a great deal depending upon the economies. More importantly, in a rapidly changing environment with significant information asymmetry in transitional countries, human capital and business networks are even more important to recognize and exploit business opportunities for survival and success amid increasing competition. Yet, entrepreneurship studies for such economies are far from sufficient and should be expanded. This paper attempts to make a contribution in this area by evaluating the impact of various education levels on firm output and total factor productivity (TFP) in light of firm size (micro or small enterprise) for Vietnam as a case study for transitional economies. The analysis takes into account two types of education, i.e. formal (general) education and technical specialization, and work experience (wage-earning, self-employment) in various sectors prior to start-up.

The remaining of the paper is organized as follows. Session 2 briefly discusses the role of SMEs and some recent development in the sector. The analytical approach, econometric model and data are explained in Session 3. Session 4 discusses the results and the findings from the empirical analysis. Session 5 provides some conclusions and major policy implications.

2 The SME Sector in Vietnam's Economy[1)]

Definition of SMEs: SME definitions typically differ across countries and industries.[2)] In Vietnam, the SME definition was first formulated in 2001 with fewer than 300 workers or registered capital less than VND10 billion (Le and Harvie, 2010). The latest definition is given in the Decree No. 56/2009/ND-CP, which classifies enterprises into micro, small and medium enterprises for three economic sectors (agriculture, forestry and fishery; industry and construction; and

trade and service) based on the number of workers and value of total capital. As such, a micro enterprise in agriculture and manufacturing shall have up to 10 workers, a small enterprise 11-200 workers and/or up to VND20 billion, and a medium enterprise 201-300 workers and/or VND20-VND100 billion.

Role of SMEs: The role of the private sectors in the economy has been recognized in various areas, such as contributing to output, employment and production or supply chains. In particular, the role of SMEs, the majority of the non-state sectors, can be summarized as: (1) restructuring of the SOE sector; (2) generating non-farm employment and income; (3) contributing to rural and regional development, business start-up, industrial agglomeration; and (4) attracting FDI and forming supply chains (supporting industries) for large foreign firms (Le, 2010). SMEs are flexible in activities, because they can change products in relatively short time in response to market conditions. They can also encourage regional and rural development because they can be located in more rural areas. The non-state sector is characterized by the dominance of SMEs. In particular, micro and small enterprises comprise more than 90% of all establishments in the last decade (Table 1).

Contribution to output and employment: Derived from our field survey in 2012, SMEs contributed 39% to GDP in 2006 and employed about 10% of the 4.1 million labor force in manufacturing industries in 2009. However, it is very difficult to pinpoint an accurate trend of SMEs' share in GDP over the recent period because of lack of systematic data collection and reliable information (Tran, Le and Nguyen, 2008). Moreover, one objective of the reform is to reduce the number of

Table 1 Establishments and share of SMEs, 2000-2010 (# of enterprises, %-share)

Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total number	42,288	51,680	62,908	72,012	91,756	112,950	131,332	155,771	205,689	248,842	291,299
< 5 persons	24.0	23.1	19.2	18.2	19.6	20.5	12.8	22.4	21.6	22.0	26.8
5-9 persons	25.8	26.9	28.8	28.4	28.8	30.7	44.1	32.8	34.3	37.3	34.5
10-49 persons	28.5	30.5	32.9	35.0	35.4	34.5	30.0	32.5	33.9	31.3	29.8
50-199 persons	13.3	12.2	12.0	11.8	10.7	9.7	8.9	8.6	7.2	6.7	6.4
200-299 persons	2.7	2.3	2.2	2.0	1.7	1.4	1.3	1.3	1.0	0.9	0.9
SMEs	*94.3*	*94.9*	*95.1*	*95.4*	*96.1*	*96.8*	*97.2*	*97.4*	*98.0*	*98.3*	*98.3*
300-499 persons	2.5	2.2	2.2	1.9	1.6	1.4	1.2	1.1	0.9	0.7	0.7
500-999 persons	1.9	1.7	1.7	1.6	1.3	1.1	1.0	0.8	0.6	0.6	0.5
1,000-4,999 persons	1.2	1.0	1.0	0.9	0.8	0.7	0.7	0.6	0.5	0.4	0.4
> 4,999 persons	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
LSEs	*5.7*	*5.1*	*4.9*	*4.6*	*3.9*	*3.2*	*2.8*	*2.6*	*2.0*	*1.7*	*1.7*
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistical Yearbook of Vietnam, various issues (General Statistical Office), Hanoi: Statistical Publishing House.
Notes: 1. Figures in the table represent the percentage share in the total, except for the first row.
2. 'LSEs' denotes large size enterprises, i.e. those with more than 300 workers.

SOEs and thereby relying on job creation in the private sectors. Roughly 1.5 million new jobs are needed annually, of which 90% are to be created in the private sectors. Vietnam has nearly 90 million people with good demography for development. The average working age is about 32 years old. The annual birth rate is 1.2%, meaning that there are roughly one million more people every year. Currently, the agriculture has the largest share in population, but the transition of labor force into the industrial sector is progressing. During 1990-2000 there were about 40,000 private establishments, but in 2000 alone 45,000 private enterprises were established (from the field survey on SME development policy in Hanoi City and Vinh Phuc Province, 28 July-4 August 2012).

SME promotion and development: In order to help promote SME development, the government has established various institutions to assist SMEs in their businesses, such as the Vietnam Association of Small and Medium Enterprises (VINASME) and the Vietnam Association of Small and Medium Industrial Enterprises (VASMIE). The main functions of these associations are enhancing competitiveness, increasing commercial production, raising social responsibility, and protecting the interests of Vietnam's SMEs. The first five-year SME development plan for 2006-2010 has been completed. The second SME development plan for 2011-2015 has been drafted by the Ministry of Planning and Investment (MPI) (incorporating provincial SME development plans into a national plan) and is under review by Line Ministries (by the time of survey).

3 Analytical Framework and Data

3.1 Empirical approach and model

In a simple form, human capital of an entrepreneur represents the stock of her personal skills, which can be measured by the Mincerian human capital earnings function (Mincer, 1974). However, in most production function literature the entrepreneur does not appear as an explicit agent, rather her ability to adjust from disequilibrium toward equilibrium is part of the stock of her human capital and a cornerstone of economic dynamics (Piazza-Georgi, 2002; Onphanhdala and Suruga, 2010).

The empirical analysis applies a conventional methodology for evaluating productivity determinants using firm-level data in a production function (Escribano and Guasch, 2005; Van Praag and Van Stel, 2012). Following Escribano and Guasch (2005), the impact of investment climate (IC) and other firm characteristics (C) on productivity was estimated using the extended production function.

$$lnY_{it}=\alpha_0+\alpha_K lnK_{it}+\alpha_L lnL_{it}+\alpha_M lnM_{it}+\alpha_{IC,j} lnIC_{jt}+\alpha_{C,j} lnC_{it}+u_{it} \quad (1)$$

where Y_{it} denotes firm output, K_{it} capital services, L_{it} labor, M_{it} materials or intermediate inputs, IC_i investment climate indicators, C_i firm characteristic variables and u_{it} the error term. The index i denotes the firm and t the time period. The index j represents the number of the investment climate indicators and firm characteristics.

However, this study focuses on the effect of human capital variables on entrepreneurial performance (value added (VA), total factor productivity (TFP)). Hence, some minor modifications of Equation (1) are necessary.

$$lnVA_i=\alpha_0+\alpha_K lnK_i+\alpha_L lnL_i+\boldsymbol{\beta}_j\boldsymbol{C}_{ij}+\varepsilon_i \quad (2)$$

$$lnTFP_i=\alpha_0+\boldsymbol{\beta}_j\boldsymbol{C}_{ij}+\varepsilon_i \quad (3)$$

where $\boldsymbol{C}_{ij}$ is a vector of entrepreneur's characteristics (gender, education level, experience, etc.). The elasticity of inputs (α_K, α_L) and the coefficients $\boldsymbol{\beta}_j$ are to be estimated.

Equation (3) can also be derived from the Mincerian human capital earnings function, when substituting TFP for earnings or firm output. TFP can be estimated by the Solow Residual method or some alternative approaches (see Asuyama et al., 2013).

3.2 Data and variables

Data for empirical analysis are extracted from the 2009 SME Survey, which was jointly conducted by Central Institute for Economic Management (CIEM) of the Ministry of Planning and Investment (MPI), the Institute of Labor Science and Social Affairs (ILSSA) of the Ministry of Labor, Invalids and Social Affairs (MOLISA), and the Department of Economics (DoE) of the University of Copenhagen. It is the fourth survey in the series and the previous surveys were conducted in 2002, 2005, and 2007.[3)] Applying a stratified random sampling the survey covers ten urban cities and provinces (Table 2). The samples include 2,543 firms classified into five enterprise categories. The data collection was conduction in fall 2009 and lasted 2.5 months (statistical data are of 2008). In terms of standard industrial classification (VSIC), 19 subindustries are covered in the survey (manufacturing industries; water supply and repair services; supply of electricity, gas, steam and air conditioning; and sewerage and sewer treatment activities, VSIC15-37).

The analysis focuses on MSEs, in which the entrepreneur/owner often has administrative power and makes entrepreneurial decisions. The criteria for data selection include: observations with complete information on production (value added, capital, labor); firms with at least one year of operation; firms with 5 to 200 workers (to avoid possible book keeping problems in very small enterprises); and firms with owner providing the information (to maintain high reliability of the

Table 2 Overview of samples for analysis

	City/Province	Household establishment	Private/sole proprietorship	Partnership/ Collective/ Cooperative	Limited liability company	Joint stock company	Total	Samples used for analysis
1	Ha Noi	108	24	21	106	24	283	144
2	Phu Tho	223	4	4	21	6	258	71
3	Ha Tay	309	11	4	47	5	376	142
4	Hai Phong	118	14	18	41	19	210	85
5	Nghe An	278	21	7	29	18	353	81
6	Quang Nam	122	9	4	21	2	158	45
7	Khanh Hoa	58	16	1	17	2	94	37
8	Lam Dong	53	8	0	6	1	68	24
9	Ho Chi Minh City	322	76	12	197	9	616	257
10	Long An	99	16	1	11	0	127	48
	Sample total	*1,690*	*199*	*72*	*496*	*86*	*2,543*	*934*

Source: CIEM, 2010 (Table 2.3, p. 145); Author's calculations. Data are from the 2009 SME Survey of the Vietnam Institute (CIEM, 2010).

data). In addition, SOEs, joint stock companies and joint ventures are excluded from the analysis, because the nature of managing the enterprise and making business decisions differs very much from the operation at MSEs. The initial data are filtered to produce the final sample of 934 observations for the study (Table 2, column 7). The definition and description of variables for estimating Equation (2) and (3) are presented in Table 3.

The summary statistics of firm production and entrepreneur's human capital are presented in Table 4. It reveals that the average value added[4)] of MSEs in Vietnam is about VND1.1 billion (U$ 68,949) and the average physical capital is roughly VND1.5 billion (U$ 91,461). A typical micro enterprise (with 5-10 workers) would achieve VND381 million (U$ 23,362) in value added by using capital of VND507 million (U$ 31,110). The corresponding figures for small enterprises (with 11-200 workers) are 5 to 6 times greater (VND2.2 billion/U$ 133,685 and VND2.9 billion/U$ 177,690). A representative firm would hire 17 workers in 2008, while a micro and small enterprise would have 7 and 32 workers, respectively. The average time period the current owner owns the enterprise is 10 years.

With respect to proxies for human capital, two types of education are distinguished in the survey. First, general education includes primary, lower secondary and upper secondary education. Second, technical specialization (higher education) comprises vocational training (basic and medium level training), university education (including advanced level training), and post-graduate education. In the former case, the majority of entrepreneurs have completed upper secondary education (67%) and lower secondary education (23%). In the latter, four out of ten owners

Table 3 Definition of variables

Variable	Definition/description
va08	Value added of 2008 in million VND (output net of total expenditure and inputs)
k08	Capital of 2008 in million VND (value of plant and equipment)
l08	Number of full time workers in 2008
microsize	Dummy for firms with 5 to 10 laborers and equals 1 if true
smallsize	Dummy for firms with 11to 200 laborers and equals 1 if true
fowner	Dummy for female owner and equals 1 if true
primnoedu	Dummy for illiteracy, incomplete and complete primary education, and equals 1 if true (*reference*)
juniorhigh	Dummy for lower secondary education and equals 1 if the owner completed junior high school
seniorhigh	Dummy for upper secondary education and equals 1 if the owner completed senior high school
noskill	Dummy for no skill or technical specialization (*reference*)
vocational	Dummy for vocational education and training (basic level, medium level), and equals 1 if true
univ	Dummy for advanced level vocational training and university education, and equals 1 if true
postgrad	Dummy for post-graduate education and equals 1 if true
primm	Complete primary education and micro size (interaction term: *prim*microsize*)
prims	Complete primary education and small size (interaction term: *prim*smallsize*)
junm	Lower secondary education and micro size (interaction term: *juniorhigh *microsize*)
juns	Lower secondary education and small size (interaction term: *juniorhigh * smallsize*)
senm	Upper secondary education and micro size (interaction term: *seniorhigh *microsize*)
sens	Upper secondary education and small size (interaction term: *seniorhigh * smallsize*)
vocam	Vocational training and micro size (interaction term: *vocational*microsize*)
vocas	Vocational training and small size (interaction term: *vocational* smallsize*)
univm	University education and micro size (interaction term: *univ*microsize*)
univs	University education and small size (interaction term: *univ* smallsize*)
postgradm	Post-graduate education and micro size (interaction term: *postgrad*microsize*)
postgrads	Post-graduate education and small size (interaction term: *postgrad* smallsize*)
agriw	Dummy for being self-employed in agriculture, and equals 1 if true
indconstrw	Dummy for being self-employed in industry and construction, and equals 1 if true
tradservw	Dummy for being self-employed in trade and services, and equals 1 if true
wagearn	Dummy for wage earning activities in the public and non-state enterprises and others (*reference*)
masorgexp	Dummy for having experience in mass or social organizations, and equals 1 if true
buzexp	Number of years the current owner owns the enterprise (in natural logarithm)
buzexp2	Squared term of the above variable (*buzexp2= buzexp×buzexp*)

have had university and post-graduate education, and about the same portion has had vocational training. In terms of working experience, the survey records working experience in six areas prior to establishing the business. Nearly 40% are self-employed in agriculture, industry and construction, or trade and services, while more than 60% of the samples used to be wage earners.

Table 4 Summary of main variables (production, human capital)

Description	Variable	Obs.	Mean	Std. Dev.	Min	Max
Value added of 2008 (million VND)	*va08*	934	1,124	2,559	30	37,158
Capital at the end of 2008 (million VND)	*k08*	934	1,491	3,890	3	51,400
Labor at the end of 2008 (persons)	*l08*	934	17	23	5	198
Micro enterprise (5-10 employees)	*microsize*	934	0.59	0.49	0	1
Small enterprise (11-200 employees)	*smallsize*	934	0.41	0.49	0	1
Primary education (including illiteracy)	*primnoedu*	934	0.11	0.31	0	1
Lower secondary education	*juniorhigh*	934	0.23	0.42	0	1
Upper secondary education	*seniorhigh*	934	0.67	0.47	0	1
No skill or technical specialization	*noskill*	934	0.21	0.41	0	1
Vocational training (basic and medium level)	*vocational*	934	0.39	0.49	0	1
University education	*univ*	934	0.17	0.38	0	1
Post-graduate education	*postgrad*	934	0.23	0.42	0	1
Complete primary education and micro size	*primm*	934	0.06	0.24	0	1
Complete primary education and small size	*prims*	934	0.01	0.12	0	1
Lower secondary education and micro size	*junm*	934	0.16	0.37	0	1
Lower secondary education and small size	*juns*	934	0.07	0.25	0	1
Upper secondary education and micro size	*senm*	934	0.34	0.48	0	1
Upper secondary education and small size	*sens*	934	0.32	0.47	0	1
Vocational training and micro size	*vocam*	934	0.24	0.42	0	1
Vocational training and small size	*vocas*	93	40.15	0.36	0	1
University education and micro size	*univm*	934	0.10	0.30	0	1
University education and small size	*univs*	934	0.07	0.26	0	1
Post-graduate education and micro size	*postgradm*	934	0.09	0.28	0	1
Post-graduate education and small size	*postgrads*	934	0.15	0.35	0	1
Self-employed in agriculture	*agriw*	934	0.07	0.25	0	1
Self-employed in industry and construction	*constrw*	934	0.11	0.31	0	1
Self-employed in trade and services	*tradservw*	93	40.19	0.40	0	1
Having experience in mass organizations	*masorgexp*	934	0.09	0.29	0	1
Current practical business experience	*buzexp*	934	2.07	0.81	0	4
Squared term of *buzexp*	*buzexp2*	934	4.94	3.08	0	16

Source: Author's calculations. Data are from the 2009 SME Survey of CIEM and ILSSA (CIEM, 2010).
Notes: 1. The official exchange rate (annual average) of 2008 U$1.00=VND16,302 (WDI, 2013).
2. '*vocam*' and '*vocas*' includes only basic and medium level vocational training and firm size.
3. '*univm*' and '*univs*' includes advanced level training and university education and firm size.

4 Results and Discussions

The OLS is applied to estimate the returns of entrepreneur's HC (education, experience) on entrepreneurial performance, which is measured by firm's VA and TFP. In addition, owner's gender is controlled for in the estimations. TFP is estimated by means of the Solow residual.[5] The decision for a Cobb-Douglas-type production function is based on an F-test against a translog specification. Absence of collinearity problem is verified using a correlation matrix of independent variables. The potential problems of unobserved heterogeneity, endogeneity and sample selec-

tion are more a concern for wage employment and less for entrepreneur's case (Van Praag et al., 2013). The estimation results are presented in Table 5.

Human capital determinants that are considered to influence MSEs' performance are divided into two categories: 'education' and 'experience'. The study examines the role of education taking into account different firm sizes: micro and small firms. Derived from the survey data, binary education variables can be generated and classified into general (formal) education and technical specialization (higher education). The dummy variables are mutually exclusive within a subset[6] of education. Similarly, dummy variables for work experience can be created for 'self-employment' in agricultural sector, industry and construction, and trade and services.

4.1 Formal education and technical specialization

Overall, the positive estimated coefficients for formal education[7] (*juniorhigh, seniorhigh*) and technical specialization (*vocational, univ, postgrad*) (column 1 and 5 in Table 5) are consistent with the findings in many previous studies for both developing countries (for Pakistan (Kurosaki and Khan, 2004); Laos (Onphanhdala and Suruga, 2010); Vietnam (Santarelli and Tran, 2013)) and developed economies (for Ireland (Pickels and O'Farrell, 1987); Netherlands (Van Praag and Cramer, 2001; Parker and Van Praag, 2006)). However, returns to schooling are not significantly different between lower secondary education and the base group. A plausible justification refers to the fact that due to very limited number of samples with no education and incomplete primary education (28 samples), owners with complete primary education need to be included in the reference group. Hence, the difference in capabilities among entrepreneurs with complete primary education and lower secondary education is understandably small and might become insignificant, because their ability to learn and experience accumulated over the course of their working career might have compensated for the difference in prior knowledge. On the other hand, the coefficient for '*seniorhigh*' is significant in all models implying that upper secondary education significantly contributes to increasing firm's value added and TFP. The rate of returns is about 16-17%, meaning that an additional year in senior high school would yield an increase of about 3.8% in VA and 3.4% in TFP. Despite some differences in the magnitude, the result confirms previous findings of a higher rate of returns to education at the general and vocational intermediate level found in Van Praag and Cramer (2001).

The absence of impact of vocational training, university and postgraduate education (as compared to no technical specialization) appears to be somewhat controversial and deserves further consideration. First, due to the limited scope and simplicity of business in MSEs, educa-

Table 5 Impact of human capital on firm's performance in micro and small enterprises

	Value added				Total factor productivity			
Variable	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
lnk08	0.196***	0.018	0.195***	0.018	–	–	–	–
lnl08	0.869***	0.033	0.897***	0.046	–	–	–	–
fowner	0.033	0.050	0.031	0.050	0.033	0.050	0.030	0.050
juniorhigh	0.053	0.065	–	–	0.054	0.066	–	–
seniorhigh	0.166**	0.064	–	–	0.156**	0.064	–	–
vocational	0.044	0.049	–	–	0.035	0.049	–	–
univ	0.028	0.074	–	–	0.009	0.073	–	–
postgrad	0.084	0.069	–	–	0.046	0.066	–	–
primm	–	–	0.268**	0.112	–	–	0.269**	0.113
prims	–	–	−0.048	0.211	–	–	−0.054	0.210
junm	–	–	0.241**	0.098	–	–	0.245**	0.100
juns	–	–	0.090	0.132	–	–	0.091	0.131
senm	–	–	0.376***	0.099	–	–	0.379***	0.100
sens	–	–	0.174	0.119	–	–	0.161	0.117
vocam	–	–	0.015	0.054	–	–	0.014	0.055
vocas	–	–	0.158	0.097	–	–	0.159*	0.096
univm	–	–	−0.058	0.094	–	–	−0.063	0.095
univs	–	–	0.209*	0.111	–	–	0.196*	0.112
postgradm	–	–	0.069	0.098	–	–	0.057	0.098
postgrads	–	–	0.188*	0.103	–	–	0.171*	0.102
agriw	−0.320***	0.090	−0.327***	0.091	−0.316***	0.091	−0.318***	0.091
constrw	0.129*	0.069	0.142**	0.070	0.112	0.068	0.131*	0.069
tradservw	0.097*	0.053	0.099*	0.053	0.087*	0.053	0.095*	0.053
masorgexp	0.105	0.073	0.100	0.074	0.107	0.074	0.108	0.074
buzexp	0.060	0.083	0.058	0.085	0.057	0.084	0.059	0.085
buzexp2	−0.034	0.021	−0.033	0.022	−0.032	0.021	−0.032	0.022
constant	8.314***	0.234	8.102***	0.256	−0.127	0.106	−0.300**	0.130
Observations	934		934		934		934	
R-squared	0.718		0.720		0.059		0.069	

Source: Author's calculations.

Notes: 1. An F-test for functional specification favors a Cobb-Douglas production function (to a translog specification).
2. Absence of collinearity problem is verified by using correlation matrix of independent variables. The maximum value of pairwise correlation coefficients is not greater than 0.400.
3. 'SE' denotes robust standard errors.
4. The asterisks *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

tion at the university and postgraduate level might be over-qualified. The over-education phenomenon is not uncommon for transitional economies and found among entrepreneurs in Lao MSEs (Onphanhdala and Suruga, 2010). Second, the proxies for higher education used in the paper are binary variables and do not measure the quality or appropriateness of the knowledge and skills of the owners, nor they could point out any possible mismatching between the knowledge/skills and current entrepreneurial activities. Next, we shall consider impact of HC in combination

with various firm sizes to further clarify this point.

4.2 Education level and firm size

A unique feature of this paper is to examine returns to human capital in relation to firm size in Vietnamese MSEs. For this purpose, 12 interaction variables for six education levels (complete primary, lower secondary, upper secondary, vocational, university, and postgraduate education) and two firm sizes (micro and small) are created. The estimations reveal some interesting results as follows: regardless of the models, the coefficient estimate of general education is positive and significant for micro enterprises (*primm, junm, senm*), while that of higher education is significant for small enterprises (*vocas, univs, postgrads*) (column 3 and 7 in Table 5).

This result lends further support to the two arguments of over-education and quality of knowledge/skills discussed above. On the one hand, the significance of impact of general education in micro businesses would confirm that knowledge and skills received in formal education up to upper secondary level is appropriate for running micro enterprises, because these businesses would be manageable with 'prior general knowledge' owing to their nature and scale. The magnitude of the effects increases from 27% for primary level to 38% for upper secondary level. On the other hand, the significance of returns to technical specialization in small firms would imply that skills and knowledge gained in higher education is more appropriate for larger enterprises, because operating such a firm and managing hundreds of employees would require advanced knowledge and skills. The rate of returns rises from 15% for vocational training to 20% for university education, and then drops slightly to 19% for postgraduate level. It has been found for OECD countries that entrepreneurs, who possess higher level of HC, tend to operate larger firms (Van Praag and Van Stel, 2012). Finally, the negative insignificant estimate for vocational training and university education in micro firms also confirms the existence of the afore-mentioned over-qualification in micro enterprises and the concern about the quality of education in Vietnam.

4.3 Entrepreneurial experience

Entrepreneurial experiences are often distinguished among labor force (general), industry, occupational (managerial) and entrepreneurial (self-employment, business-related) experience (Bosma et al., 2004; Santarelli and Tran, 2013; Unger et al., 2011). In this analysis 'having worked in social or mass organizations' would imply occupational experience, while 'having experience as self-employed in agriculture, industry and construction, and trade and services' would capture the other two types of experience[8)] (industry- and business-related). From another view-

point, the above-mentioned variables would measure prior knowledge/experience, while the number of years that entrepreneurs own the business (*buzexp, buzexp2*) would capture current business experience (Onphanhdala and Suruga, 2010). The longer regressions (column 3 and 7 in Table 5) reveal that work experience in social and mass organizations prior to start-up would help improve firm performance, but the positive effect is statistically not significant (significant only at the 15% level). Moreover, if compared to wage-earning employment prior to start-up, being self-employed in industry, trade and services would improve firm output and TFP by 9-14%, whereas self-employment in agriculture is associated with inferior business performance by a margin of 32%.[9)]

Apart from acquiring managerial skills, work experience in social or mass organizations would help entrepreneurs establish a broad network, particularly with government agencies. This connection, which could also be considered as a type of social capital, would help facilitate coordination for smooth business activities and thereby enhancing entrepreneurial performance. Empirical evidence on impact of occupational experience is somewhat mixed depending upon the degree of autonomy of and control of entrepreneurs in the firm (Gimeno et al., 1997; Bosma et al., 2004; Santarelli and Tran, 2013). However, this social capital impact cannot be statistically confirmed in the present study.

By the same token, owners having self-employment experience in certain industries would have accumulated a stock of knowledge that is relevant for running the firms and acquiring new knowledge. They would be able to recognize and exploit business opportunities, which are not apparent to others, make appropriate judgments or adapt to changes in business environment. The positive relationship between self-employment experience and entrepreneurial success is widely supported in literature (Gimeno et al., 1997; Bosma et al., 2004). In the Vietnamese context, this experience is especially important for a rapidly changing economy with growing number of new business opportunities (Santarelli and Tran, 2013). On the other hand, despite showing a rate of returns of about 6-9%, the impact of current business experience on entrepreneurial performance does not appear to be significant in any regressions. Absence of practical experience in micro and small firms is not uncommon for transitional economies. For example, a study of 1,776 MSEs in Laos, including classifications by region, ethnicity and age of entrepreneurs, has neither found any significant impact of practical business experience, nor been able to compare the issue with other developing countries due to lack of empirical studies (Onphanhdala and Suruga, 2010).

5 Concluding Remarks

Entrepreneurship is viewed as an important mechanism for economic development. It helps entrepreneurs overcome most of the constraints in business, encourages innovation, and contributes to employment generation and welfare improvement. There exists some observation that very little is known about whether or not and how entrepreneurship contributes to economic development in developing countries and that it is necessary to understand the environment in which entrepreneurship could be a constraint for economic development and catching-up process.

With a view to address these pressing issues and to fill the gap in empirical studies, particularly for transitional economies where entrepreneurship needs to be nurtured and promoted, the present paper addresses the relationship between human capital (education, experience) and entrepreneurial performance (value added, TFP) for Vietnam. The study applies the data extracted from the 2009 SME Survey jointly conducted by CIEM, ILSSA and the University of Copenhagen.

The research study has revealed some important findings. First, it lends support to the positive relationship between human capital and entrepreneurial performance in MSEs in Vietnam and emphasizes the importance of education in economic development. Formal education is crucial for entrepreneurs of micro-sized start-ups, while advanced-level technical training and higher education is more appropriate for running larger enterprises. Second, managerial and self-employment skills that entrepreneurs have accumulated prior to start-up have proven to be indispensable for enhancing firm performance. Moreover, the benefits of education and training have outweighed gender difference and current business experience.

The findings in this paper highlight the importance of entrepreneurship in business development and give rise to development of entrepreneurship. Policy formulation for the education sector should pay more attention on the demand in society, the quality and appropriateness of education for the business sector that generates opportunities for entrepreneurs and employment for the labor force. Finally, business associations and forums for exchanging information and experiences among entrepreneurs would undoubtedly enhance their knowledge and skills and improve firm performance.

Notes

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1) A lot of information for this section is drawn from our field survey in August 2012. During this survey we interviewed several individuals and representatives from institutions and government agencies that deal with SMEs, including the Central Institute for Economic Management; the Vietnam Association of Small and Medium Enterprises; Agency for Enterprise Development of the Ministry of Planning and Investment; and the Vietnam Association of Small and Medium Industrial Enterprises.

2) The labor-based definition of SME differs across countries. For example, for manufacturing SME is defined as having less than 200 workers in the Philippines; not more than 200 in Singapore and Thailand; below 300 in South Korea; not exceeding 300 in Japan; and less than 250 in EU. Usually the amount of sales, or turnover, or registered capital, or paid-in capital is added to the definition.

3) A brief description of 2005 and 2007 surveys can be found in Santarelli and Tran (2013).

4) The average output of all MSEs in the samples is VND4.5 billion (U$276,837), micro enterprise VND1.7 billion, and small enterprise VND8.5 billion. The average exchange rate of 2008 is VND16,302/U$.

5) For comparison purpose, total factor productivity based on the methodology introduced in Asuyama et al. (2013) is also applied. However, the results (not shown in the paper) do not significantly differ from those presented in Table 5.

6) Regressions separating the two sets of variables for formal education (juniorhigh, seniorhigh) and technical specialization (vocational, univ, postgrad) do not alter the results of estimations, nor the conclusions. Hence, in view of space limitation, they are not presented in the paper.

7) According to the latest publication of UNESCO (2011, 7th edition), the Vietnamese education system consists of the following elements: nursery and kindergarten; primary education (5 years); lower secondary (4 years); upper secondary (3 years)/professional secondary (3-4 years); college (3 years)/university (4-6 years); Mater (2 years); and Doctor of philosophy (2-4 years).

8) In the questionnaire, three choices are given for self-employment (agriculture, industry and construction, and trade and services), two options for wage-earning activities (public sector and non-state sectors) and others.

9) The negative relation between self-employment in agriculture and entrepreneurial performance can be explained by the fact that a large part of farmers in Vietnam have their own land for farming and that agricultural technologies are rather primitive. Hence, experience from this sector would understandably not be appropriate or less useful for running enterprises.

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