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PREDICTING EDUCATION EFFECTS ON ENTREPRENEUR'S STRATEGIC CHOICES AND LIFE QUALITY

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Abstract

We demonstrate four models in prediction of the dependencies between entrepreneurs' education, developmental intentions and perception of quality of life based on survey data (2012, n=460). Entrepreneurs with the higher level of education were more likely to maintain the current production line, plan pluriactive businesses and consider wage income and cooperation more important than others. Similarly, entrepreneurs with lower level of education experienced more often problems to cope with current and future farm work with existing resources. To conclude, spouses' education seems to influence farm's choices and quality of life. Implications for human capital theory and entrepreneurship education emerged.

Keywords: Education, Entrepreneurial Intentions, Entrepreneurship, Experience, Human Capital

1. Introduction

Education and earlier work experience has been used as proxies for entrepreneur's human capital (Becker, 1964; Reuber and Fischer, 1994; Ucbasaran *et al.* 2006; Unger *et al.* 2011). Moreover, outcomes of human capital investments should directly influence effective actions of the business owner, for example in development of their ventures (Davidsson and Honig, 2003; Marin *et al.* 2013; Unger *et al.* 2011). Yet little attention has been paid to role education in entrepreneurial intentions and quality of life in farm firm context. This study starts to fill this gap by providing insight into how spouses' joint educational background is associated with entrepreneurial behavior, particularly in decision making process of entrepreneurs.

We emphasize the importance of path dependence (Politis, 2005) since farmers are to some extent prisoners of their past. In path dependence strengths and traditions form the basis for the future and therefore the decision making is context-specific (Arthur *et al.* 1987) and firms' behavior can be understood as due to firm-specific processes in decision-making (Brown and Eisenhardt, 1997).

We define here farmers as habitual entrepreneurs (Carter and Ram, 2003; Ucbasaran *et al.* 2006). Although habitual entrepreneurs tend to be relatively well educated (Schaper *et al.* 2007) basic and vocational education of portfolio and serial farm-owners may vary in the context of farmers (Wiklund and Shepherd, 2008). We stress the significance of spouses' joint educational background in terms of farms' decision-making process as spouses are not only family members but also owners or active workers in family firms (Carlock and Ward, 2001).

Thus, our purpose in this article is to examine whether spouses' joint educational background effects farms' existing operations and future plans, and whether spouses joint

educational background effects their intentions to develop business activities and life quality. We begin with brief notes on human capital theory and entrepreneurial intentions. After describing our sample and data collection from 460 farms, we present the results of the empirical study. We highlight the key findings and suggest some recommendations for entrepreneurship education educators and future research.

2. Focus on Human Capital and Entrepreneurial Intentions: Literature Review

Human capital theory has originally developed to study the value of education (Becker, 1964; Becker 1993) and has often been employed in economic research (Ucbasaran *et al.* 2006). The interest in human capital within entrepreneurship literature has emerged over the last two decades (Marin *et al.* 2013). Different definitions distinguish four well-known capitals such as traditional economic, social, human and positive psychological capitals (Luthans *et al.* 2004) that are assumed to be related to each other. Furthermore, human capital consists of education, managerial and technical capabilities, business ownership experience, parental business ownership and entrepreneurial capability as well as motivation for starting, purchasing the venture and knowledge of the venture domain. Thus, entrepreneurial experience has a positive effect on entrepreneurial intentions (Kolvereid and Isaksen, 2006) and may have both the positive and negative effect on opportunity discovery and exploitation. The entrepreneurial intentions literature (Douglas, 2013; Krueger and Brazeal, 1994; Krueger, 1993; Krueger *et al.* 2000; Zhao *et al.* 2005) has widely agreed that entrepreneurial intention depends on perceived desirability and perceived feasibility of a perceived opportunity. Experience of decision making under conditions of uncertainty builds both self-efficacy (Zhao *et al.* 2005) and the ability to handle stressful and anxiety-provoking situations and strengthens entrepreneurial intentions (Minniti and Bygrave, 2001) and activity in networking (Schaper *et al.* 2007).

3. The Data, Methodology and Empirical Results

We tested our hypotheses with a sample of farmers from Central Finland based on survey data conducted in 2012 (Niemela *et al.* 2012). Respondents had at least 26 years farming experience with an average age of 54 years. Most of the respondents were male (79%). Farm owners' alone (65%) and farm hostess's and farm owners together (22%) were responsible for agricultural production and work on a farm. Some 46% of the respondents had wage-income outside the farm. 80 % of the respondents reported to get their primary income from farming businesses and some 88 % informed not to have paid employees.¹

76% of the respondents had basic or elementary school degree, vocational school or training, in turn, 24% had high school, university or polytechnic degree, vocational training. Reducing a potential concern of social desirable bias of our self-reported survey (Podsakoff *et al.* 2003) we have collected survey data by using both electronic system and paper and pencil.

¹ Describing respondents' future aspirations to develop their farm business during the next three year were based on respondents self-reports. 65 % of the respondents estimated the wage income to remain the same or to decrease (21%), as some entrepreneurs estimate the wage income to increase at least 13 %.90 per cent of the respondents indicated that their main production line will remain the same for the next three years, as 10 % indicated that their main production line will change or closed down. Farmers estimate the profitability of the farms to be passable or weak (mean=2.95) for the prevailing year and the next year (mean=2.96). Only one in ten respondents considered the profitability of agriculture development prospects good or very good. 43 % of the respondents indicated to cooperate with other entrepreneurs. In turn, 69 % indicated to continue to cooperate with the current operations. Moreover, 27 % of respondents intend to develop a machine cooperation and 14 % of the joint procurements. Multiplicity of networking forms indicated that entrepreneurs exchange experience and knowledge in relation to the development of business (55%), do subcontracting with other entrepreneurs and occasionally each other (40%), and own together with other entrepreneurs' machinery and equipment (59%). Nowadays, respondents estimated to cope with farm work with existing resources (81%) fairly or very well as considering the next three years (77%), with other entrepreneurs considering the next three years, but only 1 % intent to hire permanent labor.

We consider these techniques less prone to social responsibility bias especially when responses are anonymous (Cardon and Kirk, 2013).

The survey utilized Niemela *et al.* (2012) data items scale and variables (Table 1). Since we focused to examine the relation between spouses' joint educational background and entrepreneurial intentions we used proxies as linkages between the constructs and measures for and human capital to test hypotheses. We included education as independent variable (Shane, 2003; Wiklund and Shepherd, 2003). We constructed the education indicator to account for the farms' nature as authentic family businesses in terms of overlapping relationships and roles of owner, family member and employee (Carlock and Ward, 2001). We constructed the location indicator to account for the farm's location as regions and as entrepreneurial environment, which may influence the entrepreneurial activities of small businesses (Busenitz *et al.* 2003).

Table 1. Measurement Scale Items Measures

	Variable Scale Items
A _i , i = 1 – 3	Education and spouses' education (EDUCATION):1) neither spouse has a vocational training or higher education (college or university education), 2 = At least one spouse has vocational training, but he does not have higher education, 3) At least one spouse has a college or university education. (Sum variable)
B _j , j = 0, 1	A production conversion in front of the three-year period (CONTINUE). 1= maintain, 0 = change or stand down (Sum variable)
K _k , k = 1 – 3	Pluriactivity (PLURI): 1= no, we focus primary production, 2= plans, intention to start other businesses than traditional farming and forestry, 3= yes.
H _h , h = 1 – 3	The location of farms. Location (region) 1= urban center , 2= sub-regions close to urban centers, 3= Others (Sum variable)
L _l , l = 0, 1	Significance of wage income in front of three-year period (K1304):0 =no significance and some significance,1= important significance and very important significance
M _m , m = 1 – 3	opinion of the present profitability (present and in front of one-year period) (Profitability): 1 = a very weak or rather weak, 2 = passable or satisfactory, 3 = fair or very good (Sum variable)
N _n , n = 0 – 3	diversity of cooperation (COOPERATION): No cooperation (0) - 3 (multiple cooperation) An intention to develop the farm activity based on cooperation : 0 = no, 1 = yes, (items: The current production line continues), Joint ownership-based Co-production with other farms, Supply contracts for animal production between farms, machine cooperation, joint suppliers, work in field has been given to the contractor, encouraging the exchange of labor with farmers) (Sum variable)
P _p , p = 0, 1	Coping with the present and future (in front of three-year period) farm work with existing resources: 0 = very poorly or rather poorly, 1 = fairly good or very good
R _r , r = 1 - 3	who is responsible for agricultural production and work on a farm: 1= farm owner and farm hostess together, 2 = farm hostess or farm owner, 3 = other solution (e.g., children, grandparents, relatives)

Entrepreneurs' intention to develop their farm existing operations and future plans were measured by using variables such as "production conversion", "pluriactivity", "profitability", significance of wage income" and "diversity of cooperation". These variables were chosen to reflect spouses' decision-making and entrepreneurial behavior. Spouses' perception of life quality was measured by using variables such as "who is responsible for the agricultural production and work on a farm" and coping with farm work with the existing resources".

4. The Empirical Results

Table 2 reports the means, standard deviations and Pearson's correlation coefficients between every pair of variables for the full sample (N=460). For the nine independent variables, the largest coefficients between profitability and managing the present and future farm works with current available resources were .290 (p<.01), which is moderately high, followed by .238

($p < .01$) the coefficient between education and wage income. General log linear modeling was conducted using R, an open-source statistical package to find the most parsimonious model to test the design and best data, and to examine possible interactions. In doing so, we determined to examine our data by using sub-models.

The overall goodness of fit of each distributed model was evaluated by Pearson chi-square test. Thus, for our four sub-models examining the independent variables that are count data, we employed Poisson model. For all Poisson models the categorical scale deviances and scaled Pearson χ^2 test were examined and were around 1 suggesting that the models fit the data appropriately and that data dispersion was not a problem (Gardner *et al.* 1995). To measure of the relative quality and pairwise interaction of the independent variables of our sub-models for our data we employed Akaike's information criterion (AIC).

Model 1. H(1), education effects on farms plans for future activities, was tested through estimated log-linear model with interaction terms among spouses' education, production conversion (in front of three year period) and pluriactivity:

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^B + \lambda_k^K$$

Pearson's χ^2 was found significant, $\chi^2(12, N = 348) = 27.7, p = .006$ which indicates that our model needs at least some interactions. The best model that can be found based on Akaike's information criteria (AIC=29.4):

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^B + \lambda_k^K + \lambda_{ij}^{AB} + \lambda_{ik}^{AK} + \lambda_{jk}^{BK}$$

The results of the model 1 indicated that entrepreneurs who considered their primary production line remain the same as well as entrepreneurs who expressed to plan pluriactive businesses were more likely to be highly educated entrepreneurs compared to others.

Model 2. (H2), intention to develop farms business activities, was tested through estimated log-linear model with interaction terms among spouses' education, location and significance of wage income.

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^H + \lambda_k^L$$

Table 2. Means, Standard Deviations, Pearson's Correlation Coefficients for the Full Sample (N=460)

Correlations	N	Mean	SD	1	2	3	4	5	6	7	8	9
1. Education	460	2.02	.658	1								
2. Production	428	.79	.411	.124*	1							
3. Pluriactivity	369	1.84	.938	.054	.061*	1						
4. Location	450	3.68	2.13	-.043	.000	.030	1					
5. Wage income	360	.46	.499	.238**	.132*	.003	-.013	1				
6. Profitability	426	1.71	.631	.054	.176**	-.072	.026	-.064	1			
7. Cooperation	464	.97	1.16	.102*	.041	-.006	.070	-.044	.054	1		
8. Coping with responsibilities	431	.82	.387	.088	.209**	.032	-.017	.021	.290**	-.047	1	
9. Division on work	442	1.89	.958	-.082	-.043	-.125*	.107*	-.278	.129**	-.018	-.031	1

Notes: ** $p < .01$; * $p < .05$; (two-tailed), Pearson's (τ) correlation coefficient.

Pearson's χ^2 was found significant, $\chi^2(27, N = 350) = 46.5, p = .010$ which indicates that our model needs at least some interactions. The best model that can be found based on Akaike's information criteria (AIC=46.4):

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^H + \lambda_k^L + \lambda_{ik}^{AL}$$

The results of the model 2 indicated that the pairwise influence between significance of wage income and spouses' education is strong. Entrepreneurs who considered the significance of wage-income higher were more likely to be highly educated than others. We did not find any relation of education and location to this model.

Model 3. The remaining of (H2), intention to develop farms business activities, was tested also through estimated log-linear model with interaction terms among spouses' education, opinion of the present and future profitability and diversity of cooperation.

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^M + \lambda_k^N$$

Pearson's χ^2 was found significant, $\chi^2(28, N = 425) = 62.7, p < .001$ which indicates that our model needs at least some interactions. The best model that can be found based on Akaike's information criteria (AIC=65.3):

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^M + \lambda_k^N + \lambda_{ij}^{AM} + \lambda_{ik}^{AN} + \lambda_{jk}^{MN}$$

The results of the model 3 indicated several reasons for pairwise dependencies between the independent variables. We found that entrepreneurs who considered the present and future profitability (in front of one-year period) to be passable or satisfactory were more likely entrepreneurs of which at least one spouse has vocational training, but does not have higher education, compared to others. In turn, those entrepreneurs who considered the present and future (in front of one-year period) profitability to be a very weak or rather weak were more likely entrepreneurs of which neither spouse has a vocational training or higher education (college or university education). Moreover, entrepreneurs who considered the present and future (in front of one-year period) profitability to be higher than average (passable or satisfactory) were more likely entrepreneurs of which at least one spouse had a college or university education. Furthermore, entrepreneurs, who expressed more often multiple cooperation, were more likely entrepreneurs of which at least one spouse had a college or university education.

Model 4. (H3), experienced quality of life, was tested also through estimated log-linear model with interaction terms among spouses' education, responsibility for agricultural production and work on a farm, and coping with the present and future (in front of three-year period) farm work with existing resources.

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^P + \lambda_k^R$$

Pearson's χ^2 was found significant, $\chi^2(12, N = 423) = 21.0, p < .050$ which indicates that our model needs at least some interactions. The best model that can be found based on Akaike's information criteria (AIC=28.7):

$$\log m_{ijk} = \mu + \lambda_i^A + \lambda_j^P + \lambda_k^R + \lambda_{ij}^{AP} + \lambda_{ik}^{AR}$$

The result of the model 4 indicated several reasons for dependencies between independent variables. Those entrepreneurs who considered to cope with present and future (in front of three year period) farm work with existing resources very poorly or rather poorly were more likely entrepreneurs of which neither spouse has a vocational training or higher education (college or university education) compared to others.

In turn, entrepreneurs who considered responsible for agricultural production and work on a farm "farm owners and farm hostesses together" and "farm hostesses or farm owners" were more likely entrepreneurs of which least one spouse has a college or university education. Moreover, entrepreneurs who considered responsible for agricultural production and work on a farm as well as entrepreneurs who considered "other solution" (meaning for example children,

grandparents and other relatives) were more likely entrepreneurs of which neither spouse has a vocational training or higher education (college or university education). Our hypotheses, whether spouses' joint educational background affects farms' existing and future activities, and whether spouses joint educational background affects intention to develop farms businesses and quality of life, were supported.

5. Conclusion

This article examines whether entrepreneurs' education effects on farms future activities, and intentions to develop farms business activities. Moreover, we want examine whether entrepreneurs' education is associated with entrepreneurs' experienced quality of life. Spouses' education seems to influence farms' strategic choices concerning agricultural production and pluriactivity. Spouses with the higher level of education were more likely to maintain the current production unchanged and to plan pluriactive businesses more often than others.

We also found a strong relation between the spouses' education and perceived significance of wage-income. Again, entrepreneurs with higher level education seem to diverge from others. They were more likely to consider wage-income more important than others. Spouses with lower level of education seem to diverge from others also in terms of their opinions of the present and future profitability and diversity of cooperation. They experienced the profitability to be weak, passable or satisfactory more often compared to others. In turn, those spouses with higher level of education experienced the profitability to be average and experienced cooperation more often than others. We also found strong relationship between spouses' education and coping with present and future farm work with existing resources and responsibility for agricultural production and work on a farm. It was also found that those spouses with higher level of education were more often responsible for running their farms' together or separately than others. In turn, spouses with lower level of education confer more often problems coping with the present and future farm works with current resources than others.

One limitation of this study is on its reliance of self-reported data. Thus, we may consider self-reported responses as proxies rather than as absolute measures of practising action and intentions taken by respondent (Webb and Sheeran, 2006). Our analysis was focused on spouses' joint educational background and it is difficult to say whether the relationships we observed here would be found with larger sample of farms or other cultural contexts. Future research should focus more on direct measures of human capital outcomes in terms of better performance and strategic renewal in farm firms. By applying strategic, cognitive and motivational approaches in studying human capital outcomes and entrepreneurship we may learn more about the venture milestones within the process of entrepreneurship (McMullen and Dimov, 2013). This learning process may be valuable for developing entrepreneurship education for practising entrepreneurs and directing more effectively public finance for the venture development processes.

With this research we sought to examine how farm entrepreneurs' education effects on the farms' business activities, intentions to develop ongoing farms business activities and to entrepreneurs' experienced quality of life. Our study revealed that spouses' educational background plays a significant role in the decision-making process concerning farms future background influences spouses' perceived quality of life. This study contributes to human capital entrepreneurship literature and suggested some implications for theory and practice.

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