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## Where do entrepreneurial skills come from?

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Applying Lazear's jack-of-all-trades theory we investigate the formation of entrepreneurial skills in two datasets on innovative new firms. Our results suggest that traditional human capital indicators individually have little or no influence on entrepreneurial skills. However, consistent with Lazear's theory those entrepreneurs who exhibit a *varied* set of work experience have higher entrepreneurial skills relevant for starting and growing a firm. This supports the notion that a varied set of work experiences rather than depth of any particular type of experience or education is important for the development of entrepreneurial skills.

*Keywords:* Entrepreneurial skills; jack-of-all trades; new venture creation; human capital

JEL Classification: L26 M13 J24

## **I. Introduction**

Innovative market entry improves market efficiency and fosters economic growth (Fritsch and Mueller, 2004). However, failure rates of new businesses in the venture creation process as well as in the first business years are high. In search of success factors for new firms, studies have often turned to entrepreneurs' human capital but we know little about the determinants of entrepreneurial skills one needs to successfully start a new business. Recent analyses have suggested that traditional human capital factors may not play a substantial role here as they show only modest correlations with entrepreneurial success (Unger *et al.*, 2011). Hence, the question still on the table is where entrepreneurial skills may actually come from.

This question is a pressing issue for policy makers and educators aiming to promote entrepreneurship and economic growth. Seminal theorizing argues that skills predominantly result from experiences and knowledge (Becker, 1964). While the traditional experience- and knowledge-based human capital indicators, such as schooling, same industry experience and management experience may play some role, one explanation for these being only weakly associated with success is that any one of them may not be sufficient. Along these lines, Lazear (2005) proposed a theoretical model highlighting the importance of a *varied* set of experiences for entrepreneurs. Lazear argues that entrepreneurs must be competent in many different areas because the nature of the entrepreneurial work is multi-faceted (encompassing very diverse tasks such as developing a business model, hiring employees, and acquiring financial capital). Early research emphasizing this "jack-of-all-trades"-view has shown that individuals with a varied set of work experience are more likely to be entrepreneurs (Wagner, 2003). Recent studies have found that varied work experience also predicts start-up projects' progress in the venture creation process

(Stuetzer et al., 2012) and self-employment longevity (Oberschachtsiek, 2012). However, these results only weakly suggest a relationship between varied prior experience and entrepreneurial success because an individual's current status as business owner-manager confounds the tendencies to a) engage in that role in the first place; b) persist in that role (which may be either good or bad, cf. Baum and Locke, 2004; DeTienne *et al.*, 2008) and c) succeed in that role, thus being more likely to remain in it (Davidsson, 2004: 71).

We provide a less ambiguous test by hypothesizing that varied work experience positively predicts direct measures of entrepreneurial skills, whereas traditional human capital factors will turn out as weaker or even irrelevant predictors. If supported, this provides a mechanism that can explain previously reported results and justify interpreting them as showing that varied experience has a positive effect on entrepreneurial performance. We thereby contribute to the literature on the role of human capital in entrepreneurship and specifically to the corroboration of Lazear's theory.

## **II. Dataset and Measures**

We test this hypothesis using data from the Thuringian Founder Study (TFS). The TFS focusses on success factors of innovative (technology-oriented or knowledge-based) new firms in Germany (Obschonka *et al.*, 2011). We make use of two datasets from this study.

The main dataset comprises a random sample of operational and up-and-running new ventures (NV) that were first entered in the trade register between 1994 and 2006. In 2008, the research team conducted face-to-face interviews with 639 entrepreneurs (response rate=25%). Due to a number of exclusions (mainly deleting

non-genuine ventures), the final sample contains 521 cases. The main advantage of this dataset in comparison to other founder studies is the inclusion of new ventures that were discontinued during the first years in business. We applied the Life-History-Calendar (LHC) method in the interviews to retrospectively assess data on prior work experience, education, and skills at the time of the first steps into venture creation process (see Obschonka *et al.*, 2011, for further references). The LHC method is well established and employs mnemonic techniques using retrieval cues and memory anchors.

Starting from registration data comes at the expense of sampling new ventures that are far enough progressed in the founding process to appear in registers. In order to avoid selection bias, we supplement this main dataset with a sample of innovative start-up projects (SUP) which are in the founding process but have not yet achieved positive cash flows and an official business registration. This sample comprises 100 entrepreneurs who were interviewed using the same methods and the same items as in the main survey (92 provided complete data). Another advantage of this dataset is that the entrepreneurial skills are not retrospectively assessed but refer to the current situation.

We use two established and validated scales to measure *entrepreneurial skills*: Chandler and Hanks' (1994) "*entrepreneurial competence*" scale (six items, e.g., "One of greatest strengths is my ability to seize high quality business opportunities"; Cronbach's  $\alpha > 0.6$ ) and Baum and Locke's (2004) "*new resource skill*" scale (six items, e.g., "I know how to find the resources that we need"; Cronbach's  $\alpha > 0.6$ ). The mean of the respective items serve as the two final variables. Note that both scales measure skills relevant for starting and growing a venture and have shown to predict entrepreneurial success (Baum and Locke, 2004; Chandler and Hanks, 1994; Obschonka *et al.*, 2011). Moreover, research indicates

substantial overlap between such subjective skills and objective factual competencies (Gist, 1987).

*Varied work experience* is measured as the number of distinct functional areas in which the entrepreneur had work experience prior to start-up. The five categories underlying this count variable include 1) marketing, sales, promotion; 2) accounting, controlling, financing; 3) engineering, R&D; 4) production; and 5) personnel. Similar measures have been used in earlier jack-of-all-trades research (Stuetzer *et al.*, 2012; Wagner, 2003).

*Traditional human capital indicators* include *start-up experience*, *management experience*, *same industry work experience* and *tertiary education* accumulated prior to the founding process (Davidsson and Honig, 2003).

We control for *gender*, *age*, *ethnicity*, *origin* and *having self-employed parents*. Where possible we also control for *generalized self-efficacy* (10-item scale, Schwarzer and Jerusalem, 1995; Cronbach's Alpha = 0.8; available only in the SUP sample). We do so because our respondents report their own, self-perceived skills. Some over-optimistic respondents may exaggerate their own abilities (Åstebro, 2003). If so, this tendency would affect measures both of entrepreneurial skills and of self-efficacy. Using the latter as control can therefore eliminate any biasing effect.

### **III. Results**

Descriptive statistics and regression results are displayed in Table 1. As both dependent variables are measured on quasi-interval scales, we use OLS-regression for the analysis. As hypothesized, *varied work experience* positively relates to entrepreneurial skills across both samples. This provides clear support for Lazaer's jack-of-all-trades theory. By contrast, traditional indicators of human capital show,

for the most part, weak, inconsistent and statistically insignificant effects. Only prior *start-up experience* gains some support as an individual predictor, being positive and statistically significant in two of the four regressions.

#### **IV. Discussion**

This paper makes three contributions. Firstly, and consistent with our expectations, we show that entrepreneurs with *varied work experience* have higher entrepreneurial skills. This increases confidence that varied experience leads not just to an increased tendency to engage or persist in entrepreneurial endeavours, but also to perform better at them.

Secondly, a varied set of work experiences outperforms traditional human capital indicators in predicting entrepreneurial skills. This amplifies recent scepticism on the relevance of these traditional indicators as direct and independent predictors of entrepreneurial success. We might speculate that Lazear's varied work experience variable can capture interactions and synergies between different human capital aspects.

Lastly, we provide guidance for entrepreneurship education and training programs as well as individual preparation for an entrepreneurial career. In line with Lazear's theory, our study speaks in favour of a varied curriculum that builds on insights and practical experience from a range of different functions and roles in order to foster the development of entrepreneurial skills.

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**Table 1: Origins of Entrepreneurial Skills**

	Descriptive statistics		“Entrepreneurial competence” (Chandler & Hanks, 1994)		“New resource skill” (Baum & Locke, 2004)	
	Mean NV/SUP	SD NV/SUP	NV	SUP	NV	SUP
<i>Main variable</i>						
Varied work experiences (number of functional areas with prior work experience)	2.69/2.75	1.42/1.31	0.166** (3.60)	0.259* (2.50)	0.282** (6.38)	0.268* (2.30)
<i>Traditional human capital</i>						
Start-up experience (number of firms)	0.27/0.23	0.65/0.49	-0.026 (-0.57)	0.238* (2.32)	0.091* (2.07)	0.033 (0.29)
Management experience (number of years)	5.17/2.65	7.22/6.00	-0.031 (-0.57)	0.038 (0.32)	0.006 (0.12)	-0.031 (-0.23)
Same industry work experience (dummy variable)	0.80/0.63	0.40/0.49	-0.013 (-0.29)	-0.102 (-1.09)	0.073 (1.72)	-0.001 (-0.01)
Tertiary education (dummy variable)	0.81/0.93	0.39/0.25	-0.090* (-2.02)	0.182 (1.87)	-0.027 (-0.64)	0.060* (0.55)
<i>Controls</i>						
Age (years)	39.19/36.37	9.44/9.94	0.083 (1.51)	-0.038 (-0.31)	0.036 (0.68)	-0.119 (-0.85)
Gender (1=male; 0=female)	0.92/0.89	0.27/0.31	0.092* (2.09)	0.138 (1.45)	-0.013 (-0.32)	-0.074 (-0.70)
Ethnic minority (dummy variable)	0.01/0.03	0.12/0.18	0.037 (0.85)	-0.140 (-1.37)	0.008 (0.18)	-0.196 (-1.72)
Origin (1=West; 0=East)	0.11/0.28	0.31/0.45	-0.089* (-2.01)	0.109 (1.14)	0.083 (1.94)	0.172 (1.60)
Entrepreneurial parents (dummy variable)	0.18/0.21	0.38/0.41	0.074 (1.67)	0.000 (0.00)	0.066 (1.55)	0.002 (0.02)
Generalized self-efficacy (scale)	N/A/5.06	N/A/0.75	N/A	0.323** (3.22)	N/A	0.280* (2.49)
Adj.R <sup>2</sup>			0.04	0.29	0.11	0.12
N			521	92	521	92

Notes:

NV=sample of new ventures.

SUP=sample of start-up projects.

β=standardized regression coefficients, t-values in parentheses.

\*\* (\*) denote a significance level of 1% (5%).