

**This is an electronic reprint of the original article.  
This reprint *may differ* from the original in pagination and typographic detail.**

**Author(s):** Viinikainen, Jutta; Heineck, Guido; Böckerman, Petri; Hintsanen, Mirka; Raitakari, Olli;  
Pehkonen, Jaakko

**Title:** Born entrepreneurs? : Adolescents' personality characteristics and entrepreneurship  
in adulthood

**Year:** 2017

**Version:**

**Please cite the original version:**

Viinikainen, J., Heineck, G., Böckerman, P., Hintsanen, M., Raitakari, O., & Pehkonen, J. (2017). Born entrepreneurs? : Adolescents' personality characteristics and entrepreneurship in adulthood. *Journal of Business Venturing Insights*, 8, 9-12.  
<https://doi.org/10.1016/j.jbvi.2017.05.001>

All material supplied via JYX is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

# Born Entrepreneurs?

## Adolescents' Personality Characteristics and Entrepreneurship in Adulthood

### Jutta Viinikainen

Corresponding author. Jyväskylä University School of Business and Economics, P.O. Box 35, FI-40014 University of Jyväskylä, Finland.  
Phone: +358-40-5767805. Email: jutta.viinikainen@jyu.fi

### Guido Heineck

University of Bamberg, Department of Economics, Feldkirchenstrasse 21 96052 Bamberg, Germany. Phone: +49-(0)951-863-2600. Email: guido.heineck@uni-bamberg.de

### Petri Böckerman

Labour Institute for Economic Research; Turku School of Economics and IZA. Pitkänsillanranta 3 A, FIN-00530 Helsinki. Phone +358-09-25357360. E-mail: petri.boeckerman@labour.fi

### Mirka Hintsanen

Faculty of Education, University of Oulu. P.O.Box 2000, 90014 University of Oulu, Finland. Phone: +358-2-94483831. E-mail: mirka.hintsanen@oulu.fi

### Olli Raitakari

Research Centre of Applied and Preventive Cardiovascular Medicine, University of Turku and Department of Clinical Physiology and Nuclear Medicine, Turku University Hospital. Kiinamylynkatu 10 20520 Turku, Finland. Phone: +358-2-3337556. E-mail: olli.raitakari@utu.fi

### Jaakko Pehkonen

Jyväskylä University School of Business and Economics, P.O. Box 35, FI-40014 University of Jyväskylä, Finland. Phone: +358-14-2602947. Email: jaakko.pehkonen@jyu.fi

## Abstract

Is there an entrepreneurial personality, and does it appear early in life? We provide a new answer to this important question by examining traits related to Type A behavior (Aggression, Leadership, Responsibility, and Eagerness-Energy) measured during adolescence and their relationship to entrepreneurship propensity in adulthood. The results indicate that the early-life Leadership dimension is significantly associated with a higher likelihood of 1) becoming an entrepreneur and 2) being more successful as an entrepreneur, as approximated by sales.

Keywords: Entrepreneurship, personality, Type A behavior

JEL Classification: L26

## Highlights

Adolescent leadership is related to a higher likelihood of becoming entrepreneur.

Leadership is associated with entrepreneurial success approximated by sales.

Entrepreneurial characteristics appear early in life.

## 1 Introduction

Entrepreneurs exploit technological breakthroughs (Holmes and Schmitz, 1990), commercialize innovations (Braunerhjelm et al., 2010), drive technological change (Schumpeter, 1934), and therefore promote economic growth. Thus, it is crucial to understand who becomes a successful entrepreneur to develop policy measures that support individuals who pursue entrepreneurial careers.

Entrepreneurship requires financial, social and human capital, which constitute the stock of entrepreneurial capital (Blumberg and Pfann, 2015). Because people differ in terms of their stock of entrepreneurial capital, the probability of becoming and achieving success as an entrepreneur varies among individuals. As part of human capital, personality characteristics affect individuals' productivity and therefore their entrepreneurial ability. Personality characteristics may further affect individuals' entrepreneurial intentions and success through motivation (Barrick, Mount and Li, 2013).

Empirically, personality characteristics are related to individuals' propensity to become and experience success as an entrepreneur (e.g., Brandstätter, 2011). Given this evidence, it is interesting to examine whether such a personality-based propensity towards entrepreneurship can be identified early in life, i.e., before labor market entry. Only a few studies address this important question (Blanchflower and Oswald, 1998; Schmitt-Rodermund, 2004). We contribute to this literature by examining whether adolescent personality characteristics associated with so-called Type A behavior are related to the propensity to become and to succeed as an entrepreneur. Type A behavior is an interesting construct in the context of entrepreneurship because many of the characteristics associated with successful entrepreneurs are very similar to the behaviors that constitute the Type A behavioral pattern. Another

contribution is that we exploit longitudinal register data to examine entrepreneurial probability and success over a 20-year period. This approach implicitly addresses concerns that the relationship between personality and entrepreneurial performance may depend on, for example, macroeconomic conditions (Hmieleski and Baron, 2008) or the phase of firm development (Vecchio, 2003).

## 2. Personality characteristics and entrepreneurship

Successful entrepreneurs have been characterized as individuals who detect and exploit opportunities; make rapid decisions under uncertainty; are hard-working, goal striving, willing to take risks, and “jacks-of-all-trades” who perform a broad range of job tasks (Brandstätter, 2011; Rauch and Frese, 2007; Lazear, 2005). Previous research has further identified personality characteristics that are associated with the probability of becoming and finding success as an entrepreneur. Such characteristics include a need for achievement and autonomy, innovativeness, a proactive personality, stress tolerance and an internal locus of control (Rauch and Frese, 2007; Brandstätter, 2011; Shane and Nicolaou, 2015) and, in the context of the Big Five, higher Conscientiousness, Openness, and Extraversion and lower Neuroticism (Brandstätter, 2011; Zhao and Seibert, 2006; Ciavarella et al., 2004).

Several characteristics associated with successful entrepreneurs are very similar to the behaviors that constitute the Type A behavioral pattern. Individuals who exhibit this pattern are characterized as hard-driving, competitive, achievement-oriented, impatient, and work-involved (Lee et al., 1988). Certain dimensions of Type A behavior, such as a high need for achievement, high energy levels, high job involvement, and the ability to handle multiple

projects simultaneously, may produce better entrepreneurial performance. However, Type A behavior has also been associated with hostility, anger, and emotional instability, which can lead to interpersonal conflicts and frustration if business success is weak (Morrison, 1997).

The empirical results concerning Type A behavior and job performance are mixed. According to Lee et al. (1988), this discrepancy may be the result of Type A individuals performing better in jobs with high task variety. Because Type A behavior has also been linked to the need to achieve control over tasks (Burnam et al., 1975), entrepreneurship may provide an attractive opportunity for Type A individuals who seek high task variety with comprehensive control over their work. Limited evidence on the link between Type A behavior and entrepreneurship suggests that Type A behavior (or its dimensions) is positively associated with the likelihood of being an entrepreneur (Babb and Babb, 1992; Begley and Boyd, 1987a; Corzine and Hood, 1998) and with business growth (Begley and Boyd, 1987a) but not necessarily with entrepreneurial profits (Begley and Boyd, 1987a; 1987b).

### 3 Data and methodological issues

Our longitudinal linked data combine three data sources. The Cardiovascular Young Finns Study (YFS) (Raitakari et al., 2008) provides information on four components of Type A behavior (Aggression, Leadership, Responsibility and Eagerness-Energy), which were measured in 1986 for the four oldest age cohorts (aged 12-24 years) using the Hunter-Wolf A-B Rating Scale (Wolf et al., 1982).<sup>1</sup> The standardized average scores are used for each

---

<sup>1</sup> The personality characteristics were assessed using 3-7 items on a 7-point scale (1= 'totally disagree', 7= 'totally agree'). The Cronbach's alphas varied between 0.56 (Eagerness-Energy) and 0.68 (Aggression) (Jokela and Keltikangas-Järvinen, 2009). Information about the Big Five personality traits, which began to gain popularity in the later part of the 1980s, is not available in the early follow-ups of YFS. The Hunter-Wolf scale was designed

dimension. The YFS is linked via unique personal identifiers to Statistics Finland's (SF's) register information (Finnish Longitudinal Employer-Employee Data, FLEED) on individuals' entrepreneurship spells and entrepreneurial success over the period 1990-2010. The SF's official definition of entrepreneur includes both those who employ only themselves and those who have employees. The self-employed are often equated with entrepreneurs because they fulfil the entrepreneurial function of being a risk-bearing residual claimant (Parker, 2004). Therefore, we use the term entrepreneur to refer to both of these groups. Information on parental background is based on the Longitudinal Population Census of Statistics Finland (LPC) from 1980, which was linked to YFS-FLEED using unique identifiers.

The research design enables us to address two potential problems. The first is reverse causality, which emerges if entrepreneurship affects personality characteristics. Therefore, a major strength of our study is its longitudinal research design, as information about personality characteristics was obtained before the study subjects gained any significant labor market experience. The second potential problem is measurement error, which may stem from self-reported measures (Hamermesh, 2004) or from the use of cross-sectional data, which may be an inaccurate proxy for long-term labor market performance (e.g., Haider and Solon, 2006). The use of register data eliminates the potential problem related to self-reported measures. Using long-term information, we implicitly address the possibility that the relationship between personality and entrepreneurial performance may depend on macroeconomic conditions (Hmieleski and Baron, 2008) or the phase of firm development (Vecchio, 2003).

---

to measure behavior (instead of intrinsic tendencies), which arguably has a potentially important role as a determinant of labor market success and occupational choices later in life.

## 4 Results

We estimate models with the following structure:

$$(1) y_i = b_0 + b_1'P_i + b_2'X_i + e_i$$

where  $y_i$  refers to entrepreneurial outcomes,  $P_i$  is a vector of personality characteristics, and  $X_i$  includes other individual characteristics of person  $i$ . The OLS estimates (Table 1) indicate that a one standard deviation increase in Leadership is related to an approximately four percentage-point increase in the probability of ever having been an entrepreneur (Column 1). Leadership is also associated with an increase in the share of entrepreneurial years and the predicted probability of being an entrepreneur for at least five successive years (Columns 2-3).

– Table 1 here –

Entrepreneurial success is measured using three indicators: average duration and number of entrepreneurship spells and sales. These models are estimated conditional on being an entrepreneur at least once over the observation window, which should be considered when interpreting the results. The results (Table 2) reveal that Leadership and Responsibility are positively associated with the number of entrepreneurship spells and that higher Leadership is related to higher sales.

– Table 2 here –



We briefly mention additional results. First, we tested but did not find gender differences in the results. Second, we estimated all the models using outcomes after age 30 over the observation window (1990-2010). The main findings remained intact. The only exception was that all the personality characteristics were statistically insignificant using the specification in Column 2 of Table 2, which is likely explained by the shorter estimation period. Third, we also ran the models without including information on parental entrepreneurship. The results remained nearly identical, suggesting that the role of personality characteristics is largely independent from parental entrepreneurship status. This is important, as our results revealed that having a parent with entrepreneur status was significantly positively associated with all three outcomes in Table 1. Fourth, Lazear (2005) argues that individuals with broader experience are more likely to become entrepreneurs (for Finnish evidence, see Hyytinen and Ilmakunnas, 2007). Thus, we included a dummy for breadth of work experience, which represented those who worked in more than four distinct firms over the period 1990-2010. This indicator was positively associated with the probability of being an entrepreneur, supporting Lazear's (2005) notions. The interaction term between the experience indicator and Leadership was negative and statistically significant, suggesting that broad work experience reduces the impact of Leadership.

According to Babb and Babb (1992), Begley and Boyd (1987a), and Corzine and Hood (1998), there is a positive link between Type A behavior in adulthood and the probability of being an entrepreneur. Begley and Boyd (1987a) also find a positive relationship between Type A behavior and firm growth. Our results indicate that the Leadership dimension of Type A behavior is associated with entrepreneurial interests and the ability to generate growth. Whether

high Leadership individuals can make their businesses successful in the long term is unclear. Our result, that Leadership is positively associated with the number of entrepreneurship spells, may be an indicator of business failures, which would support the interpretation that high Leadership may not be sufficient for long-term business viability. As Vecchio (2003) suggests, the critical characteristics for entrepreneurial success may depend on the stage of a firm's development. This may well be the case in the context of Leadership.

## 5 Conclusions

Using a longitudinal research design (personality characteristics measured during adolescence in 1986 and outcomes measured from 1990-2010), we find that adolescents' Leadership is relevant to entrepreneurial propensity and success, as approximated by reported sales, in later life. This is plausible as the Leadership construct aims to capture, for example, an individual's desire to win or to take charge. These qualities are arguably needed to succeed as an entrepreneur. Thus, entrepreneurial characteristics that predict entrepreneurial careers appear early in life. Whether traits related to Type A behavior are the best for predictive purposes is unclear. High Leadership is associated with entrepreneurial interest and growth, but whether individuals with this trait can also make their businesses profitable in the long term remains an open question.

Funding: This work was supported by the Academy of Finland [grant numbers 134309 (Eye), 126925, 121584, 124282, 129378 (Salve), 117787 (Gendi), and 41071 (Skidi)]; the Social Insurance Institution of Finland; Kuopio, Tampere and Turku University Hospital Medical Funds [grant numbers 9N035 and X51001]; Juho Vainio Foundation; Paavo Nurmi Foundation; Finnish Foundation of Cardiovascular Research; Finnish Cultural Foundation; Tampere Tuberculosis Foundation; Emil Aaltonen Foundation; the Signe and Ane Gyllenberg Foundation; Yrjö Jahnsson foundation (grant number 6646 and 6664) and Palkansaaja Foundation.

## References

Babb EM and Babb SV (1992) Psychological traits of rural entrepreneurs. *Journal of Socio-Economics* 21(4): 352-362.

Barrick MR, Mount MK and Li N (2013) The theory of purposeful behavior: the role of personality, higher-order goals, and job characteristics. *Academy of Management Review* 38(1): 132-153.

Begley TM and Boyd DP (1987a) A Comparison of Entrepreneurs and Managers of Small Business Firms. *Journal of Management* 13 (1): 99-108.

Begley TM., & Boyd DP (1987b) Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing* 2(1), 79-93.

Blanchflower DJ and Oswald A J (1998) What makes an entrepreneur? *Journal of Labor Economics* 16(1): 26-60.

Blumberg BF and Pfann GA (2015) Roads leading to self-employment: comparing transgenerational entrepreneurs and self-made start-ups. IZA Discussion Paper 9155. Bonn: Institute for the Study of Labor.

Brandstätter H (2011) Personality aspect of entrepreneurship: A look at five meta-analyses. *Personality and Individual Differences* 51(3): 222-230.

Braunerhjelm P, Acs ZJ, Audretsch D B and Carlsson B (2010) The missing link: the knowledge filter and entrepreneurship in endogenous growth. *Small Business Economics* 34(2): 105-125.

Burnam M A, Pennebaker J W and Glass D C (1975) Time consciousness, achievement striving and the Type A coronary-prone behavior pattern. *Journal of Abnormal Psychology* 84(1): 76-79.

Ciavarella M A, Buchholtz A K, Riordan C M, Gatewood R D and Stokes G S (2004) The Big Five and venture survival: Is there a linkage? *Journal of Business Venturing*, 19(4), 465-483.

Corzine JB and Hood J N (1998) Shadow and light: Type A behavior and conflict handling styles in entrepreneurs. *Journal of Business and Entrepreneurship* 10(2): 115-129.

Haider S and Solon G (2006) Life-cycle variation in the association between current and lifetime earnings. *American Economic Review* 96(4): 1308–1320.

Hamermesh D (2004) Subjective outcomes in economics. National Bureau of Economic Research Working Papers No. 10361. Cambridge, MA.

Hmieleski KM and Baron RA (2008) When does entrepreneurial self-efficacy enhance versus reduce firm performance? *Strategic Entrepreneurship Journal* 2(1): 57-72.

Holmes TJ and Schmitz JA Jr (1990) A theory of entrepreneurship and its applications to the study of business transfers. *Journal of Political Economy* 98(2): 265-294.

Hyytinen A and Ilmakunnas P (2007) Entrepreneurial aspirations: Another form of job search? *Small Business Economics* 29(1-2): 63-80.

Jokela M and Keltikangas-Järvinen L (2009) Adolescent Leadership and Adulthood Fertility: Revisiting the "Central Theoretical Problem of Human Sociobiology". *Journal of Personality* 77(1): 213-229.

Lazear EP (2005) Entrepreneurship. *Journal of Labor Economics* 23(4): 649-680.

- Lee C, Earley PC and Hanson L A (1988) Are Type As better performers? *Journal of Organizational Behavior* 9(3): 263-269.
- Morrison KA (1997) How franchise job satisfaction and personality affects performance, organizational commitment, franchisor relations, and intention to remain. *Journal of Small Business Management* 35(3): 39-67.
- Parker, S. C. (2004) *The Economics of Self-Employment & Entrepreneurship*. Cambridge: Cambridge University Press.
- Raitakari O T, Juonala M, Rönnemaa T, Keltikangas-Järvinen L, Räsänen L, Pietikäinen M, Hutri-Kähönen N, Taittonen L, Jokinen E, Marniemi J, Jula A, Telama R, Kähönen M, Lehtimäki T, Åkerblom H K and Viikari J S A (2008) Cohort Profile: The Cardiovascular Risk in Young Finns Study. *International Journal of Epidemiology* 37(6): 1220-26.
- Rauch A and Frese M (2007) Let's put the person back into entrepreneurship research: a meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology* 16(4): 353-385.
- Schmitt-Rodermund E (2004) Pathways to successful entrepreneurship: Parenting, personality, early entrepreneurial competence, and interests. *Journal of Vocational Behavior* 65(3): 498-518.
- Schumpeter JA (1934) *The theory of economic development*. Cambridge, Massachusetts: Harvard University Press.
- Shane S, and Nicolaou N (2015) Creative personality, opportunity recognition and the tendency to start businesses: A study of their genetic predispositions. *Journal of Business Venturing* 30(3), 407-419.

Vecchio RP (2003) Entrepreneurship and leadership: common trends and common threats.

*Human Resource Management Review* 13(2): 303-327.

Wolf TM, Sklov MC, Wenzl PA, Hunter SM and Berenson GS (1982) Validation of a

Measure of Type A Behavior Pattern in Children: Bogalusa Heart Study. *Child Development*

53(1): 136-135.

Zhao H and Seibert SE (2006) The Big Five Personality Dimensions and Entrepreneurial

Status: A meta-analytic review. *Journal of Applied Psychology* 91(2): 259-271.

Table 1 Type A personality traits and entrepreneurship; OLS results.

	(1) Entrepreneur at least once	(2) Share of entrepreneurial years	(3) At least 5 subsequent years of entrepreneurship
Aggression	-0.003 (0.008)	0.000 (0.004)	0.002 (0.006)
Leadership	0.040*** (0.008)	0.016*** (0.004)	0.026*** (0.006)
Responsibility	-0.007 (0.009)	0.002 (0.004)	0.000 (0.007)
Eagerness-Energy	0.003 (0.008)	0.000 (0.004)	-0.003 (0.006)
R <sup>2</sup>	0.174	0.318	0.249
N	1981	1981	1981

Notes: Statistically significant at \*10%, \*\* 5% and \*\*\* 1% level. Heteroskedasticity-robust standard errors in parentheses. Type A personality characteristics measured in 1986, and outcomes measured over the period 1990-2010. All models include controls for gender, education, share of marital years, region of residence, birth year effects and parental entrepreneurship status in 1980. All models also include an indicator variable for agricultural entrepreneurship.

Source: YFS-FLEED-LPC, 1990-2010.



Table 2 Entrepreneurial success (entrepreneurs only); OLS results.

	(1) Average duration of entrepreneurship spells 1990-2010	(2) Number of entrepreneurship spells 1990-2010	(3) ln(Sales)
Aggression	0.065 (0.319)	0.010 (0.032)	0.057 (0.139)
Leadership	-0.102 (0.331)	0.084** (0.041)	0.286** (0.127)
Responsibility	0.041 (0.287)	0.064** (0.026)	-0.169 (0.143)
Eagerness-Energy	0.190 (0.351)	-0.048 (0.038)	0.031 (0.126)
R <sup>2</sup>	0.272	0.059	0.190
N	355	355	136

Notes: see Table 1.