



The hidden link between entrepreneurship and military education

Fernando Crecente, María Sarabia*, María Teresa del Val

Economics and Business Management Department, University of Alcalá, Plaza Victoria 2, 28802, Alcalá de Henares, Madrid, Spain

ARTICLE INFO

Keywords:

Total entrepreneurship activity
Mandatory military education

ABSTRACT

Nowadays, military service is mandatory in twenty-nine countries around the world. This military education develops abilities on strategy, teamwork and networking and encourages values such as loyalty, effort, and well-done work. Israel is a clear example of this behavior due to its sociocultural, educative, linguistic and policy dimensions which allow it to develop a competitive strategy based on startups with high potential growth (Haour, 2005).

Authors such as Kerrick et al. (2016), Hansemark (2003) and Hatten and Ruhland (1995) show empirical results about the relationship between entrepreneurial education and its impact on entrepreneurship during adulthood. Other authors identify behaviors such as self-efficacy and a passion for inventing, founding and developing skills which could be learnt in different educational scenarios such as in the military (Dinnar and Susskind, 2019).

The aim of this paper is to study the link between military education and entrepreneurship. Using a sample frame from the World Military Guide (WMG) and the Global Entrepreneurship Monitor (GEM), we analyze variables associated with entrepreneurial activity and entrepreneurial training in 42 countries worldwide for the period 2013–2018, of which 13 countries have mandatory military service. The study shows that mandatory military service does not predispose to greater entrepreneurial activity compared to other countries where military service is not mandatory.

1. Introduction

About 1300,000 results are shown by Google Scholar just by typing 'entrepreneur' and about 1340,000 results by typing 'entrepreneurship process'. Business schools, academicians and practitioners are conducting in-depth research into the entrepreneurship's origins. Authors such as Cantillon (2010) (studied in depth by Murphy and Murphy, 1986), Say (1836) and Schumpeter (1912) provided the first insights of entrepreneurship trying to find the answer to questions such as: What is an entrepreneur? Does value exist in the entrepreneurship process? And how can entrepreneurial abilities be encouraged in society? More than a century later, we are still researching all these questions from different viewpoints: educational, cognitive, economic, political and social, among others.

Nowadays, entrepreneurship is associated with economic growth, social development and innovation and its positive impact is beyond question (Wennekers and Thurik, 1999; Murphy et al., 1996). But entrepreneurship's origins are still unresolved because there are many factors which have influence over its occurrence. Michael Porter defined

the role of entrepreneurship as a stimulator of economic growth at "the heart of national advantage" (Porter, 1990, 125). And his approach defined a new age of understanding the importance of the entrepreneur as an agent of value and innovation for countries.

At the same time, authors such as Carlsson (1992, 1999) demonstrated that national economic activity was formed by small and large companies and created around the 20% of American employment in the 1970s. Carlsson was able to demonstrate this movement away from large firms to small firms: firstly, due to the intensification of global competition which allows market fragmentation to develop and firms' specialization; and secondly, due to advances in technological progress through flexible automation.

This approach of small firms led by entrepreneurs of any sector, age, gender and experience in any part of the world opened a new study framework where entrepreneurial origin started to be analysed. Context (external factors) and content (internal factors) are two sides of the same coin because both approaches define different viewpoints for researching entrepreneurship. In this sense, several authors have shown that entrepreneurs have internal characteristics which initiate

* Corresponding author.

E-mail addresses: fernando.crecente@uah.es (F. Crecente), maria.sarabia@uah.es (M. Sarabia), mteresa.val@uah.es (M. Teresa del Val).

<https://doi.org/10.1016/j.techfore.2020.120429>

Received 16 June 2020; Received in revised form 20 October 2020; Accepted 24 October 2020

0040-1625/© 2020 Elsevier Inc. All rights reserved.

entrepreneurial projects (Fishbein, 1976; Dionco-Adetayo and Nassar, 1999; Armitage and Christian, 2003).

Nowadays, entrepreneurship is assumed as a learned skill (Kolvereid, and Iermolenko, 2020; Kerrick et al., 2016; Henry et al., 2005; Mitra and Matlay, 2004) through educational processes (tacit and explicit knowledge) which provide the passion for creating and implementing new business ideas (Kuratko, 2005).

Polanyi (1967) was one of the first authors who developed the idea of 'learning by doing'. That was the first step for explaining the nature of tacit knowledge which is often acquired through learning by experience. In this way, the military environment could develop key values to start a project better than in university programs at business schools.

Sometimes, this entrepreneurial force to start a business is linked to barriers such as lack of technical knowledge, experience and culture or financial infrastructure. Fishbein (1976) opined that beliefs are feelings and perceptions and knowledge is acquired through direct experience, developing a learning process. That means the entrepreneurial process is developed through educational programs, as for example, military service. This military education develops abilities on strategy, teamwork and networking and encourages values such as loyalty, effort, and well-done work. Israel is a clear example of this behavior due to its sociocultural, educative, linguistic and policy dimensions which allow it to develop a competitive strategy based on start-ups with high potential growth (Haour, 2005). Military service is mandatory in twenty-nine countries around the world and the aim of this paper is to study the link between military education and entrepreneurship, which is still unexplored.

Given this context, we propose to start answering the main questions: Is there a greater propensity for entrepreneurial activity in regions with mandatory military service? Are there entrepreneurial differences between countries according to the presence or absence of mandatory military service? Does the military education received provide skills to put into action?

In this sense, reports such as the Global Entrepreneurship Monitor (GEM) provides information in a regional manner on the predisposition of individuals towards entrepreneurial activity, the perception of personal capacities to put into action and the way in which institutions and educational systems promote entrepreneurship among their citizens. In this way, it can be analysed as to whether the training received by individuals in countries with mandatory military systems has a positive relationship with the propensity to undertake.

The paper proceeds as follows: first, we discuss earlier work on entrepreneurship and military veterans; second, data and methodology is set out; third, we present and discuss our results; and finally, we draw some conclusions and explain the limitations of our research.

2. Entrepreneurship and military veterans

According to data from U.S. Census Bureau's Survey of Business Owners (Sobota, 2012), "2.52 million businesses were majority-owned by veterans. Of this total, 442,485 were employers, and 2.08 million were non-employers. Veteran-owned firms had receipts of \$1.14 trillion, employed 5.03 million people, and had an annual payroll of \$195 billion. Veteran-owned firms represented 9.1 percent of all U.S. firms". Similarly, the Federation of Small Businesses (FSB) has shown in its report of June 2019 that there are approximately 340,000 small enterprises across Great Britain run by veterans.

Veterans are commonly known in the management literature as "natural-born entrepreneurs". According to the US Small Business Association (SBA), veterans are 45% more likely than non-veterans to own their own businesses (2018). Meanwhile in the United States, there are entrepreneurship programs for retired military reintegration into civil life; in Europe, these kinds of programs are focussed on employment in the public sector (Smaliukiene, 2013).

In this sense, Avrahami and Lerner (2003) develop a link between entrepreneurship and career path for military veterans. They establish

some skills which are developed during the military experience such as leadership, the ability to overcome obstacles, and teamwork, among others.

Some researchers have demonstrated how military veterans develop their career towards entrepreneurship (Hope et al., 2011; Avrahami and Lerner, 2003) and have even identified several characteristics of franchisors who served in the military (McDermott and Jackson, 2020; Ramirez-Hurtado et al., 2011; Saraogi, 2009). One of the most definitive quantitative studies of this link between franchising and military education was presented in 2015 by McDermott, Boyd, and Weaver (McDermott et al., 2015) and it reveals that military veterans' level of overall satisfaction in owning and operating a franchise was significantly higher than those franchise business owners who had not served in the military (McDermott and Jackson, 2020).

The effect of combat experience and rank in the choice of an entrepreneurial career is one of the aims of this paper. In this sense, Avrahami and Lerner (2003) examined 166 graduates of business administration (MBA) in Israel (a country with mandatory military service and constant combat experience) and defined combat experience as a kind of unique social capital, made of skills such as innovation, risk taking, flexibility, adaptation to new environments, mutual support, and self-efficacy.

Polin and Ehrman (2018) published results which established that there was a curious relationship between military service and entrepreneurial intentions in Israel and their conclusions opened a new window for research. In this sense, Kerrick et al (2016) have shown results which would suggest that networking surfaced as a benefit for veterans after military service. Other authors, such as Kerrick et al. (2014) and Gaglio and Katz (2001), demonstrated that military veterans significantly increase their passion for entrepreneurship due to the previous knowledge and abilities learnt during their military service.

Authors such as Kerrick et al. (2016), Devece et al. (2011), Hansemark (2003) and Hatten and Ruhland (1995) show empirical results about the relationship between entrepreneurial education and its impact on entrepreneurship during adulthood. And other authors identify behaviours such as self-efficacy and passion for inventing, founding and developing as skills which could be learnt in different educational scenarios to the military (Blass and Ketchen, 2014; Dinnar and Susskind, 2019; Ratinho et al., 2020).

In this way, Kusmintarti et al. (2016) suggested in their study that entrepreneurial education has a significant effect on entrepreneurial characteristics.

Through these analyses, the proposed hypotheses are the following:

Hypotheses 1. sets that the presence of mandatory military service positively affects the generation of entrepreneurial activity in a country.

Hypotheses 2. sets that the variables related to entrepreneurial skills and entrepreneurial education received in the education system positively affect the entrepreneurial intention.

This paper proposes to advance this hidden link between entrepreneurship and military service using international databases which provide variables which can explain the differences of entrepreneurship around the world in cases of countries with or without mandatory military service.

3. Methodology

3.1. Database

The database used in this research is based on two reports: The World Military Guide (WMG) and the Global Entrepreneurship Monitor (GEM). Aspects related to military service and recruitment characteristics by country can be consulted in the WMG and GEM is used as an international database recognized as the best harmonized methodology, allowing comparisons between countries.

According to the WWG's reports, at the end of the year 2018, there

were around 29 countries worldwide with mandatory military service, among them Finland, Greece, Norway, Ukraine, Brazil, Mexico, North and South Korea, Singapore, Burma, Iran, United Arab Emirates and Egypt. The average period of mandatory military service ranges from a minimum of 4 months in Estonia to a maximum of 68 months in South Korea. The median value is 12 months (as Brazil, Israel or Russia among others). Only North Korea, Israel, Norway and Tunisia include women (mixed military service). The minimum age is 17 and the maximum is 50 years (as is the case in Cyprus). The most usual age is between 18 and 30 years old. However, 18 years is the age established to access mandatory military service by 41 percent of the countries.

According to the GEM's reports, the number of young people who decide to start a business or become self-employed has been increasing in recent years. Likewise, the expectations to undertake in the current period of economic recovery have improved, facilitating access to aid numbers, simplifying processes, together with the progressive economic improvement. In addition, the training of young entrepreneurs is much better than previous stages and they have access to numerous resources. Likewise, innovation and the ability to develop new business, with strategies that allow it to adapt to new technological changes or international markets are two indicators of the GEM's reports in order to achieve robust entrepreneurial ecosystems. In this sense, entrepreneurial activity has been identified by public institutions as a key factor to recover the competitiveness lost by most countries during the period of recession. It is precisely this condition that justifies the analysis of entrepreneurship at an early age.

This research is focused on the period between 2013 and 2018 in order to analyze the impact of military service values on entrepreneurship during a period of economic stability after the last world economic crisis and the previous COVID crisis. Finally, 42 countries with complete data have been selected to obtain a complete database (13 countries have a mandatory military service rate of 33% and the other 29 countries have non-mandatory military service).

3.2. Variables

The study includes other variables associated with military service such as the duration of military service, the age range in which the service should be provided and mandatory service by gender. In this sense, both variables are only considered in the case of countries with mandatory military service at the end of 2018.

We use four other interesting variables obtained from the GEM for the 2013–2018 period:

- Total Entrepreneurial Activity (TEA): This rate includes the total number of entrepreneurial initiatives of the adult population (between 18 and 64 years old) who are involved in entrepreneurial activities in the initial phase (less than 42 months of activity). One of the aims of this research is to analyze the evolution of entrepreneurship in the economic recovery phase (2013–2018). In this sense, assuming the existence of some countries with high volatility, we have used the average of entrepreneurial activity in the 2013–2015 period as the start point and the TEA average for the 2016–2018 period as the final one.
- Ability to perceive opportunities to undertake in the short term (OP).
- Skills, knowledge and experiences required to undertake an entrepreneurial initiative (AB).
- Failure perception as a barrier for entrepreneurship (FAIL).

Finally, the GEM report includes an assessment by independent experts on how the institutional environment influences entrepreneurial activity. In this way, this paper is focused on the perceived education which could influence in a greater propensity to undertake. The following four variables have been considered for the 2013–2018 period:

- Education and entrepreneurial formation in the school stage (EduS)
- Education and entrepreneurial training in the post-school stage (EduP)
- Government policies related to bureaucracy and the payment of taxes (Tax) and
- Social and cultural norms (Cul).

The percentage of entrepreneurial activity in the youth group was used as a control variable (Devece et al., 2016), but it was not significant between the countries.

3.3. Statistical model

The paper analyses a sample of countries around the world from the Global Entrepreneurship Monitor (GEM) according to mandatory military service during the post-crisis period (2012–2018) with respect to the total entrepreneurship activity (Liang et al., 2018). The methodology used allows comparisons to be made between different groups of countries. However, given the deviation suffered by the data on entrepreneurship of countries over the years, the median position has been used as reference. Therefore, a non-parametric contrast of medium differences has been used to detect the existence of statistically significant behaviors between groups instead of the Kruskal-Wallis contrast.

On the other hand, the study proposes to study other factors related to the entrepreneurial environment as skills and knowledge acquisition (independent variables) which could determine the entrepreneurial activity of a region (dependent variable). In this way, we also consider the existence of the military service as dependent variable. The paper proposes two models considering the timeline variable over time as follows:

$$TEA_{201x} = \alpha + \beta_1 \cdot Military + \beta_2 \cdot Op_{201x} + \beta_3 \cdot Ab_{201x} + \beta_4 \cdot Fail_{201x} + \beta_5 \cdot Tax_{201x} + \beta_6 \cdot Edu_{201x} + \beta_7 \cdot EduPost_{201x} + \beta_8 \cdot Cul_{201x} + \varepsilon_{201x}$$

$$VarTEA_{13-18} = \alpha + \beta_1 \cdot Mil + \beta_2 \cdot VarOp_{13-18} + \beta_3 \cdot VarAb_{13-18} + \beta_4 \cdot VarFail_{13-18} + \beta_5 \cdot VarTax_{13-18} + \beta_6 \cdot VarEdu_{13-18} + \beta_7 \cdot VarEduPost_{13-18} + \beta_8 \cdot VarCul_{13-18} + \varepsilon_{13-18}$$

Finally, the study proposes to investigate the effects of these variables in different countries using the same models previously described, but differentiated by the type of military service. In this way, significant variables by different areas are identified.

3.4. Results

Table 1 shows the sample of 42 countries studied and the proposed variables as well as the variation rates in the period analyzed. The main descriptive statistics of each group of countries are also presented.

Thus, considering median data, the TEA of the countries with military service in the 2013–2015 period was 7.99% compared to 9.21% of the countries without mandatory service. However, at the end of the 2016–2018 period analyzed, countries with mandatory military service have converged with the rest of the countries, reaching a TEA of 10.9.

In absolute terms, the countries with mandatory military service have increased their TEA in this period by 1.28 points compared to 0.41 in the sample of countries where the service is not mandatory. Likewise, this happens if the variation is considered in percentage terms (growth of a median of 13.79% versus 5.28%).

Observing the set of explanatory variables, there are hardly any differences between the two samples of countries analyzed. Thus, in 2013 – at the beginning of the period – the countries with mandatory military service are characterized as follows:

- their active population indicates that they have greater capacities to perceive opportunities in the environment (median value of 42% versus 37.85%)

Table 1

Sample by mandatory military service type specifying dependent and independent variables in the analyzed period (own work).

GEM	Initial TEA	Final TEA	VAR_TEA	Op Ini	Ab Ini	Fail Ini	Tax Ini	EduS Ini	EduP Ini	Cul Ini	Op Fin	Ab Fin	Fail Fin	Tax Fin	EduS Fin	EduP Fin	Cul Fin
Countries with mandatory military service																	
Austria	9.23	10.25	11.01	49	50	36	6.66	4.32	6.12	5.94	46.8	48.3	44.8	4	2.62	5.23	3.88
Brazil	17.73	19.27	8.68	50.93	52.62	42.7	3.06	2.7	4.32	4.86	31.4	54.3	44	2.03	2.22	4.07	3.38
N. Korea	6.73	10.90	62.08	12.73	28.1	44.53	4.86	3.78	4.5	5.58	45.7	49.7	29.7	4.45	3.4	4.36	5.12
Egypt	7.67	12.43	62.17	54	59	33	3.31	1.6	3.07	3.84	39.3	43	30.9	3.5	2.33	3.72	4.56
Greece	6.65	5.60	−15.82	13.54	45.99	69.06	3.24	3.06	4.68	4.14	19.2	46.4	68	2.57	2.76	3.99	4.19
Iran	13.10	11.50	−12.20	37	56.5	36.4	2.88	2.7	3.78	3.96	22.3	53.1	39.3	2.93	2.89	3.76	4.18
Israel	9.45	11.03	16.80	46.5	36.17	53.33	3.06	3.6	5.4	6.84	56.2	41.5	53.3	2.56	2.79	4.73	6.95
Morocco	4.40	7.00	59.09	34.3	47.6	41.1	3.6	1.83	3.29	3.68	33.6	29.5	51.2	3.97	1.87	4.02	3.79
Russia	4.92	5.90	20.00	18.19	28.15	29	3.42	3.96	4.86	4.5	22.8	27.5	40.1	3.3	2.89	4.77	4.67
Switzerland	7.06	8.03	13.79	41.52	44.72	35.47	6.66	4.32	6.12	5.94	45.5	36.3	41.1	4.76	3.4	5.26	4.58
Thailand	18.22	19.50	7.03	45.34	44.38	54.85	4.32	4.14	5.58	5.4	50.1	51	65	4.11	3.69	4.91	5.67
Taiwan	7.99	8.77	9.77	42.03	27.22	41.23	5.04	3.6	4.86	6.48	26.7	28.2	44.3	5.56	3.83	5.44	5.62
Turkey	11.50	15.15	31.74	42	27.2	40.6	4.86	4.86	4.14	5.76	44.3	56.8	34.1	3.47	2.76	5.05	5
Average	9.59	11.18	21.09	37.47	42.13	42.87	4.23	3.42	4.67	5.15	37.22	43.51	45.06	3.63	2.88	4.56	4.74
Median	7.99	10.90	13.79	42.00	44.72	41.10	3.60	3.60	4.68	5.40	39.30	46.40	44.00	3.50	2.79	4.73	4.58
Stand. Dev.	4.43	4.52	25.90	14.01	11.52	10.75	1.31	0.99	0.97	1.05	11.99	10.22	11.77	0.98	0.57	0.60	0.95
Countries without mandatory military service																	
GEM Country	Initial TEA	Final TEA	VAR_TEA	Op Ini	Ab Ini	Fail Ini	Tax Ini	EduS Ini	EduP Ini	Cul Ini	Op Fin	Ab Fin	Fail Fin	Tax Fin	EduS Fin	EduP Fin	Cul Fin
Germany	4.99	4.97	−0.53	31.3	37.72	48.15	4.68	3.42	4.68	5.04	42.1	38.3	38.7	4.34	3.03	4.55	4.45
Angola	21.41	40.80	90.57	56.67	56.32	42.12	3.96	2.88	3.78	5.04	74	75.6	19.3	3.65	3.22	3.85	4.68
Argentina	16.09	9.87	−38.68	39.81	61.62	30.11	2.7	3.96	4.14	5.76	35.9	48.8	38.6	3.63	2.97	5.03	5.35
Canada	9.21	17.70	92.25	57.35	48.45	37.34	4.14	3.96	4.86	5.76	63	55.9	47.3	4.31	4.13	4.78	5.58
China	14.11	10.20	−27.69	33.07	36.29	35.89	4.68	2.88	4.86	5.4	35.1	24.1	39.6	4.6	3.38	5.27	6.02
Colombia	21.28	22.40	5.28	67.7	57.8	31.8	4.68	4.14	5.76	5.58	57.5	66.4	27.7	3.64	3.39	5.71	5.31
Croatia	7.99	8.97	12.22	17.58	47.18	46.03	3.24	3.42	4.68	3.6	33.1	52.3	39.5	2.1	2.45	3.71	2.74
USA	11.91	13.93	17.01	47.16	55.74	35.02	3.96	3.96	5.58	7.02	69.8	55.6	39.4	4.68	4.33	5.49	7.27
Slovakia	10.06	9.23	−8.17	16.1	51.01	44.46	3.42	3.42	5.04	3.42	42.2	51	37.4	2.89	2.68	3.9	2.85
Slovenia	6.22	9.45	52.01	16.06	51.48	41.98	3.78	3.78	5.04	3.96	37.4	53.3	38.5	3.33	3.12	4.77	3.72
Spain	5.53	5.93	7.34	16	48.4	36.3	3.6	2.52	4.14	3.78	29.1	48.5	43.1	3.97	3.51	5.28	5.07
France	4.99	5.10	2.20	22.87	33.15	45.31	5.4	3.06	4.86	3.96	34.9	37.5	36.7	5.34	2.88	5.64	4.71
Guatemala	16.80	24.10	43.45	58.8	66.4	33.3	3.78	3.24	5.76	4.68	54.6	65.2	33.9	3.54	2.28	5.62	5.05
India	9.29	10.43	12.31	41.43	55.78	35.62	3.24	2.7	4.32	4.86	48.8	52.2	40.1	4.71	4.52	5.23	5.58
Indonesia	20.74	11.90	−42.61	46.68	62.01	41.28	3.96	4.5	5.94	5.94	54.9	64	41.9	5.46	5.12	6.37	6.45
Ireland	7.79	9.80	25.84	28.3	43.1	40.4	5.04	3.6	5.04	5.4	51.6	45.6	41.2	4.45	3.76	5	5.35
Italy	4.20	4.30	2.38	17.3	29.1	48.6	2.7	3.06	4.68	3.78	34.6	29.8	52	3.12	2.65	4.46	3.5
Japan	3.81	5.30	39.11	7.6	12.8	49.3	4.61	2.95	5.08	4.64	8.1	10.1	44.4	4.04	2.32	4.14	3.62
Lebanon	20.63	23.13	12.16	52.26	58.63	33.48	4.68	2.52	4.14	4.5	42	68.1	42.4	3.43	3.98	4.79	6.5
Luxembourg	8.70	9.67	11.15	45.57	43.28	41.28	6.12	3.96	5.22	4.32	55	43.9	50.7	5.28	4.04	5.65	4.84
Puerto Rico	8.93	10.95	22.67	28.34	53.03	27.43	2.7	2.88	5.4	4.5	35.2	47.5	25	2.24	2.36	5.01	4.59
Netherlands	8.92	11.07	24.02	32.66	42.38	41.28	5.76	5.58	5.94	5.58	66.7	46.1	34.8	5.4	5.4	6.18	6.17
Panama	16.85	14.40	−14.52	58.73	66.39	27.88	5.04	2.88	5.04	5.4	39	42.1	21.6	3.2	1.9	3.96	4.56
Peru	23.65	24.03	1.64	60.96	62.2	26.15	3.78	3.78	5.04	5.22	56	71.8	34.5	3.23	3.03	4.98	5.59
Poland	9.23	8.27	−10.47	20.2	48.7	40.1	3.78	3.24	4.32	5.04	68.5	46.1	40.6	3.15	2.73	4.03	4.84
UK	8.40	8.47	0.79	35.5	43.8	36.4	4.68	3.96	4.68	5.58	44	46.6	39.8	4.89	2.95	4.35	4.82
South Africa	8.93	8.95	0.22	37.85	42.68	27.15	3.78	3.96	3.24	5.4	71	74.5	34	2.69	2.47	3.92	4.34
Sweden	7.14	7.23	1.34	64.45	38.8	39.73	4.5	4.14	4.32	5.76	81.6	38.4	42.1	3.67	3.93	4.57	4.89
Uruguay	14.83	14.83	0.04	47.9	61.14	29.55	5.04	3.06	6.3	4.32	28.9	59	37.9	3.39	2.47	5.69	3.49
Average	11.47	12.60	11.49	38.14	48.81	37.70	4.19	3.50	4.89	4.94	48.09	50.29	38.02	3.87	3.28	4.89	4.89
Median	9.21	9.87	5.28	37.85	48.70	37.34	3.96	3.42	4.86	5.04	44.00	48.80	39.40	3.65	3.03	4.98	4.84
Stand. Dev.	5.87	7.87	30.58	17.19	12.14	6.79	0.88	0.67	0.69	0.84	16.68	14.87	7.43	0.92	0.87	0.73	1.07

- ü the greater perception of fear of failure as a barrier to entrepreneurship (41.1% versus 37.34%)
- ü and less awareness of possessing entrepreneurial skills (44.72% versus 48.70% in countries where it is not mandatory).

At the end of 2018, countries with mandatory service have seen their ability to detect opportunities reduced although they claim to have improved their abilities and skills to undertake. In the rest of the variables they present very similar median values.

This study proposes a non-parametric contrast of medians in order to verify the existence of significant differences between the two groups of countries analyzed (end of Table 1). Specifically, the study identifies differences in the variation experienced by the TEA, especially in the case of countries with mandatory service where the evolution is better, as well as in the assessment of the perception of skills to undertake at the beginning of the period, the perception of failure and the education in the school phase at the end of the period (with a significance level less than 10%).

Table 2 presents the results of the three models proposed (initial period, final period and variation 2013–2018).

Analyzing the TEA in the initial period of economic recovery (2013–2015), the analysis shows that the military service is not a significant variable which could explain – in itself – the entrepreneurial activity in any country.

In the case of slow economic growth, the same valuation can be formulated. Although the variable remains non-significant, the change in its sign stands out, which goes from negative to positive.

On the other hand, only the variables related to the entrepreneurial environment are relevant to define the entrepreneurial activity: the perception of opportunities in the environment is significant at the beginning of the period and the possession of skills and abilities to undertake is significant throughout the period. Both are positively related to the dependent variable.

During the period that the economies were slowly emerging from the economic crisis, the ability to detect opportunities is necessary to establish new businesses; but the opportunities are more difficult to locate in the case of the flourishing economies due to other factors associated with the need, such as personal and economic factors (companies' successions, sector experience or abilities to access favorable financial conditions, among others).

For that reason, it is important to have adequate skills and competencies before starting an entrepreneurial venture. However, the rest of the variables associated with entrepreneurial education at any of the educational levels, the cultural values associated with entrepreneurship and the perception of failure are not significant.

Although the results show that mandatory military service is not a differentiating element to generate entrepreneurial activity, this study intends to identify the hidden link between entrepreneurship and mandatory military service. Table 3 shows the significant variables of

the previous models segmented by the type of military service.

Thus, analyzing those countries where military service is mandatory, there is a positive relationship with the ability to detect opportunities and a negative one with the increase of administrative and legal barriers to the establishment of a company in the first phase of economic recovery (both are significant).

However, skills are not considered significant to undertake. This situation has changed from the initial situation due to the only variable that is significant to undertake being the possession of skills and knowledge. Considering that the rest of the variables associated with education are not significant, the results indicate that the experiences and skills acquired in military service may have influence on the acquisition of those skills needed to undertake.

Otherwise, if the rate of variation of the entrepreneurial activity is analyzed in relation to the variation experienced by the rest of the variables, all the explanatory variables are significant except those related to the assessment of failure and cultural values. There is a positive relationship with the variables associated with education, both school and post-school, which shows that in these years the introduction of entrepreneurial values in their educational systems has contributed to complete the necessary skills to undertake.

On the other hand, in the countries where military service is not mandatory, the variable on the possession of entrepreneurial skills is positive and significant throughout the period. In that case, the perception of opportunities is significant and positive just only at the initial moment considered.

Furthermore, the existing relationship with the perception of failure is also significant but negative. The variables associated with education in entrepreneurial values become significant. Specifically, when the entrepreneurial education in the higher school stage is large, the TEA is larger too. But with respect to post-school education, there is a significant and negative relationship between both.

It must be considered that an improvement in the possession of entrepreneurial skills is a differential value for employment, which means that higher education during post-school training is related to lower TEA.

4. Conclusion and limitations

We hope that this study provides a fresh beginning in the study of entrepreneurship and military education. The paper provides the following contributions. First, mandatory military service is not a differentiating element to explain the rate of entrepreneurial activity in a country. Second, mandatory military service develops key abilities to undertake that they cannot be explained when it is not mandatory. Third, the fear of failure is higher in countries with mandatory military service. These differences may be due to the way their educational systems are configured and the way they are trained in military service, with teaching based on more traditional principles, a high weight of

Table 2
Results of the explaining models for periods (own work).

Dependent Variable	Initial TEA			Final TEA			Variation TEA 2013–2018		
Independent Variable	Coef. Stand.	T	Sig.	Coef. Stand.	T	Sig.	Coef. Stand.	T	Sig.
Constant	−8.035	−1.086	0.285	−0.826	−0.101	0.920	1.645	1.789	0.083
Military service	−0.059	−0.481	0.634	0.094	0.687	0.497	−0.152	−0.877	0.387
Opportunity	0.470	2.633	0.013*	0.019	0.119	0.906	0.331	1.698	0.099**
Abilities	0.388	2.233	0.032*	0.654	4.017	0.000*	−0.315	1.880	0.069**
Failure	0.067	0.499	0.621	−0.180	−1.298	0.203	−0.175	−0.901	0.374
Taxes and Bureaucracy	−0.151	−1.055	0.299	0.084	0.423	0.675	0.368	1.525	0.137
School Education	0.086	0.532	0.599	−0.162	−0.759	0.453	−0.088	−0.390	0.699
Post Education	0.086	0.580	0.566	−0.093	−0.543	0.591	−0.050	−0.219	0.828
Cultural Values	0.053	0.311	0.758	0.247	1.433	0.161	0.021	0.138	0.891
Adjusted R-squared	0.536			0.464			0.112		

* Sig < 0,05.

** Sig < 0,10.

Table 3

Significative and explicative variables of TEA according to military service type (own work).

Countries with mandatory military service									
Dependent Variable	Initial TEA			Final TEA			Variation TEA 2013–2018		
Independent Variable	Coef. Stand.	T	Sig.	Coef. Stand.	T	Sig.	Coef. Stand.	T	Sig.
(Constant)	1.648	0.333	0.747	−2.194	−0.513	0.618	5.884	0.781	0.460
Opportunity	0.648	2.637	0.027				0.978	3.836	0.006
Abilities				0.695	3.207	0.008			
Failure							0.550	2.051	0.079
Taxes and Bureaucracy	−0.611	−1.927	0.086				−0.668	−2.007	0.085
School Education	0.586	1.854	0.097				0.591	2.001	0.086
Post Education							1.010	4.335	0.003
Adjusted R-squared	0.498			0.483			0.815		
Countries without mandatory military service									
	Coef. Stand.	T	Sig.	Coef. Stand.	T	Sig.	Coef. Stand.	T	Sig.
(Constant)	−5.596	−2.034	0.052	10.952	1.368	0.183	12.685	2.378	0.025
Opportunity	0.427	3.026	0.006						
Abilities	0.487	3.457	0.002	0.560	3.980	0.000	0.492	2.668	0.013
Failure				−0.329	−2.339	0.027			
School Education							0.413	1.917	0.067
Post-Education							−0.536	−2.383	0.025
Adjusted R-squared	0.642			0.536			0.276		

authority and the penalization of failure. Fourth, the stimulation of entrepreneurial programs for veterans enhances self-employment.

Regarding the limitations of the study, it is worth highlighting the unavailability of available data on entrepreneurship in all countries that have mandatory military service. On the other hand, other variables related to the environment have not been considered, such as the existence of military conflicts in the area as well as other factors associated with the type of entrepreneurship. These were not incorporated into the study because the purpose of the study focused on factors of skills and knowledge for entrepreneurship. In this sense, the sample size reduces reliability and makes generalizability difficult.

Although our results suggest that the link between entrepreneurship and military education is not strongly conclusive, we think that countries related to the entrepreneurial environment with mandatory military service define an interesting entrepreneurial activity: the perception of opportunities in the environment is significant at the beginning of the period and the possession of skills and abilities to undertake is significant throughout the period proposed in this paper.

Finally, the link between military education and entrepreneurship presents an unexplored framework to research.

CRedit authorship contribution statement

Fernando Crecente: Conceptualization, Methodology, Formal analysis. **María Sarabia:** Conceptualization, Methodology, Writing - review & editing. **María Teresa del Val:** Visualization, Supervision.

References

- Armitage, C.J., Christian, J., 2003. From attitudes to behaviour: basic and applied research on the theory of planned behaviour. *Curr. Psychol* 22 (3), 187–195. <https://doi.org/10.1007/s12144-003-1015-5>.
- Avrahami, Y., Lerner, M., 2003. The effect of combat service and military rank on entrepreneurial careers: the case of Israeli MBA graduates. *J. Polit. Mil. Sociol.* 31 (1), 97–118.
- Blass, F.R., Ketchen Jr, D.J., 2014. So, you want to be an entrepreneur? Lessons from the entrepreneurship bootcamp for veterans with disabilities. *Bus. Horiz* 57 (1), 5–9. <https://doi.org/10.1016/j.bushor.2013.09.006>.
- Cantillon, R., 2010. *Essay on Economic Theory*. An. Ludwig von Mises Institute.
- Carlsson, B., 1992. The rise of small business: causes and consequences. In: Adams, W.J. (Ed.), *Singular Europe, Economy and Policy of the European Community After 1992*. University of Michigan Press, Ann Arbor, MI, pp. 145–169.
- Carlsson, B., 1999. Small business, entrepreneurship, and industrial dynamics. In: Acs, Z. (Ed.), *Are Small Firms Important?* Kluwer Academic Publishers, Boston and Dordrecht, pp. 99–110.
- Devece, C.A., Palacios-Marques, D., Fernandez, R., 2011. Entrepreneurship research in service industries: a literature classification and trend analysis. *Int. Entrep. Manag. J* 7 (4), 479–493. <https://doi.org/10.1007/s11365-011-0205-0>.
- Devece, C., Peris-Ortiz, M., Rueda-Armengot, C., 2016. Entrepreneurship during economic crisis: success factors and paths to failure. In: *J. Bus. Res.* 69, pp. 5366–5370. <https://doi.org/10.1016/j.jbusres.2016.04.139>.
- Dinnar, S., Susskind, L., 2019. *Know Your Entrepreneurial Self*. Entrepreneurial Negotiation (179–186). Palgrave Macmillan, Cham. <https://doi.org/10.1007/978-3-319-92543-1>.
- Dionco-Adetayo, E., Nassar, M., 1999. Personality traits associated with entrepreneurial performance in post-harvest crop production in Nigeria. *J. Behav. Res* 1.
- Federation of Small Businesses (FSB), 2019. A force for business: service leavers and small business. Available at: <https://www.fsb.org.uk/campaign/a-force-for-busines-service-leavers-and-small-business.html>.
- Fishbein, M., 1976. A behavior theory approach to the relations between beliefs about an object and the attitude toward the object. In: *Mathematical Models in Marketing. Lecture Notes in Economics and Mathematical Systems (Operations Research)*, 132. Springer, Berlin, Heidelberg, 10.1007/978-3-642-51565-1_25.
- Gaglio, C.M., Katz, J.A., 2001. The psychological basis of opportunity identification: entrepreneurial alertness. *Small. Bus. Econ* 16 (2), 95–111, 10.1023/A:1011132102464.
- Hansemark, O.C., 2003. Need for achievement, locus of control and the prediction of business start-ups: a longitudinal study. *J. Econ. Psychol* 24 (3), 301–319, 10.1016/S0167-4870(02)00188-5.
- Haour, G., 2005. Israel, a powerhouse for networked entrepreneurship. *Inter. J. Entrep. Inn. Manag.* 5 (1–2), 39–48. <https://doi.org/10.1504/IJEIM.2005.006336>.
- Hatten, T.S., Ruhland, S.K., 1995. Student attitude toward entrepreneurship as affected by participation in an SBI program. *J. Educ. Bus.* 70 (4), 224–227. <https://doi.org/10.1080/08832323.1995.10117754>.
- Henry, C., Hill, F., Leitch, C., 2005. Entrepreneurship education and training: can entrepreneurship be taught? Part II. *Educ. Train* 47 (2), 98–111. <https://doi.org/10.1108/00400910510586524>.
- Hope, J.B., Mackin, P.C., 2011. *Factors Affecting Entrepreneurship Among Veterans*. SAG Corporation, Annandale, VA.
- Kerrick, S.A., Cumberland, D.M., Choi, N., 2016. Comparing military veterans and civilians' responses to an entrepreneurship education program. *J. Entrep. Educ.* 19 (1), 9. Available at: https://www.researchgate.net/profile/William_Laing2/publication/303144612_Th_e_oxford_MBA_A_case_study_in_connecting_academia_with_business/links/577d09c508aef26c3b809a74.pdf#page=13.
- Kerrick, S.A., Cumberland, D., Church-Nally, M., Kemelgor, B., 2014. Military veterans marching towards entrepreneurship: an exploratory mixed methods study. *Int. J. Manag. Educ* 12 (3), 469–478. <https://doi.org/10.1016/j.ijme.2014.05.006>.
- Kolvereid, L., Iermolenko, O., 2020. Training Ukrainian military in job creation and job taking. *Eu. J. Train. Develop.* 44 (4/5), 449–468. <https://doi.org/10.1108/EJTD-09-2019-0169>.
- Kusmintarti, A., Thoyib, A., Maskie, G., Ashar, K., 2016. Entrepreneurial characteristics as a mediation of entrepreneurial education influence on entrepreneurial intention. *J. Entrep. Educ.* 19 (1), 24. Available at: https://www.researchgate.net/profile/William_Laing2/publication/303144612_Th_e_oxford_MBA_A_case_study_in_connecting_academia_with_business/links/577d09c508aef26c3b809a74/Th_e_oxford-MBA-A-case-study-in-connecting-academia-with-business.pdf#page=28.
- Kuratko, D.F., 2005. The emergence of entrepreneurship education: development, trends, and challenges. *Entrep. Theor. Prac.* 29 (5), 577–597. <https://doi.org/10.1111/j.1540-6520.2005.00099.x>.
- Liang, J., Wang, H., Lazear, E.P., 2018. Demographics and entrepreneurship. *J. Pol. Econ* 126 (S1), 140–196. <https://doi.org/10.1086/698750>.
- McDermott, M.J., Jackson, J., 2020. A qualitative study: military veterans and franchise ownership. *Qual. Rep.* 25 (3), 769–784. Available at: <https://nsuworks.nova.edu/tqr/vol25/iss3/14>.

- McDermott, M.J., Boyd, T.C., Weaver, A., 2015. Franchise Business Ownership: A Comparative Study on the Implications of Military Experience on Franchisee Success and Satisfaction. Available at: <http://hdl.handle.net/20.500.12264/24>.
- Mitra, J., Matlay, H., 2004. Entrepreneurial and vocational education and training: lessons from Eastern and Central Europe. *Ind. High. Educ.* 18 (1), 53–61. [10.5367/000000004773040979](https://doi.org/10.5367/000000004773040979).
- Murphy, A.E., Murphy, F.E.E.A.E., 1986. *Richard Cantillon: entrepreneur and economist*. Oxford University Press.
- Murphy, G.B., Traylor, J.W., Hill, R.C., 1996. Measuring performance in entrepreneurship research. *J. Bus. Res.* 36 (1), 15–23. [10.1016/0148-2963\(95\)00159-X](https://doi.org/10.1016/0148-2963(95)00159-X).
- Polin, B.A., Ehrman, C.M., 2018. The curious relationship between military service and entrepreneurial intentions in Israel. *Armed Forces Soc.* 21, 237. <https://doi.org/10.1177/0095327X18789074>. SAGE.
- Polanyi, M., 1967. Sense-giving and sense-reading. *Philosophy* 42 (162), 301–325. Cambridge University Press.
- Porter, M.E., 1990. The competitive advantage of nations. *Harvard Bus. Rev.* 68 (2), 73–93. Available at: <https://hbr.org/1990/03/the-competitive-advantage-of-nations>.
- Ramírez-Hurtado, J.M., Rondán-Cataluña, F.J., Guerrero-Casas, F.M., Berbel-Pineda, J. M., 2011. Identifying the franchisee profiles franchisors prefer. *J. Bus. Econ. Manag.* 12 (4), 567–588. <https://doi.org/10.3846/16111699.2011.599408>. VGTU Journals.
- Ratinho, T., Amezcua, A., Honig, B., Zeng, Z., 2020. Supporting entrepreneurs: A systematic review of literature and an agenda for research. *Technol. Forecast. Soc. Change* 154, 119956. <https://doi.org/10.1016/j.techfore.2020.119956>. Elsevier.
- Saraogi, A., 2009. Exploring franchisor franchisee relationship: building a predictive model of franchisee performance. *Vision* 13 (1), 31–58. <https://doi.org/10.1177/097226290901300104>.
- Smaliukienė, R., 2013. Entrepreneurship opportunities after military career: practice in Central and Eastern versus Western Europe. *Entrepr. Bus. Econ. Rev.* 1 (4), 97–108. <https://doi.org/10.15678/EBER.2013.010408>.
- Say, J.B., 1836. *A treatise on political economy: or the production, distribution, and consumption of wealth*. Grigg and Elliot.
- Sobota, J., 2012. Veteran-owned businesses and their owners: data from the US Census Bureau's Survey of Business Owners. Pub. Law 106, 50. Available at: <https://www.sba.gov/sites/default/files/advocacy/435-veteran-owned-businesses-report.pdf>.
- Schumpeter, J.A., 1912. 34. *The Theory of Economic development: An inquiry Into profits, capital, credit, interest, and the Business Cycle*. Harvard University Press, Cambridge, MA. Available at: <https://www.hup.harvard.edu/catalog.php?isbn=9780674879904>.
- Wennekers, S., Thurik, R., 1999. Linking entrepreneurship and economic growth. *Small Bus. Econ* 13 (1), 27–56. <https://doi.org/10.1023/A:1008063200484>.

Fernando Crecente is Associate Professor at University of Alcalá his topics and SMEs management and finance and entrepreneurship.

María Sarabia is Associate Professor at University of Alcalá (SPAIN) and her areas of interest are Entrepreneurship, Knowledge Management and Strategy.

María Teresa del Val is Professor on Business Organizations at University of Alcalá and she is currently working on International Business Management, Family Businesses and International Business Management.