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Drivers of entrepreneurial aspirations at the country level: the role of start-up motivations and social security

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Abstract This paper investigates whether various start-up motivations and a country's level of social security can explain the prevalence of entrepreneurial aspirations. For entrepreneurial aspirations and motivations we use country-level data from the Global Entrepreneurship Monitor (GEM) for the year 2005. We distinguish between the *necessity motive*, *independence motive* and *increase wealth motive* and between aspirations in terms of innovativeness, job growth and export orientation. Our findings indicate that social security negatively affects a country's supply of ambitious entrepreneurship. Our results also suggest that entrepreneurial aspirations in terms of job growth and export relate positively to the increase wealth motive.

Keywords Entrepreneurial motivation · Social security · Entrepreneurial aspirations · Global entrepreneurship monitor

Introduction

This paper investigates drivers of entrepreneurial aspirations, and in particular the role of start-up motivations and social security. There is a plethora of policy

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measures with an entrepreneurship flavor that aim to stimulate innovation and growth (Stevenson and Landstrom 2001; Landstrom and Stevenson 2005; Audretsch et al. 2007) and high growth firms are prominent on the agenda of policy makers (Fischer and Reuber 2003; Smallbone et al. 2002; European Commission 2003). Aspirations have been shown to be a strong predictor of outcomes (Wiklund and Shepherd 2003; Cassar 2007). Therefore it is important to understand the factors that explain the diversity of entrepreneurs in terms of their aspirations.

Previous research explaining entrepreneurial aspirations and ambitions found many determinants on different levels of analyses. Studies looked at individual level factors such as expectancies (Davidsson 1989; Cliff 1998; Wiklund et al. 2003), opportunity costs (Cassar 2006), obstacles (Morris et al. 2006), social capital (Liao and Welsh 2003), ability (Davidsson 1991; Cassar 2006), education and household income (Autio and Acs 2007) and motives (Kolvereid 1992; Amit et al. 2001; Morris et al. 2006; Cassar 2007). Firm level characteristics explaining growth motivations were studied by Kolvereid (1992), and Gundry and Welsh (2001). On the industry level, Davidsson (1991) looked at opportunities and Kolvereid (1992) at the sector as a determinant of aspirations. In this paper, we employ the national level of analysis. We focus on two determinants: national aggregates of individual motives, and social security arrangements.

Policy goals usually do not correspond with the motives of enterprising individuals. Hardly anybody starts a business in order to achieve innovation, job creation, or economic growth at the national level. Instead, people desire personal profits, or autonomy, amongst others, or are forced into entrepreneurship because they have no other options (Shane et al. 2003). Still, the type of individual entrepreneurial motivation may determine the goals and aspirations for the firm, which in turn may determine macro-economic outcomes. Policy makers can try to influence the type of entrepreneurial motivation in their jurisdiction, or they can accept the prevalent motives and take these as a basis for their policies. It is vital for policy makers to know how entrepreneurial motivations relate to aspirations. This is precisely the first research question of this paper.

Furthermore, previous research suggests that a country's welfare institutions are likely to affect both the rate of entrepreneurship and its allocation across productive and unproductive activities (Henrekson 2005). However, empirical efforts that explore such links are limited. We try to contribute to the empirical literature by examining whether social security arrangements, a factor that has been found to affect the supply of entrepreneurship at the country level in recent empirical contributions (Hessels et al. 2007; Wennekers et al. 2002; Parker and Robson 2004), also affects the level of aspirations that entrepreneurs have with their firm. More specifically, we propose a model where we explain aspirations using motives and social security. The country level is our unit of analysis while 2005 GEM (Global Entrepreneurship Monitor) data are used for 29 countries.

The paper is organized as follows. We first discuss literature regarding entrepreneurial motivations and aspirations. In the subsequent sections we elaborate on the main data used, outline our research methodology and present the empirical results. Finally, we discuss and interpret our findings and identify policy implications.

Background and hypotheses

Entrepreneurial aspirations and motivations

Within-country studies of entrepreneurial motivation, defined as the motivation to start a business, come in three types. First, there are studies of reasons, motives, or goals to start a business. This type of study, being mostly conducted in Western countries where push motives are less prevalent, reports mostly pull motives such as autonomy (also referred to as independence and freedom), income and wealth, challenge, and recognition and status (Kolvereid 1996; Kuratko et al. 1997; Feldman and Bolino 2000; Robichaud et al. 2001; Carter et al. 2003; Wilson et al. 2004; van Gelderen and Jansen 2006; Cassar 2007). However, individuals may also be pushed into entrepreneurship (Thurik et al. 2008). Push motives (also referred to as necessity motives) are present for example when (a threat of) unemployment forces people into self-employment. They play a major role in developing countries, and also in developed countries, albeit to a lesser extent (Grilo and Thurik 2006; Bhola et al. 2006).

Second, there are cost–benefit types of studies that try to explain the decision to start a business (Campbell 1992; Douglas and Shepherd 2002). In this type of study, material and immaterial risks and gains are brought into some decision function. Third, there are studies of entrepreneurial motivation investigating depth-psychological motives. Examples are studies on the need for achievement (nAch; McClelland 1961; Collins et al. 2004) and the need for power (nPower) (McClelland 1975). nAch and nPower usually do not figure heavily in the first two types of studies, as actual business starters usually do not list these motives as conscious reasons to start a business.

Between-country studies look at motives on an aggregate level. Shane et al. (1991), comparing the UK, Norway, and New Zealand, and Baum et al. (1993), comparing Israel and the US, find that prevalence rates of different motives and needs indeed vary between countries (Scheinberg and MacMillan 1988). Freytag and Thurik (2007) report on the influence of variables like economic freedom, life expectancy, and intensity of health care on the preference for entrepreneurship.

A number of studies relate motives to aspirations (also referred to as ambitions, goals, growth intentions, or growth attitudes). Kolvereid (1992) finds that the achievement motive is related to growth outcomes, but no financial motives are studied. Strong evidence for the relationship between financial motives and growth ambitions is presented by Cassar (2007). Using the US PSED data to track people from nascent entrepreneurship to eventual firm performance, he shows that motivations change over time, with financial motives gaining less importance. In addition, he finds that there is a significant recall bias when nascent entrepreneurs are asked to remember their initial motives for starting the business. The results show that initial financial motives strongly impact on sales and employment intentions, growth preference, and risk-return preference. Morris et al. (2006) also find financial motives to be related to growth ambitions. On the other hand, Amit et al. (2001) find that a group of growth-oriented high-tech entrepreneurs is mostly motivated by non-financial concerns.

Circumstantial evidence for relationships between motives and aspirations can be found in the studies of Davidsson and colleagues using an expectancy approach. Here, respondents are asked how growth would affect a range of domains such as financial rewards, autonomy, control, and employee well-being. Growth willingness is then explained from these perceived expected outcomes of growth. Davidsson (1989) showed that expectations of financial reward and of increased independence are positively related to ambitions to grow. Fear of loss of control and reduced employee well-being on the other hand are negatively related to ambitions to grow. Wiklund et al. (2003) also explain growth ambitions from its expected consequences and find, in a Swedish sample, that concern for employee well-being is the strongest predictor.

In this study we take the country-level as the unit of analysis. A comprehensive between-country study providing entrepreneurial motives and aspirations became available in 2005 when the GEM (Global Entrepreneurship Monitor) for the first time distinguished between independence and wealth attainment on the one hand, (within the category of opportunity entrepreneurship), and necessity entrepreneurship on the other hand. GEM also measures a range of variables with regard to ambitions of innovativeness, growth and export. Therefore, for the present study we have three dimensions of motivation and three of aspiration. The motivation data are somewhat limited since there are more motivations to start a business than income or wealth creation, independence, and necessity. However, for the purpose of cross-national comparison of the relation between entrepreneurial motivations and aspirations, these are the best data available. Ideally, we would include individual level data in our research (Autio and Acs 2007). However, since it takes a lag of several years for GEM micro-data to become publicly available for individual countries we focus on country-level aggregate data.

We expect the necessity, independence, and income/wealth attainment motives to be related to innovation, job growth and export ambitions in the following ways.

First, when autonomy or independence is a dominant motive for becoming self-employed, entrepreneurship is likely to be a vehicle to serve the freedom-related needs of the individual. It will enable a lifestyle in which one can decide oneself on goals, methods, and time scheduling (Breaugh 1999; van Gelderen and Jansen 2006). A larger firm can be seen as reducing external dependencies and therefore increasing autonomy (Davidsson 1989). However, it is more likely that the majority of autonomy driven entrepreneurs will see a small firm as a vehicle to achieve freedom. Research by Kolvereid (1992) and by Morris et al. (2006) indeed found no relationship between autonomy and growth ambitions, and Cassar (2007) even found a negative relationship. Whereas we do not expect the autonomy motive to be related to growth aspirations, we do expect it to be related to aspirations for innovation. Autonomy is valued for its own sake (van Gelderen and Jansen 2006), and thus an intrinsic motive. Experimental research shows that intrinsic motivation is related to creativity (Amabile 1996). Previous research at the micro level found autonomy to be related to innovation. Corman et al. (1988) report that independence is a prime entrepreneurial motive for creating innovative ventures. Amit et al. (2001) showed a group of high-tech high-growth entrepreneurs to be motivated by a range of non-financial drivers including autonomy.

Therefore we formulate the following hypotheses:

Hypothesis 1A Entrepreneurial aspirations in terms of innovation are positively related to the prevalence of independence as a prime motive for becoming self-employed.

Hypothesis 1B Entrepreneurial aspirations in terms of growth are not related to the prevalence of independence as a prime motive for becoming self-employed.

When someone starts a firm with the prime motive to increase wealth this will probably positively affect the ambitions in terms of growth and innovation that this entrepreneur has with the firm. Cassar (2007), investigating the relationships between financial motives and a range of ambition and outcome variables, indeed found this to be the case. Regression analyses showed growth preference, risk-return preference, intended sales and intended employment all to be explained by motivations of financial success at the $p<.001$ level. In a sample of females, Morris et al. (2006) present qualitative as well as quantitative data relating financial motives to growth ambitions. Amit et al. (2001) report a group of high-tech high-growth entrepreneurs to be primarily driven by non-financial motives. However, their research did not study entrepreneurs motivated by financial rewards. This leads to the following hypothesis:

Hypothesis 2A Entrepreneurial aspirations in terms of innovation are positively related to the prevalence of increase wealth as a prime motive for becoming self-employed.

Hypothesis 2B Entrepreneurial aspirations in terms of growth are positively related to the prevalence of increase wealth as a prime motive for becoming self-employed.

For necessity motivated entrepreneurs their daily economic survival will depend strongly on the survival of their business, which may positively affect the aspirations they have with their firm. However, necessity motivated entrepreneurs are more likely to be found in less wealthy regions and are therefore likely to be constrained in their access to human capital, financial capital, technology and other resources, which is expected to inhibit their potential for generating innovations and job growth and for building competitive advantages needed for export. Thus, even though these types of entrepreneurs are often highly dependent on their firm, they lower their expectations for innovation and growth in terms of jobs and export as they expect this may be difficult for them to realize. They may also be forced, because of their situation, to act on less promising opportunities (Morris et al. 2006). Therefore, on average we expect a neutral relationship between the necessity motive and entrepreneurial aspirations for innovation and growth (in terms of employment and export).

Hypothesis 3A Entrepreneurial aspirations in terms of innovation are not related to the prevalence of necessity as a prime motive for becoming self-employed.

Hypothesis 3B Entrepreneurial aspirations in terms of growth are not related to the prevalence of necessity as a prime motive for becoming self-employed.

Entrepreneurial aspirations and social security

Next to exploring the role of start-up motivations in explaining entrepreneurial aspirations we also investigate the potential role of social security arrangements in influencing the type of ambitions that entrepreneurs have with their firm. We rely on institutional theories (new institutional economics (Willamson 1998) and new institutional sociology (DiMaggio and Powell 1983)) emphasizing that institutions may both constrain and enable the action choices of agents. In particular, we build on previous literature that suggests that the supply of entrepreneurship as well as its allocation across productive and unproductive activities is likely to be affected by the institutional set-up of societies, and that welfare institutions may be of specific relevance in this respect (Henrekson 2007). Henrekson (2005) describes in detail how various welfare arrangements may create disincentives for entrepreneurship and in particular for innovative and growth-oriented entrepreneurship. However, thus far empirical efforts on the effects of welfare on the supply and types of entrepreneurship are still limited.

One aspect of welfare state institutions that has received some attention in recent empirical research with respect to the supply of entrepreneurship are social security arrangements. From a theoretical perspective social security arrangements, for example in the case of illness or unemployment, may in various ways influence decisions of individuals when choosing between wage employment and self-employment. A generous social security system may either lead to fewer or to more self-employed. There may be a negative impact on self-employment in so far as generous social security benefits for employees increase the opportunity costs of entrepreneurship. Social security in general may have a positive effect on entrepreneurial activity by creating a safety net in case of business failure. Empirical results suggest that social security negatively affects the level entrepreneurship, providing support for the argument that social security increases the opportunity costs of entrepreneurship (Hessels et al. 2007; Wennekers et al. 2002; Parker and Robson 2004). However, it has remained unclear how social security relates to the supply of ambitious entrepreneurship. Autio and Acs (2007) however do investigate the moderating effects of taxation and IPR regimes on education and household income while explaining job growth aspirations using GEM micro data for about 50 countries (Autio and Acs 2007).

In this paper we extend this empirical literature by investigating whether social security affects the quality of entrepreneurship at the country level. Countries with generous social security and welfare schemes do not emphasize the responsibility of the individual for its own survival, which may hamper ambitions to strive for innovation and growth. Also, higher levels of social security often imply higher wage costs, since employers normally through taxation have to pay at least part of the social security contribution for their employees (Hessels et al. 2007). This may further limit an entrepreneur's aspirations for growth with their firm, since it may be costly for them to hire employees. Overall, it can be observed that entrepreneurs in countries with a relative lack of social security nets, such as is the case in the UK and the USA, tend to be more growth- and innovation-oriented than in regions where social security systems are more generous such as Sweden or The Netherlands.

Hypothesis 4 Entrepreneurial aspirations in terms of growth and innovation are negatively related to the social security arrangements at the country level.

Methodology and data

In order to examine how entrepreneurial aspirations relate to entrepreneurial motivations and social security we carry out regression analysis, taking into account controls. This leads to the following equation:

$$A = f(M, S, X),$$

where

A Entrepreneurial aspirations;
M Entrepreneurial motivations;
S Social security;
X Control variables.

Dependent variables: entrepreneurial aspirations

For measures of entrepreneurial aspirations we use data from the Global Entrepreneurship Monitor (GEM) Adult Population Survey 2005 on innovativeness, job growth expectations and export orientations. They relate to the total early-stage entrepreneurial activity (TEA) rate, which is defined as the percentage of the adult population (18–64 years old) that is either actively involved in starting a new firm (nascent entrepreneur) or that is the owner/manager of a business that is less than 42 months old (young business owner). For innovativeness we use the following indicators:

New technology rate The rate of early-stage entrepreneurs in the adult population that indicates to make use of technologies that have been available for less than 1 year.

New product rate The rate of people involved in total early-stage entrepreneurial activity as a percentage of the adult population that have indicated a desire to offer a product or service that is new to the market.

Furthermore, as indicators for job growth expectations we use:

Medium job growth rate The rate of early-stage entrepreneurs in the adult population that expect to create six or more jobs in the next 5 years.

High job growth rate The rate of early-stage entrepreneurs that expect to create 20 or more jobs in 5 years time.

As indicators for export involvement we use:

Export rate The rate of early-stage entrepreneurs for which at least 1% of their customers live outside the country's borders.

Substantial export rate The rate of early-stage entrepreneurs for which 26% or more of their customers live abroad.

Independent variables: entrepreneurial motivations and social security

Several measures of entrepreneurial motivation are used in this paper. These measures are taken from the GEM Adult Population Survey 2005. Respondents in the GEM Adult Population Survey are first asked to indicate whether they are involved in a start-up to take advantage of a business opportunity or because they have no better choices for work. When they indicate to take advantage of a business opportunity this is considered as opportunity motive and when they indicate that they have no better choices for work they are classified as necessity motivated entrepreneurs. Next, opportunity motivated entrepreneurs are asked to indicate *the most important* motive for pursuing this opportunity, which includes the independence and the increase wealth motives (they could only select one motive). Based on these questions, we use the following indicators for entrepreneurial motivation expressed as percentage of TEA:

- *Necessity motive*. The share of early-stage entrepreneurs that indicate to participate primarily in entrepreneurial activity because they have no other options for work.
- *Independence motive*. The share of early-stage entrepreneurs for which independence is the main motive for becoming an entrepreneur.
- *Increase wealth motive*. The share of early-stage entrepreneurs that indicate that their prime motive for being or becoming an entrepreneur is to increase wealth.

The three motives that we distinguish are mutually exclusive. However, they do not add up to 100% since people may also have other motives for becoming self-employed such as challenge or recognition (see also "Background and hypotheses").

For social security we take the following indicator:

- *Social security contribution rate*. This is the total (employer's and employees') compulsory social security contribution rate for the year 2004 taken from the World Competitiveness Yearbook 2005 (WCY).

Control variables

We include a number of controls in the analysis. This number of control variables is limited because of the small number of countries included in our sample. In particular, we control for a country's level of economic development, economic growth, and its age and industry structure. Economic growth is included because higher levels of economic growth are expected to provide entrepreneurial opportunities and therefore entrepreneurial aspirations are assumed to be related to economic growth (Thurik et al. 2008). Previous studies at the micro-level have identified age and industry as important determinants for aspirations in terms of innovation and growth (Lafuente and Salas 1989; Simpson and Kujawa 1974; Westhead 1995; Madsen and Servais 1997).

- *GDP per capita*. We measure level of economic development by means of GDP per capita. Gross national income per capita is expressed in purchasing power

parities per US $ for 2005. These data are taken from the World Development Indicators database of the World Bank.

– *% Population 25–44 years*. This variable refers to the percentage of people aged 25 to 44 years in the total population for the year 2005. Data are taken from the US Bureau of the Census.
– *Value added in services (% of GDP)*. We use data on value added in services from the World Development Indicators database of the World Bank. Value added is the net output of the sector after adding up all outputs and subtracting intermediate inputs.
– *GDP growth*. Data on GDP Growth for 2005 are taken from the World Economic Outlook Database from the International Monetary Fund (IMF).

Table 1 Entrepreneurial aspiration rates (2005) for 29 countries

	Innovation		Job growth		Export orientation	
	New technology rate	New product rate	Medium job growth rate	High job growth rate	Export rate	Substantial export rate
Argentina	1.56	2.22	3.57	1.33	2.20	0.83
Australia	1.15	1.27	2.65	1.04	3.35	1.38
Austria	0.32	0.51	1.58	0.63	3.22	1.14
Belgium	2.33	0.43	0.81	0.19	2.27	0.90
Brazil	1.54	0.53	2.24	0.43	2.09	0.26
Canada	0.99	1.34	3.87	1.65	6.96	2.36
Chile	9.62	3.29	5.03	1.78	–	–
Denmark	0.31	1.00	1.28	0.72	2.52	0.74
Finland	0.82	0.67	0.82	0.10	1.66	0.40
France	1.22	0.17	0.90	0.38	3.96	1.54
Germany	0.57	0.53	1.31	0.79	4.29	0.71
Greece	3.05	0.38	1.54	0.84	3.30	1.41
Hungary	0.62	0.12	0.33	0.25	0.76	0.29
Iceland	1.45	1.36	3.90	1.22	7.15	2.45
Ireland	1.23	1.33	2.81	0.98	5.41	1.58
Italy	0.37	0.33	1.13	0.39	2.44	0.80
Japan	0.26	0.00	0.89	0.17	0.96	0.06
Mexico	1.92	0.69	0.95	0.11	1.24	0.21
Netherlands	0.47	0.79	1.04	0.26	2.09	0.88
New Zealand	1.73	3.17	4.67	1.66	10.89	1.84
Norway	2.54	1.75	2.29	0.74	5.31	1.89
Slovenia	0.53	0.65	1.60	0.80	2.80	1.31
South Africa	1.98	0.82	0.76	0.17	2.56	1.38
Spain	0.11	0.86	1.24	0.18	1.92	1.00
Sweden	0.36	0.31	1.10	0.49	1.36	0.42
Thailand	5.05	4.33	4.87	2.02	4.35	1.61
United Kingdom	1.14	0.78	2.13	0.87	2.96	1.11
United States	1.80	1.75	4.86	1.47	9.28	2.59
Venezuela	7.55	2.80	8.29	2.01	5.61	1.80
Mean	1.81	1.18	2.36	0.82	3.68	1.17

Source: GEM

To illustrate our data Table 1 shows the values for the dependent variables for the 29 countries in our sample. In order to measure aspirations for innovation and growth, GEM asks entrepreneurs and business owners to evaluate the novelty of the technology they use, the newness of their product or service, and their expectations for growth. One should keep in mind that such an assessment of innovativeness and growth expectations is context-specific and that what is innovative in one country is not necessarily regarded as innovative in another (Minniti et al. 2006).

Table 2 shows the prevalence of various entrepreneurial motives for the countries in our sample and confirms that prevalence rates of different motives vary between countries (Shane et al. 1991; Baum et al. 1993). It can be noted that the prevalence of the necessity motive is comparatively high in some of the lesser-developed countries in our sample such as in Argentina, Brazil, South Africa and Venezuela. For European countries the share of early-stage entrepreneurs that indicate to start their firm out of necessity motives is relatively high in France and Hungary.

Australia and Japan score highest on the prevalence of the independence motive. In both countries 57% of the early-stage entrepreneurs report that they start their own business out of autonomy related motives. Some European countries also score above average on the independence motive, such as Austria, Denmark, Iceland and

Table 2 Prevalence of various entrepreneurial motives (2005) in 29 countries, percentage within TEA

	Necessity motive (%)	Independence motive (%)	Increase wealth motive (%)
Argentina	30	25	19
Australia	12	57	11
Austria	14	49	23
Belgium	10	35	13
Brazil	47	18	24
Canada	13	34	27
Chile	26	28	42
Denmark	3	49	16
Finland	12	42	15
France	39	24	10
Germany	29	38	13
Greece	14	32	42
Hungary	39	28	23
Iceland	5	49	20
Ireland	19	43	22
Italy	16	31	35
Japan	19	57	21
Mexico	16	19	30
Netherlands	8	46	12
New Zealand	7	52	26
Norway	9	43	20
Slovenia	11	45	30
South Africa	39	33	11
Spain	14	44	27
Sweden	14	40	23
Thailand	24	29	26
United Kingdom	11	39	15
United States	12	35	35
Venezuela	38	25	31
Mean	19	38	23

Source: GEM

The Netherlands. The independence motive has a low prevalence in the Latin American countries in our sample, as well as in Thailand and Hungary.

Countries that score high on the incidence of the increase wealth motive are Chile, Greece, Italy and the USA. Incidence of this motive is low in Australia and South Africa and in a number of European countries such as Belgium, France, Germany and The Netherlands.

Empirical analysis

We estimate the equation as presented above using data for 29 countries that participated in the Global Entrepreneurship Monitor 2005. The countries that are included in the analysis are Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Mexico, The Netherlands, New Zealand, Norway, Slovenia, South Africa, Spain, Sweden, Thailand, UK, USA and Venezuela. The unit of analysis is the country level.

Table 3 displays the correlations among the variables that we include in our analysis and also some descriptives (mean and standard deviation). Some of the correlation coefficients among the independent variables are above 0.5, which indicates that problems of multicollinearity may exist when carrying out regression analysis. For this reason, we tested for multicollinearity in all our regression models using the variance inflation factor (VIF) method and tolerance indices. We do not observe VIF above 10 (the highest VIF that we find is 4.4) and tolerance values are above 0.1 (the lowest tolerance value that we find is 0.227) indicating that multicollinearity is not a concern.

We investigate the influence of entrepreneurial motivations and socio-economic variables on entrepreneurial aspirations by carrying out regression analyses. Regression results are presented in Table 4. For the increase wealth motive we find a significant positive impact on the medium job growth rate ($p<0.1$) and on the export rate ($p<0.1$). We do not find a significant impact for the necessity motive and the independence motive on the ambition variables. Thus, Hypotheses 1B, 2B, 3A and 3B receive some support, while the results do not hold up Hypotheses 1A and 2A.

For the social security contribution rate we find a significant negative impact on all aspiration variables, with the exception of the new technology rate. This means that Hypothesis 4 is broadly supported.

Looking at the control variables we find that GDP per capita has a significant positive impact on the export rate as well as on the substantial export rate. As expected, we find a positive sign between GDP growth and our aspiration variables. The impact of GDP growth is significant positive on the new product rate, on the high job growth rate and on the substantial export rate. Furthermore, the results indicate that the share of the population that is aged between 25–44 years has a positive impact on the high job growth rate and on the substantial export rate. We do not find a significant impact for our control variable for a country's sector structure (value added in services).

Table 3 Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. New technology rate														
2. New product rate	0.701***													
3. Medium job growth rate	0.697***	0.826***												
4. High job growth rate	0.621***	0.851***	0.920***											
5. Export rate	0.295	0.594***	0.696***	0.730***										
6. Substantial export rate	0.369*	0.529***	0.650***	0.699***	0.848***									
7. Necessity motive	0.287	0.007	0.088	−0.012	−0.234	−0.237								
8. Independence motive	−0.412**	−0.108	−0.152	−0.076	0.175	0.131	−0.677***							
9. Increase wealth motive	0.476***	0.297	0.403**	0.391**	0.222	0.190	−0.037	−0.303						
10. GDP capita	−0.520***	−0.323*	−0.243	−0.157	0.307	0.314	−0.647***	0.650***	−0.281					
11. Social security contribution rate	−0.236	−0.482***	−0.416**	−0.422**	−0.414**	−0.376**	0.219	−0.315*	0.123	−0.007				
12. % Population aged 25–44 years	−0.184	−0.023	−0.060	0.096	0.147	0.183	−0.391**	0.289	0.138	0.348*	0.310			
13. Value added in services (% of GDP)	−0.521***	−0.568***	−0.435**	−0.421**	−0.136	−0.196	−0.180	0.098	−0.262	0.278	0.276	−0.042		
14. GDP growth	0.595***	0.645***	0.572***	0.548***	0.214	0.357	0.230	−0.367*	0.325*	−0.454**	−0.408**	−0.385**	−0.577***	
Mean	1.813	1.178	2.361	0.816	3.675	1.174	0.190	0.376	0.228	0.258	0.317	28.859	64.942	3.252
Standard deviation	2.160	1.062	1.839	0.601	2.479	0.689	0.119	0.107	0.089	0.107	0.234	1.969	6.124	1.443
Observations	29	29	29	29	28	28	29	29	29	29	29	29	29	29

*$p<0.10$, **$p<0.05$, *** $p<0.01$

Table 4 Investigating the impact of entrepreneurial motivations and social security on entrepreneurial aspirations (including controls)

	Dependent variables: entrepreneurial aspirations					
	Innovation		Job growth		Export orientation[a]	
	New technology rate	New product rate	Medium job growth rate	High job growth rate	Export rate	Substantial export rate
Constant	7.492 (0.677)	−1.026 (−0.198)	−8.149 (−0.816)	−5.091 (−1.655)	−20.089 (−1.462)	−7.138* (−2.024)
Necessity motive	0.856 (0.181)	−0.827 (−0.373)	4.481 (1.051)	1.438 (1.095)	8.174 (1.393)	1.983 (1.317)
Independence motive	−3.994 (−0.757)	−0.528 (−0.214)	−0.273 (−0.057)	−0.051 (−0.035)	−2.125 (−0.324)	−0.690 (−0.410)
Increase wealth motive	7.306 (1.615)	0.623 (0.294)	7.345* (1.801)	2.090 (1.664)	11.680* (1.981)	2.125 (1.404)
Soc. security contribution rate	−2.239 (−1.138)	−1.655* (−1.797)	−3.657** (−2.062)	−1.285** (−2.352)	−6.672** (−2.755)	−1.395** (−2.245)
GDP capita	−3.404 (−0.728)	−2.055 (−0.938)	2.083 (0.494)	0.812 (0.625)	14.552** (2.526)	4.341*** (2.935)
% Population 25–44 years	0.017 (0.077)	0.151 (1.451)	0.234 (1.164)	0.140** (2.268)	0.445 (1.574)	0.157** (2.228)
Value added in services	−0.084 (−1.133)	−0.029 (−0.826)	0.007 (0.107)	0.010 (0.504)	0.075 (0.820)	0.025 (1.050)
GDP growth	0.161 (0.430)	0.295* (1.681)	0.458 (1.354)	0.199* (1.911)	0.445 (0.941)	0.285** (2.348)
R^2 (adjusted)	0.395	0.452	0.322	0.396	0.304	0.407
Observations	29	29	29	29	28	28

t Values between brackets

*$p<0.10$, **$p<0.05$, ***$p<0.01$

[a] For export orientation no data are available for Chile, therefore 28 instead of 29 countries are included in the analysis

Discussion and conclusion

This paper investigates whether entrepreneurial motivations and social security can explain entrepreneurial aspirations. Although several studies focus on aspects of entrepreneurial motivation in relation to firm emergence and success (Cooper and Dunkelberg 1986; Baum and Locke 2004; Collins et al. 2004; Locke and Baum 2007), little is known about how the incidence of various entrepreneurial motives—such as the necessity motive, the independence motive and the increase wealth motive—affect the aspects of entrepreneurial aspirations such as innovativeness, job growth and export orientation at the country level. Furthermore, empirical contributions investigating the influence of welfare institutions on the type of entrepreneurial activity are still limited (Henrekson 2005).

The results of our empirical exercise indicate that various entrepreneurial motives are differently related to various entrepreneurial aspirations. The results support the view that for entrepreneurs primarily motivated to increase wealth, job growth and export orientation are needed to achieve the financial gains that they desire. Our results confirm that entrepreneurs mainly motivated by independence do not have a strong focus on growth. However, contrary to our expectations, we find no evidence that independence contributes to variety. Van Gelderen and Jansen (2006) found that

whereas all independence driven entrepreneurs value their decisional freedoms, there is an underlying typology on how autonomy is valued for instrumental reasons. Some simply do not like to work for a boss, others want to do their own thing, and a third type wants control. Possibly not all subtypes feel attracted to innovation. Furthermore, as hypothesized, we find that entrepreneurs with a necessity motive are not so much oriented towards innovation and growth.

Policy-makers should be aware that entrepreneurs motivated to start a firm to strive for independence are not likely to have high ambitions with their business and therefore are probably not the ones making a significant contribution to their country's innovation, employment creation and economic growth. It should be noted, however, that research on nascent entrepreneurship indicates that some start-ups have high aspirations because of over-optimism or incompetence, while others have modest aspirations which however often are based on more realistic perceptions (Davidsson 2006).

Given that autonomy is usually the most cited motive for people to start a business, generic policies to stimulate entrepreneurship may have little impact on macro-economic ambitions. At the same time, policy-makers should consider why entrepreneurs perceive growth and innovation ambitions to impact negatively on autonomy. After all, both can be seen as enhancing autonomy by reducing outside dependency and vulnerability. Promoting a higher prevalence of the increase wealth motive in the population of entrepreneurs seems to be a somewhat advantageous avenue when aiming to support a higher rate of ambitious entrepreneurship. Future research should seek to explore the various ways in which policy makers can stimulate entrepreneurship with the aim to pursue material gains. Tax laws and a reduction of compliance costs and red tape may be integral elements of material gain policies.

In addition to previous empirical studies that have explored the relationship between social security arrangements and the supply of entrepreneurship at the country level (Hessels et al. 2007; Wennekers et al. 2002; Parker and Robson 2004) this paper investigates whether social security arrangements also hamper entrepreneurial aspirations. We find a negative relation between social security contribution rate and all ambition variables (with the exception of the rate of early-stages entrepreneurs that uses the very latest technology) indicating that when social security systems are more generous start-ups tend to be less oriented towards innovation in the sense of introducing new products or services, and especially towards growth in terms of jobs and exports. Thus, as we suspected, social security arrangements not only negatively affect the supply of entrepreneurship as illustrated by previous studies, but also seem to hinder the supply of ambitious entrepreneurs. The challenge for policy makers is then to design social security systems in such a way that they do provide sufficient income security combined with incentives for innovative and growth-oriented behavior in order to better exploit entrepreneurship as a potential source for innovation, employment creation and growth. For instance, entrepreneurs of aspiring firms may receive a discount on the employer contributions if they meet certain targets related to innovation and growth. It is left for future research to explore in more detail this type of policy options.

Overall, our results seem to indicate that a country's institutional set-up in terms of social security arrangements may be far more important for encouraging or

discouraging ambitious entrepreneurial activity than aggregate measures of the type of motive for self-employment. Future empirical research should seek to include other elements of a country's institutional set-up, such as taxation and labor market regulatory systems (Henrekson 2007).

The empirical part of this study has a number of limitations, such as the small sample size and the cross-sectional nature of the analysis. Furthermore, we were only able to take into account a limited number of motives currently measured as part of the GEM project. Also, whereas we distinguish between various prime motives for becoming self-employed, in reality individuals may be motivated by a combination of both intrinsic as well as extrinsic factors (Kuratko et al. 1997). Also, entrepreneurial motives may change over time (Littunen 2000; Cassar 2007). For example, individuals who started their firm out of independence motives, may over time, as their firm gets successful, become motivated by achieving financial gains. Future research should seek to take into account such dynamic aspects. Also, this paper looks at early-stage entrepreneurship. Future research could incorporate other entrepreneurial engagement levels (Grilo and Thurik 2008). Lastly, the use of individual micro data may prove superior in unraveling the mechanics of entrepreneurial aspirations (Autio and Acs 2007).

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