

# Productive & Unproductive Entrepreneurship *in* LATVIA

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# Productive and Unproductive Entrepreneurship in Latvia

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# Table of Contents

- 1. Introduction . . . . . 6**
- 2. Theoretical Exploration of Productive and Unproductive entrepreneurship . . . . . 6**
  - 2.1. Exploring the Concepts . . . . . 6
  - 2.2. Activities and value creation in a short- and long-term perspective . . . . . 8
  - 2.3. Addressing the complexity of the relationship  
between activities and value creation . . . . . 10
- 3. Methodology . . . . . 12**
  - 3.1. Sample and Data Collection . . . . . 12
  - 3.2. Variables . . . . . 13
  - 3.3. Data analysis . . . . . 14
- 4. Results and discussion . . . . . 14**
- 5. Conclusions and implications. . . . . 18**
- References . . . . . 20**
- Appendix . . . . . 23**



## Foreword

This is the sixth of the TeliaSonera Institute Discussion Papers. The Institute, which is located at the Stockholm School of Economics in Riga is generously supported by TeliaSonera and aims to promote applied economic research in the fields of entrepreneurship and telecommunication – the latter with a focus on regulatory issues.

The current discussion paper on Productive and Unproductive Entrepreneurship in Latvia is written by two of the Institute's researchers, Friederike Welter and Arnis Sauka. This as well as the previous five discussion papers can be downloaded from the SSE Riga website, [www.sseriga.edu.lv](http://www.sseriga.edu.lv). Hard copies can be ordered from [office@sseriga.edu.lv](mailto:office@sseriga.edu.lv).

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## 1. Introduction

Profit and various forms of self-fulfilment are usually highlighted to be the major drivers of entrepreneurial activity. If, however, entrepreneurs are understood as persons who are innovative in generating profits or in adding to their power and prestige, it cannot be expected that they will be concerned with how much or little the activities employed to achieve these goals will contribute to the net output of economy (Baumol, 1993). In this light, a key question concerns which activities entrepreneurs pursue in order to create value, pointing to the necessity to distinguish between “positive” and “negative” activities and their output, or as argued by Baumol (1990, 1993), productive and unproductive entrepreneurship<sup>3</sup>.

Rent seeking, illegal and shadow activities and various forms of corruption are often mentioned as unproductive entrepreneurship. Job generation and innovativeness, if not used for rent seeking purposes, are mainly associated with a “productive value” of entrepreneurship on societal and economy levels (e.g. Baumol, 1990, 1993; Foss and Foss, 2002). However, so far, there is no consensus on what determines productive and unproductive entrepreneurship on a conceptual level. The main reason for this is that in reality only few activities, among them rent seeking, make absolutely no contribution to economy output (Davidsson and Wiklund, 2001; Davidsson, 2004).

Also, little work has been done to empirically assess productive and unproductive entrepreneurship. This paper aims to fill this gap by developing a new conceptual framework which allows measuring the level of productive and unproductive entrepreneurship. Empirically, the paper draws on interviews with entrepreneurs in small and medium sized enterprises conducted in Latvia during 2005 and 2006. Based on the empirical and theoretical findings, policy suggestions on how to enhance productive entrepreneurship in Latvia are formulated.

The rest of the paper is structured as follows. The second section introduces the conceptual framework, while section 3 discusses methodology, sample and methods for analyzing the data. Section 4 continues by presenting the main empirical findings. Conclusions, shortcomings as well as implications for further research on the topic are covered in section 5.

## 2. Theoretical Exploration of Productive and Unproductive Entrepreneurship

### 2.1. Exploring the Concepts

Analyzing the determinants which influence the allocation of entrepreneurial inputs and the flow of entrepreneurial talent, and drawing on examples from economic history, Baumol (1990, 1993) distinguishes between productive and unproductive entrepreneurship activities.

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<sup>3</sup> This paper is limited to exploring productive and unproductive entrepreneurship, nevertheless Baumol also distinguishes destructive entrepreneurship.

**Productive entrepreneurship** "... refers, simply, to any activity that contributes directly or indirectly to net output of the economy or to the capacity to produce additional output" (Baumol, 1993:30). For example, innovation can be perceived as a productive contribution from entrepreneurs, financial activities which facilitate production, or any activities which contribute to producing goods and services (Baumol, 1993). Foss and Foss (2002) add to this by introducing the element of new discovery, referring to "productive entrepreneurship" as the discovery of new attributes, opportunities, procedures and the like, where discovery leads to an increase in joint surplus.

A key idea in defining **unproductive entrepreneurship** is that not everything that is entrepreneurial is necessarily desirable. Moreover, the allocation of resources to unproductive use varies across societies (Baumol, 1990), and weak and unstable formal institutions as well as norms and societal values might foster unproductive entrepreneurship (Smallbone and Welter, 2006). Unproductive entrepreneurship can take many forms (Baumol, 1990, 1993). These include, but are not limited to illegal activities and shadow activities, rent seeking<sup>4</sup>, and different forms of corruption. Although likely to be profitable, illegal or informal types of entrepreneurial behaviour are seen as unproductive because little, if any, value is added to the economy and society (Baumol, 1993). Furthermore, various forms and types of rent seeking such as litigation, takeovers, tax evasion and avoidance efforts or acquiring a monopoly as well as a different use of the legal system, and rent-seeking seem to constitute the primary threat to productive entrepreneurship (Baumol, 1993). In his definition of unproductive activity, Baumol (1993) also includes governmental intervention related to entrepreneurial activities. Examples refer to the granting of exclusive licenses, or the enactment of laws by which the productive process is negatively affected directly or through litigation.

Overall, although there appears to be no lack of suggestions, no consensus on the question of which activities can actually be regarded as productive or unproductive exists. The key challenge here is that in practice there are only a few genuine "unproductive entrepreneurship activities" (Davidsson and Wiklund, 2001). As argued by Baumol (1993) himself, activities tainted by, for example, rent seeking, cannot in every case be regarded as unproductive. Moreover, in relation to a transition context, several empirical studies show that legal and illegal activities coexist and most new and small firms are actually involved both in productive and rent seeking activities at the same time (Rehn and Taalas, 2004; Scase, 2003; Smallbone and Welter, 2001). In this light, especially under early transition conditions when the legislation and rules are not yet in place, rent seeking activities such as tax avoidance can well be necessary to ensure the survival and growth of the enterprise, thus making at least some contributions to economic development (Smallbone and Welter, 2006).

Analyzing the link between activities and firms output, Davidsson and Wiklund (2001) draw attention to the output of legal, illegal, informal, formal, rent seeking and other types of activities as emphasized by empirical studies, distinguishing between output of entrepreneurial activities on venture and societal levels. They emphasize that output from these activities results in four types of enterprises: "hero" or "success enterprises", "robber" or "re-distributive enterprises", "catalyst" and

<sup>4</sup> The concept of rent seeking was introduced by Tullock (1967) in connection with monopolies. The term as such was introduced by Krueger (1974) and the basic idea is well summed up in her introduction (p. 291): "In many market-oriented economies, government restrictions upon economic activity are pervasive facts of life. These restrictions give rise to rents of a variety of forms, and people often compete for the rents. Sometimes, such competition is perfectly legal. In other instances, rent seeking takes other forms, such as bribery, corruption, smuggling and black markets". However, the concept of rent seeking is far from being well defined – for a good introduction to the topic see Tollison (1982).



“failed enterprises”. Most existing studies tend to regard a new enterprise either as a “hero” or as the “failed” type. However, “There are reasons to believe that neither robber nor catalyst enterprises are marginal phenomena that could be disregarded” (Davidsson and Wiklund, 2001: 91), suggesting that, for example, a catalyst enterprise may have a significant impact on the economy. Several authors acknowledge the importance of considering the output of entrepreneurial activities when productive and unproductive entrepreneurship is addressed at conceptual level (e.g. Davidsson and Wiklund, 2001; Baumol, 1993). As argued by Davidsson (2004), for instance, “unproductive entrepreneurship activity” can also lead to positive output on both a venture and societal level, whereas “productive entrepreneurship activity” will not necessarily lead to successful company performance or any contribution to society. In general, however, there is no agreement as to whether productive or unproductive entrepreneurship refers to activities, to output or to both. This “mix” of two different dimensions, activity and output, in combination with a blurred and often inappropriate use of terminology, could be key to the problems in developing this concept further and for its empirical assessment.

Therefore, we suggest distinguishing between activities and output in order to assess productive and unproductive entrepreneurship. More specifically, we emphasize that “negative” or more precisely deviant activities (Warren, 2003), such as, for example, rent seeking or tax avoidance, which create a positive output cannot be regarded as unproductive per se, and vice versa. This has not yet been properly addressed. Regardless of the type of activity (that is deviant or conforming) entrepreneurs become involved in, a positive output or value creation will thus be interpreted as productive entrepreneurship, whereas negative value creation refers to unproductive entrepreneurship. Furthermore, both short-term and long-term effects should be considered when productive and unproductive entrepreneurship is measured empirically as some deviant activities may have a positive, but short-term impact on either the performance of a company or its contribution to economic growth, while in the long term, the same activity might lead to harmful output on both levels.

Additionally, various types of entrepreneurial activities should be considered. Following Wiklund (1998), “activities” are conceptualized as individual-level entrepreneurial behaviour and venture-level business strategy. In the light of this framework, *productive and unproductive entrepreneurship is thus conceptualized as the relationship between entrepreneurial orientation, entrepreneurial behaviour and output on both venture and societal level, short and long term*. These relationships are now addressed further in order to develop hypotheses.

## **2.2. Activities and value creation in a short- and long-term perspective**

Venture-level strategy plays an important role for the performance of companies, determining the appropriate use of resources and capabilities available to the company (Wiklund, 1998). In the context of assessing productive and unproductive entrepreneurship, the influence of strategy on the output of firms should thus be considered. Increasingly, in recent years *entrepreneurial orientation* (EO) has been used as a major construct to assess firms’ strategy (e.g. Morris and Kuratko, 2002).

The most often used dimensions of EO, as originally proposed by Miller (1983), are innovativeness, proactiveness and risk-taking. Lumpkin and Dess (1996) have introduced competitive aggressiveness and autonomy as additional dimensions. Altogether these five dimensions which reflect managers' decision-making styles and practices, are said to enhance the performance of firms (Dess and Lumpkin, 2005). While attempting to explore the relationship between EO and output, previous studies tend to regard EO as a venture-level phenomena (Covin, Green and Slevin, 2006), linking the dimensions of EO with venture-level performance indicators. In this regard, a positive influence of higher EO on the output of firms is usually highlighted (Wiklund, 1998; Zahra and Covin, 1995; Wiklund and Shepherd, 2005). However, as argued by Wiklund and Shepherd (2005), time is necessary for the effects of EO to take place. Therefore, the following hypothesis is tested in order to address the direct relationship between EO and value creation (i.e., output on venture and societal levels, short and long term):

*H1: Entrepreneurial orientation (EO) has a universal positive effect on value creation. That is, firms with higher EO will outperform firms with a lower level of EO both on a venture and societal level, in a short and long term perspective.*

Entrepreneurship and hence entrepreneurial behaviour in transition countries<sup>5</sup> has specific features and experiences particular constraints compared to more advanced market economies. This includes for example inadequate access to external capital, frequent changes in legislation, the general attitude of government and society towards entrepreneurs, frequent tax inspections, government corruption and other similar constraints (e.g. Smallbone and Welter, 2001; Aidis, 2006; Kolodko, 1999), all of which determine *entrepreneurial behaviour* (EB) in such a context. For example, entrepreneurs tend to become involved in evasion behaviour in order to overcome these constraints. Evasion behaviour mostly refers to a combination of legal and informal activities, including efforts to lower or avoid taxes, the reduction of social security contributions to employees by hiding actual wages or not offering labour contracts, and various informal payments to government officials to ensure contracts and similar activities (e.g. Gustafson, 1999). Although various types of evasion behaviour are perceived as "normal" experiences in transition countries, in general such behaviour is characterized as a "deviance" or "departure from norms" (Warren, 2003).

A number of empirical studies have attempted to explore the relationship between various types of *EB* and some aspects of productive or unproductive entrepreneurship. By addressing the effect of deviant behaviour on the output of firms, Aidis and Van Praag (2007), for example, report a statistically significant, positive relationship between illegal entrepreneurship experience and business performance for younger entrepreneurs and entrepreneurs who started a completely new legal business in a transition context. Other studies addressed the effect of illegal entrepreneurship experience and entrepreneurship output in terms of the probability of a business start-up, both in transition and more advanced market economies. Earle and Sakova (2000), for instance, find a positive relationship between having a side-business during the Soviet period and a business start-up

<sup>5</sup> Transition countries are defined as Central and Eastern European countries and countries of former Soviet Union, undergoing transition from centrally planned to 'well functioning' market economy. Though the answer to this question is beyond the scope of this paper, it should be mentioned that no single indicator or definition currently exists that accurately describes the end of transition. A number of authors have suggested that the end of transition is achieved by reaching the level of an 'advanced market economy' or 'well functioning market economy'. Unfortunately there exists no generally acceptable definition for what precisely characterizes an 'advanced market economy'. For further discussion, see Brown (1999).

during the transition process. Fairlie (2002) reports a significant relationship between illegal entrepreneurship experience, measured as drug dealing experience in the past, and the probability of legal self-employment. Drawing on the existing empirical evidence, the following hypothesis is introduced in order to explore the relationship between EB and value creation:

*H2 (a) Those firms involved in deviant forms of entrepreneurial behaviour (EB) will outperform firms preferring conforming forms of EB, both on venture and societal level, but only in the short term. (b) In the long term, firms following deviant behaviour will be less successful than firms involved in conforming behaviour.*

### **2.3. Addressing the complexity of the relationship between activities and value creation**

Studies exploring the link between *EO* and *output on venture level* highlight the necessity to consider various additional influences when this relationship is addressed (e.g. Lumpkin and Dess, 1996). Wiklund and Shepherd (2005) emphasize that previous studies mostly use the “*universal effect approach*”, assuming that *EO* has a universally beneficial effect on firm output, or exploit *contingency models*, capturing the two-way interaction between *EO* and external or internal environment characteristics. In this light, previous empirical evidence suggests that *EO* is context-specific and has a more positive influence on output in environments perceived as hostile by small firms (Covin and Slevin, 1989; Zahra and Covin, 1995). Furthermore, *access to financial capital* is highlighted as an internal characteristic with an important impact within the *EO* and firm output relationship. In general, previous findings show that more access to financial capital facilitates *EO*, as this provides possibilities to experiment and thus both create and exploit new business opportunities (e.g. Zahra, 1991; Wiklund and Shepherd, 2005). Therefore, the interaction of environmental influences and access to financial capital should be considered. In line with Wiklund and Shepherd (2005), the following hypotheses attempt to capture the two-way relationship between *EO*, value creation and environmental influences as well as *EO*, output and access to capital:

*H3: The relationship between entrepreneurial orientation (EO) and value creation is moderated by environmental influences. Value creation increases with EO, but at a higher rate for those firms perceiving the environment as hostile.*

*H4: The relationship between entrepreneurial orientation (EO) and value creation is moderated by access to capital. Value creation increases with EO but at a faster rate for firms that are less concerned about access to financial capital.*

Lumpkin and Dess (1996) argue that additional insight can be gained by assessing a three-way interaction, considering the joint influences of both environmental influence and access to capital, i.e., using a configurational approach. The following hypothesis addresses the three-way interaction between *EO*, value creation, environmental influences and access to capital:

*H5. (a) Value creation is explained by configurations of entrepreneurial orientation (EO), access to capital, and environmental influences. (b) Value creation is higher amongst firms with a higher degree of EO, which are less concerned about access to financial capital and in environments perceived as hostile than for other configurations.*

Emphasizing the impact of environmental influences in the relationship between entrepreneurial behaviour and output, Smallbone and Welter (2001) suggest that in a transition context, especially an early transition setting, some forms of deviant behaviour not only increase the output of a firm but are actually necessary, specifically for small firms, in order to develop and expand their companies while overcoming constraints brought on by the uncertainty of the hostile environments in these countries. Morris et al. (1997) furthermore report that the informal sector in general makes a significant contribution to the growth of developing countries and is also a major potential source of entrepreneurship. Sobel (2008) reports a positive and significant link between productive entrepreneurship and economic growth in various states of the U.S., highlighting that higher institutional quality, e.g. a less hostile environment, is associated with a higher level of productive entrepreneurship. Therefore, one can argue that in a transition context, at least in the short term, a hostile environment can act as a catalyst for the successful performance of small firms which are involved in deviant behaviour. A stable environment may in turn contribute to successful firm output in the long term. Drawing on these notions, the next hypothesis proposes that the relationship between conforming and deviant behaviour and value creation is moderated by contextual influences – formal, informal, economic and other institutions:

*H6: The relationship between entrepreneurial behaviour (EB) and value creation is moderated by environmental influences. (a) Output on both venture and societal levels increases in the short term with higher involvement in deviant forms of EB, but at an even higher rate for firms perceiving the environment as hostile. (b) Output on both venture and societal levels increases in the long term with a lower level of involvement in deviant behaviour, but at a higher rate for firms perceiving the environment as stable.*

We are not aware of any studies linking EB, value creation and access to capital. Access to capital, however, has been found to be of positive influence on firm output (Wiklund and Shepherd, 2005). While providing better possibilities to experiment and thus being able to exploit more business opportunities, better access to capital could also enhance the level of EB within small firms as such. It is, however, difficult to predict whether such behaviour will be directed to conforming or, on the contrary, deviant forms of entrepreneurship. Referring to the previous discussion regarding EB and value creation as well as the influence of the transition environment, one can argue that in the short term, better access to capital could increase output, even if the behaviour is directed towards less conforming value creation. In the long term, however, access to capital will facilitate conforming EB, thus leading to higher value creation.

*H7: The relationship between entrepreneurial behaviour (EB) and value creation is moderated by access to capital. (a) Output on both venture and societal levels increases in the short term with higher*

*involvement in deviant forms of EB, but at a higher rate for firms showing less concern for access to capital. (b) Output on both venture and societal levels increases in the long term with a lower level of involvement in deviant behaviour, but at higher rate for those firms showing less concern for access to capital.*

Finally, in order to fully explore the complexity of EB and value creation, the following hypothesis addresses the three-way interaction considering the joint influence of the environment and access to capital within the EB and value creation relationship:

*H8. (a) Value creation is explained by configurations of entrepreneurial behaviour (EB), access to capital, and environmental influences. (a) Output on both venture and societal levels is higher in the short term for firms with a higher level of involvement in deviant forms of EB behaviour, less concerned about access to capital and in environments perceived as hostile than for other configurations. (b) Output on both venture and societal levels is higher in the long term for firms with lower levels of involvement in deviant forms of EB, less concerned about financial capital and in environments perceived as stable than for other configurations.*

### **3. Methodology**

#### **3.1. Sample and Data Collection**

Longitudinal data is needed in order to address productive and unproductive entrepreneurship empirically, as time is necessary for activities to have an effect on outcomes, thus the dependent variables should be addressed at least a year later than independent variables. In 2005, a total of 133 face-to-face interviews with small and medium sized business owners (i.e., firms with less than 250 employees) were conducted in the capital city of Latvia. On average, the interviews lasted 1 hour and 40 minutes, with a minimum of one and a maximum of four hours. They were conducted either in Latvian or Russian language. Data on companies were obtained from the official statistics of the Latvian Company Register.

The same respondents were contacted again in August 2006, with the intention to measure performance of firms on venture and societal levels, both short and long term. Since we were already in contact with the respondents and the nature of the questions included in the follow-up study was, comparably, far less sensitive, phone interviews were chosen as the method for data collection. Over the period of one year, three companies had gone out of business and for six of the companies we had contacted a year ago, the owners or owner-managers had changed. We decided to keep these six firms in the sample. As a result, the final sample consists of 130 small and medium sized firms' owners and owner-managers.

### 3.2. Variables

*Entrepreneurial behaviour* was explored using questions (5 or 6-point Likert scale) on the degree of underreporting business income, salary, the number of employment as well as involvement in informal payments, the degree of involvement in various types of unofficial payments and unethical behaviour, including crowding-out efforts and exploiting business ideas introduced by other firms without any compensation. Factor analysis was used to extract sets of variables for the empirical assessment of the degree of involvement in conforming or deviant behaviour, using Varimax rotation and excluding missing variables pair-wise. As a result, the following indices were extracted: rent seeking (Cronbach's Alpha = .682), unethical payments (Cronbach's Alpha = .534), unethical behaviour (exploiting others' business ideas, crowding out efforts and using old networks, Cronbach's Alpha = .386). For measuring EO, we used the original 7-point scale as developed by Miller (1983) and Lumpkin and Dess (1996). Factor analysis validated the constructs with good levels of Cronbach's Alpha: innovativeness (.767), proactiveness (.835), competitive aggressiveness (.569), risk-taking (.745) and autonomy (.763).

A set of various *venture-level performance indicators* validated by previous studies was used to measure venture-level performance. This included monetary results such as net sales profits, sales turnover, employment, investments (including investments in production, training, etc.) and changes in the share of exports. Additionally, we also asked respondents to assess their personal satisfaction with business development. By testing the validity of these measures using Cronbach's Alpha, the following measures were developed: index of venture level output in the short term and long term (Cronbach's Alpha = .885 and .927 accordingly). The growth of export share was not included in the scale in the short or long term since most of the respondents are not involved in exporting activities.

Assessing the *societal-level contribution*, i.e. capturing the total output of a firm on societal level, seems to be one of the most challenging tasks discussed in entrepreneurship literature; and no consensus exists in this regard. Indicators such as employment generation and innovativeness are regarded as most appropriate for this purpose as these are considered to capture the main contribution of small firms to economic development, although their measurement remains highly problematic. Moreover, empirical studies also provide evidence that even subjective perceptions have a strong influence on the actual behaviour of firm owners in terms of their relation to business growth (e.g., Wiklund et al., 2003; Watson et al., 2003). Considering the difficulties in using various "objective" measures, we therefore focus on the perceptions of small firm owners as regards the contribution of their businesses to society in terms of employment and innovation in order to develop the measurement scale for assessing societal-level output. Again, both short-term (past 12 months) and long-term perspectives (3 years) were considered. As in the case of venture-level output, Cronbach's Alpha test was used to test for the validity. The following measures were developed: short-term societal level output (Cronbach's Alpha = .768) and long-term societal level output (Cronbach's Alpha = .772).

Context influences are empirically determined by a summated index of 12 barriers found to be of influence during the advanced transition stages (Cronbach's Alpha = .647). Moreover, access to capital was measured through asking for financial constraints and restrictions in accessing financial resources.

Several studies highlight the importance of the business owner and firm characteristics on the performance and growth of companies. Therefore, size, age and sector of a firm, as well as education and sex of the business owner are included as controls for the effect of activities on value creation.

### 3.3. Data analysis

Relationship between activities (e.g. entrepreneurial orientation and entrepreneurial behaviour) and value creation as well as the moderating effects of access to capital and environmental influences in this relationship were addressed. Drawing on the research design as suggested by Wiklund and Shepherd (2005), the complexity of this relationship can be assessed by exploiting main-effects-only, contingency and configuration models. This design is used in the analysis. More specifically, hierarchical linear regression analysis is used to test whether a universal, contingency, or configuration model best suits the data and whether variables have a significant relationship with firms output on various levels and time frame. Summated indexes of EO and EB are used, with Cronbach's Alpha for these indexes are .787 and .530 respectively. Further, we also include separate dimensions of EB and EO, because both EB and EO dimensions can vary independently in their relationships with firms output. In order to provide a more complete picture on the relationship between activities and value creation as well as moderating effects, the question as to which activities firms pursue to create value on various levels and time perspectives is further addressed using an exploratory approach. In all cases a separate analysis is carried out with dependent variables (a) venture-level output in the short term, (b) venture-level output in the long term, (c) societal-level output in the short term (d) societal-level output in the long term. Additionally, the influence of various controls on firms' involvement in productive and unproductive entrepreneurship is addressed.

## 4. Results and discussion<sup>6</sup>

According to the findings addressing the *universal influence* of the variables, although statistically significant, a positive relationship ( $P < 0.05$ ) was only found for the summated EO and firms output on a societal level (see Column 2 in Appendices 1-4), different conclusions can be drawn when individual dimensions of EO are explored (see Column 1 in Appendices 9-12). More specifically, competitive aggressiveness shows a statistically significant ( $P < 0.5$ ), positive relationship with regards to the venture level, short term performance. In other words, firms that exploit more aggressive strategies in the relationship with their competitors perform better on venture level, at least in a short term perspective. In the relationship with venture-level output in the long term, a marginally statistically significant ( $P < 0.10$ ), contribution was also noted for proactiveness (negative relationship) and innovativeness (positive relationship). Innovativeness also has a statistically significant

<sup>6</sup> In this section main findings are summarized and discussed. In order to save space, only the most important individual tables and econometrics are reported in the paper (see appendices). The rest are available on request from the authors.

and positive relationship with societal-level long-term output ( $P < 0.10$ ). Overall, these findings suggest partial support for Hypothesis 1, e.g. a firm's involvement in productive entrepreneurship increases with higher EO, i.e., some dimensions of it.

No statistical significance, however, was found with regard to the main-effect-only approach, neither for summated nor for individual dimensions of EB (see Column 2 in Appendices 5-8 and Column 1 in Appendices 13-16 accordingly), which means that Hypothesis 2 is not supported by the data. It should also be noted that for almost all dimensions of firm's value creation, the amount of explained variance (e.g.  $R^2$  and adjusted  $R^2$ ) for the universal model is higher in the case of individual EO and EB dimensions compared to the explained variance when summated indexes of EO and EB are used. This finding supports the importance of including individual dimensions of both EO and EB when productive and unproductive entrepreneurship is addressed on empirical level.

In order to provide better insights, an exploratory analysis was conducted to determine the direct effects of EO and EB on value creation. In general, the results suggest that *on venture level, in short and long term perspectives, productive companies are less involved in underreporting their business income but more involved in underreporting salaries*. The latter pattern is especially significant with regard to long term performance at venture level. In contrast, *companies following conforming types of behaviour, e.g. reporting actual business income and number of employees, are unproductive on societal level, both short and long term*. At least for a transition context, this finding suggests the beneficial nature of these types of deviant behaviour for society on the one hand and the unfavourable nature for the companies themselves on the other hand. One explanation for this could be that while underreporting actual results of their business activity, companies can afford to employ more people as well as have additional capital for investments, thus contributing positively to society. Still, an underreporting company can easily lose track of records about cash flow, which makes it complicated to plan further growth strategies, leading to negative output in terms of venture-level growth. Further, the results also suggest that both in short and long term, the productive contribution of firms increases by involvement in "irregular, unofficial payments" and "old networks" (*blats*)<sup>7</sup>.

In contrast, the findings also suggest that involvement in unofficial payments can increase venture-level output. On a societal level, however, low involvement in unofficial types of payments was associated with unproductive forms of entrepreneurship. With regard to specific types of unofficial payments, however, companies that reported that they have never been involved in these types of deviant activities perform best, although company owners seem to be reluctant to talk about specific types of "irregular, unofficial" payments. Companies that reported that they have never been involved in various types of unofficial payments performed best both on venture and societal level, short and long term. A similar conclusion can also be made with regard to firms' involvement in unethical types of behaviour on venture level, including squeezing newcomers out of the market and exploiting business ideas generated by other companies. On society level, however, firms which

<sup>7</sup> It should be noted that the term '*blat*' is perceived differently in different stages of transition (see Ledeneva (1998) for an overview of what *blat* meant in Soviet times and what it means in transition). In an advanced stage of transition, *blat* refers more to gaining advantages from friends or people with whom entrepreneurs have good personal contact. Those contacts, or 'personal networking', usually occur with government representatives or with representatives from both SMEs and large firms. In the former case, *blat* resembles 'lobbying', where its main purpose is to influence legislation or to obtain orders. In the case of *blat* between firms, however, such 'personal networks' are mostly employed to increase sales volume by attracting orders or to ensure better conditions for supplies and so on.



reported a higher level of involvement in old networks (*blat*) showed a lower performance. Low societal level performance is also reported by companies that have never been involved in other types of unethical behaviour. Further, with regard to all dimensions of EO, the results suggest that firms with a high EO are more productive on venture level than their counterparts. The pattern is especially clear with regard to innovativeness and firms' output relationship on venture level in a long term perspective. Overall, these findings provide further support for the conceptual framework as developed previously in this paper, highlighting that it is output, not conforming or deviant behaviour that determines productive or unproductive forms of entrepreneurship.

In order to address the complexity of the relationship between EO and value creation, the possible moderating effect of both environmental influences and access to capital in the relationship between EO and value creation was also addressed. Regarding the *contingency model*, the findings suggest that, in the case of the EO and value creation relationship, apart from the marginally significant contribution of the interaction between capital and environment, none of the two-way interactions are statistically significant at venture level or societal level output in the short or long term ( $P > 0.10$ ) (see Column 3 in Appendices 1-4). Furthermore, the amount of explained variance increased only by 4.9% and 6.6% ( $P < 0.01$ ) with a contingency model in the case of venture-level short-term output, and 2.3% and 6.6% ( $P < 0.01$ ) with the societal-level long-term output accordingly. Overall, these findings correspond with previous empirical evidence (e.g. Wiklund and Shepherd, 2005), suggesting that no moderating effect of the environment or access to capital in the relationship between (summed) EO and firms value creation exists. Thus, Hypothesis 3 and Hypothesis 4 are not supported by the data.

Results for the individual dimensions of EO, however, provide some additional insights with regard to the moderating effect of the environment and access to capital (see Column 2 in Appendices 9-12). More specifically, a statistically significant, positive relationship ( $P < 0.10$ ) was found for the interaction of innovativeness and environment in the case of venture-level short-term output. In other words, the relationship between innovativeness and venture-level short-term output is moderated by environmental influences, that is, innovative firms will perform even better in an environment characterized as stable. This finding is the opposite of what was proposed in Hypothesis 3, which stated that value creation will increase with EO, but at a higher rate for firms perceiving the environment as hostile. Furthermore, on venture-level, short and long term, a statistically significant, negative relationship ( $P < 0.01$  and  $P < 0.10$  accordingly) was found for the interaction of competitive aggressiveness and capital. That means that lower access to capital facilitates competitive aggressiveness leading to productive forms of entrepreneurship, which is again opposite to what has been proposed by Hypothesis 4.

In the case of the relationship between EB and value creation the results suggest a statistically significant, negative relationship between the interaction of capital and the environment for all cases except for output on venture level and in long term perspective (see Column 3 in Appendices 5-8). Furthermore, a statistically significant ( $P < 0.05$ ), positive relationship of interaction between EB and the environment with regard to societal-level short and long-term output was found. The latter

finding suggests that, at least on societal level, conforming behaviour together with a stable environment leads to productive entrepreneurship. Thus, as far as societal-level output is concerned, we failed to reject Part (b) of Hypothesis 6 (i.e., output on both venture and societal levels increases in the long term with a lower level of involvement in deviant behaviour, but at higher rate for firms that perceive the environment as stable). Part (a), i.e., firm output on both venture and societal levels increases in the short term with higher involvement in deviant forms of EB, but at an even higher rate for firms that perceive the environment as hostile as well as Hypothesis 7 (e.g. the moderating effect of access to capital), however, are not supported by the data for summated EO and EB.

A statistically significant, positive relationship ( $P < 0.05$ ) was, however, found for the interaction of individual dimension of EB, i.e., “rent seeking”, with environment in the case of societal-level short and long-term output (see Column 2 in Appendices 15 and 16). The latter findings thus suggest additional partial support for Hypothesis 6. The interaction of “unofficial payments” and capital, however, has a statistically significant, negative relationship with firm output on a societal level, long term (see Column 2 in Appendix 16). These findings suggest a moderating effect of access to capital at least for the above-mentioned dimensions of EB and value creation, e.g. lower access to capital facilitates the involvement in unofficial payments, obviously needed by such companies to overcome such resource restrictions, which in turn lead to better firm output. This is, however, the opposite of what was proposed by Hypothesis 7.

Apart from the moderating effect of access to capital and environmental influences, the influence of the environment and access to capital on value creation was addressed. Further, the influence of the environment and access to capital on involvement in conforming or deviant behaviour as well as lower or higher level of EO was also explored (see Appendices 1-16). According to the findings, at least on venture level, short term, a *stable institutional environment and higher access to capital facilitates productive entrepreneurship*. Furthermore it is also interesting to note, but not surprising, that companies engaged in deviant forms of entrepreneurial behaviour, such as rent seeking and unethical behaviour, seemed to be less affected by environmental constraints. Greater concern for the environment, and additionally, also access to capital, were reported as a problem by companies with higher entrepreneurial orientation, providing further evidence for the role of policy-makers in shaping the institutional environment in a transition context. Contrarily, low access to capital was associated with involvement in conforming behaviour.

What concerns the three-way interaction considering the joint relationship of environment and access to capital, in the case of EO and value creation relationship (see Column 4 in Appendices 1-4-), the amount of explained variance increases only by 1.6% and 0.3% in the case of venture-level short-term and long-term output, and 0.7% and 1.4% for societal-level output in the short and long term respectively. In contrast to Wiklund and Shepherd (2005), these findings thus suggest that there are no configurations of EO, access to capital and environmental influences. The same conclusions can also be drawn with regard to the configurations of EB, access to capital and environmental influences (see Column 4 in Appendices 5-8). Thus, Hypothesis 5 and Hypothesis 8 are not supported by the data. In this context, a general conclusion with regard to both contingency

models and configuration models could be that although lack of financial capital is often mentioned as one of the major constraints to firms' development within a transition setting (e.g. Aidis, 2006; Welter and Smallbone, 2001), in a relatively stable environment access to capital might not be an important issue.

The *control variables* of business age, size, sector and owners' or owner-managers' education and gender explain 7.9% (short term) and 14.3% (long term) of the variation in venture level output ( $P < 0.1$ ). For societal level output in the short and long term these figures are considerably higher: 28.1% and 23.6% respectively ( $P < 0.1$ ) (see Column 1 in Appendices 1-2 and Appendices 3-4 accordingly). Overall, our findings suggest that on venture level, both short and long term, larger firms are more productive as are entrepreneurs with a higher level of education. More specifically, with regard to the influence of various individual and venture-level characteristics, confirming the findings from previous studies linking companies performance and education level (e.g. Watson et al., 2003; Chandler and Hanks, 1993), the results from this study also suggest that a higher education level is usually associated with better small firms output. As found by previous studies (e.g. Wiklund and Shepherd, 2005), the findings of this study also show that a larger company size is associated with more productive entrepreneurship on venture level, both short and long term. Additionally, the findings reveal that retail companies seem to be less productive on a venture level, long term, than firms representing other sectors of business. Furthermore, those involved in manufacturing also seem to be more productive on a societal level, both short and long term.

## 5. Conclusions and implications

This paper makes a number of contributions to the existing literature on productive and unproductive entrepreneurship both conceptually as well as empirically. The main conceptual contribution lies in the development of a theoretical framework for the assessment of productive and unproductive entrepreneurship. Drawing on this, we present one of the first attempts to capture productive and unproductive entrepreneurship empirically<sup>8</sup>. Overall, the findings suggest that productive entrepreneurs are those who are less involved in behaviour such as tax avoidance or illegal business and show a higher level of entrepreneurial orientation. Moreover involvement in conforming behaviour together with a stable environment facilitates the productive contribution of entrepreneurs. Certain differences, however, can be observed using summated and individual dimensions of both EO and EB. Additionally, apart from the larger size of the firm and higher education level of entrepreneurs, as in the case of venture level, short and long term, older companies and those involved in manufacturing also seem to be more productive on societal level, both short and long term.

This paper has a number of *limitations*. Apart from the difficulties involved in defining clear-cut points to classify different kinds of conforming and deviant behaviour, there are also limits as to what can be done to assess firms' value creation empirically. The main and most challenging limitation of the current approach is the difficulty involved in capturing the contribution of companies

<sup>8</sup> In line with Sobel (2008)

on the societal level. In this regard, this study should be perceived as aiming for the best possible solution and considerable work is needed to develop more appropriate measures for this purpose.

Additionally, although special consideration was given to sample representativeness, the very small sample can be seen as another shortcoming of this study. Despite the sensitive nature of the topic addressed here, we nevertheless would encourage researchers to collect a more representative data set. Overcoming this challenge could also help validate the new measures used to empirically capture productive and unproductive entrepreneurship.

Furthermore, the results presented in this paper can be context specific due to the reason that data was collected in a country which is undergoing transition from centrally planned to market economy<sup>9</sup>. This is another reason why more research would be needed in the area dealing with data sets from both emerging market economies and comparably more advanced countries. By encouraging collecting such data, we would also like to emphasize the necessity of exploring entrepreneurs' decision making process, linking individual level decisions with entrepreneurs' strategic choices on the venture level and resulting societal level outcomes. Finding the way to estimate the value of productive and unproductive entrepreneurship, by calculating losses from the unproductive entrepreneurship, for example, would be another, although ambitious, yet important task for the further research in the area.

In general, apart from providing support for the necessity to shift the focus from activities to output when productive and unproductive entrepreneurship is addressed empirically, the findings of this paper provide some scope for policy implications. For example, the results suggest that policy-makers in an advanced transition context should be more flexible regarding taxation policies and different administrative regulations. The main challenge for them is to facilitate market entry (and exit) as well as to improve the general environment in order to stimulate growth of firms without introducing too much bureaucracy. Furthermore, the results show that a number of environmental factors continue to act as constraints to businesses, especially those engaged in conforming forms of entrepreneurial activities. These environmental constraints, such as the rate of inflation as well as the shortage of qualified workers, are directly related to governmental policy. In addition, formal constraints such as high taxes and inconsistent business legislation are also directly affected by government policy. Since the government plays a key role in creating the conditions for productive entrepreneurship in an advanced transition setting, it would be important for policymakers to take steps to reduce these barriers for firms' development.

<sup>9</sup> In this light it should be noted, that apart from approximately 20 years experience in market economy since gaining independence from the former Soviet Union, Latvia have had at least some experience of market economy prior to the occupation in 1940.

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## Appendix 1: Firms output on a venture level, short term: universal, contingency and configuration model. 'EO approach'.<sup>10</sup>

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	-0,01	0,02	0,00	0,01	0,02	0,01	0,02	0,01
Firm size	<b>0.19**</b>	0,00	<b>0.18**</b>	0,00	<b>0.18**</b>	0,00	<b>0.19**</b>	0,00
Gender	-0,03	0,11	-0,07	0,11	-0,05	0,11	-0,05	0,11
Education	<b>0.18*</b>	0,11	0,12	0,11	<b>0.17*</b>	0,11	<b>0.19**</b>	0,11
<b>EO</b>			0,13	0,06	-0,36	0,23	-1,3*	0,43
<b>Environment</b>			<b>0.17**</b>	0,10	0,33	0,44	-0,34	0,67
<b>Capital</b>			<b>0.18**</b>	0,04	<b>0.99**</b>	0,26	-1,01	0,70
EO x environment					0,42	0,09	<b>1.55*</b>	0,17
EO x capital					0,23	0,04	<b>2.65*</b>	0,18
Capital x environment					<b>-1.18**</b>	0,08	1,21	0,26
EO x environment x capital							-2,71	0,07
R <sup>2</sup>	0,079***		0,157***		0,207***		0,223***	
Adjusted R <sup>2</sup>	0,026***		0,086***		0,118***		0,128***	
$\Delta R^2$	0,079***		0,078***		0,049***		0,016	
<b>Dependent Variable: Output on a venture level, short term</b>								

## Appendix 2: Firms output on a venture level, long term: universal, contingency and configuration model. 'EO approach'.

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	-0,13	0,02	-0,13	0,02	-0,13	0,02	-0,13	0,02
Firm size	<b>0.26***</b>	0,00	<b>0.26***</b>	0,00	<b>0.26***</b>	0,00	<b>0.26***</b>	0,00
Gender	0,02	0,15	0,00	0,15	0,01	0,15	0,01	0,15
Education	<b>0.20**</b>	0,15	<b>0.19**</b>	0,16	<b>0.19***</b>	0,16	<b>0.19***</b>	0,16
<b>EO</b>			0,01	0,08	-0,26	0,33	-0,63	0,62
<b>Environment</b>			0,05	0,14	-0,16	0,62	-0,44	0,95
<b>Capital</b>			0,11	0,06	0,24	0,37	-0,59	0,99
EO x environment					0,37	0,13	0,83	0,24
EO x capital					-0,08	0,05	0,93	0,26
Capital x environment					-0,06	0,12	0,93	0,37
EO x environment x capital							-1,13	0,10
R <sup>2</sup>	0,143***		0,159***		0,163***		0,166***	
Adjusted R <sup>2</sup>	0,094***		0,088***		0,069***		0,064***	
$\Delta R^2$	0,143***		0,016		0,004		0,003	
<b>Dependent Variable: Output on a venture level, longer term</b>								

<sup>10</sup> Here and in all further tables standardized regression coefficients are displayed. "In the presence of higher- order interactions, the coefficients for the lower- order terms of the higher- order terms convey no meaningful but possibly misleading information" (Cohen and Cohen, 1983 in Wiklund and Shepherd, 2005:83). \*P < .10; \*\* P < .05; \*\*\* P < .01



### Appendix 3: Firms output on a societal level, short term: universal, contingency and configuration model. 'EO approach'

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0.21***</b>	0,01	<b>0.22***</b>	0,01	<b>0.23***</b>	0,01	<b>0.23***</b>	0,01
Firm size	<b>0.29***</b>	0,00	<b>0.28***</b>	0,00	<b>0.28***</b>	0,00	<b>0.27**</b>	0,00
Gender	-0,01	0,08	-0,03	0,08	-0,02	0,08	-0,03	0,08
Education	<b>0.19**</b>	0,08	<b>0.15**</b>	0,08	<b>0.17**</b>	0,08	<b>0.16**</b>	0,08
<b>EO</b>			0,12	0,04	-0,17	0,17	0,43	0,31
<b>Environment</b>			0,06	0,07	0,16	0,31	0,61	0,48
<b>Capital</b>			0,06	0,03	0,17	0,19	1,54	0,50
EO x environment					0,15	0,07	-0,61	0,12
EO x capital					0,36	0,03	-1,29	0,13
Capital x environment					-0,50	0,06	-2,14	0,19
EO x environment x capital							1,85	0,05
R <sup>2</sup>	0,281***		0,299***		0,318***		0,326***	
Adjusted R <sup>2</sup>	0,240***		0,240***		0,242***		0,244***	
$\Delta R^2$	0,281***		0,018		0,019		0,007	
<b>Dependent Variable: Output on a societal level, short term</b>								

### Appendix 4: Firms output on a societal level, long term: universal, contingency and configuration model. 'EO approach'

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0.15*</b>	0,01	<b>0.15**</b>	0,01	<b>0.17**</b>	0,01	<b>0.17**</b>	0,01
Firm size	<b>0.31***</b>	0,00	<b>0.30***</b>	0,00	<b>0.30***</b>	0,00	<b>0.29***</b>	0,00
Gender	0,03	0,08	0,00	0,08	0,01	0,08	0,01	0,08
Education	<b>0.16**</b>	0,08	0,11	0,09	<b>0.14*</b>	0,09	0,13	0,09
<b>EO</b>			<b>0.15**</b>	0,04	-0,11	0,18	0,73	0,33
<b>Environment</b>			0,06	0,08	0,24	0,33	0,88	0,51
<b>Capital</b>			0,07	0,03	0,28	0,20	2,18	0,53
EO x environment					0,10	0,07	-0,96	0,13
EO x capital					0,38	0,03	-1,92	0,14
Capital x environment					-0,64	0,06	-2,91	0,20
EO x environment x capital							2,56	0,05
R <sup>2</sup>	0,236***		0,263***		0,285***		0,300***	
Adjusted R <sup>2</sup>	0,192***		0,201***		0,205***		0,214***	
$\Delta R^2$	0,236***		0,027***		0,023***		0,014	
<b>Dependent Variable: Output on a societal level, long term</b>								

## Appendix 5: Firms output on a venture level, short term: universal, contingency and configuration models. 'EB approach'

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	-0,01	0,02	-0,01	0,02	0,00	0,02	0,00	0,02
Firm size	<b>0.19**</b>	0,00	<b>0.19**</b>	0,00	<b>0.19**</b>	0,00	<b>0.19**</b>	0,00
Gender	-0,03	0,11	-0,05	0,11	-0,04	0,11	-0,04	0,11
Education	<b>0.18*</b>	0,11	<b>0.15*</b>	0,11	<b>0.19**</b>	0,11	<b>0.18**</b>	0,11
<b>EO</b>			0,05	0,09	-0,29	0,46	-0,90	1,09
<b>Environment</b>			<b>0.16*</b>	0,10	0,27	0,61	-0,60	1,63
<b>Capital</b>			<b>0.17**</b>	0,04	0,91	0,44	-1,37	1,75
EO x environment					0,42	0,15	1,45	0,40
EO x capital					0,39	0,08	2,79	0,41
Capital x environment					<b>-1.30**</b>	0,08	1,37	0,65
EO x environment x capital							-2,81	0,15
R <sup>2</sup>	0,079***		0,146***		0,193***		0,196***	
Adjusted R <sup>2</sup>	0,026***		0,074***		0,102***		0,098***	
$\Delta R^2$	0,079***		0,066***		0,047***		0,003	

Dependent Variable: Output on a venture level, short term

## Appendix 6: Firms output on a venture level, long term: universal, contingency and configuration models. 'EB approach'

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	-0,13	0,02	-0,13	0,02	-0,14	0,02	-0,14	0,02
Firm size	<b>0.26***</b>	0,00	<b>0.26***</b>	0,00	<b>0.26***</b>	0,00	<b>0.26***</b>	0,00
Gender	0,02	0,15	0,01	0,15	0,01	0,16	0,01	0,16
Education	<b>0.20**</b>	0,15	<b>0.19**</b>	0,15	<b>0.19**</b>	0,16	<b>0.19**</b>	0,16
<b>EO</b>			0,01	0,13	-0,26	0,64	-0,09	1,52
<b>Environment</b>			0,05	0,14	-0,16	0,86	0,07	2,29
<b>Capital</b>			0,11	0,06	-0,19	0,61	0,44	2,45
EO x environment					0,29	0,21	0,01	0,56
EO x capital					0,39	0,12	-0,27	0,58
Capital x environment					-0,10	0,12	-0,84	0,90
EO x environment x capital							0,78	0,21
R <sup>2</sup>	0,143***		0,159***		0,162***		0,162***	
Adjusted R <sup>2</sup>	0,094***		0,088***		0,068***		0,060***	
$\Delta R^2$	0,143***		0,016		0,003		0,000	

Dependent Variable: Output on a venture level, long term

## Appendix 7: Firms output on a societal level, short term: universal, contingency and configuration models. 'EB approach'

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0.21***</b>	0,01	<b>0.22***</b>	0,01	<b>0.24***</b>	0,01	<b>0.24***</b>	0,01
Firm size	<b>0.29***</b>	0,00	<b>0.29***</b>	0,00	<b>0.28***</b>	0,00	<b>0.28***</b>	0,00
Gender	-0,01	0,08	-0,02	0,08	0,01	0,08	0,01	0,08
Education	<b>0.19**</b>	0,08	<b>0.18**</b>	0,08	<b>0.23***</b>	0,08	<b>0.22***</b>	0,08
<b>EO</b>			0,00	0,07	-0,45	0,32	-0,97	0,76
<b>Environment</b>			0,04	0,07	-0,62	0,43	-1,35	1,15
<b>Capital</b>			0,05	0,03	<b>1.71**</b>	0,31	-0,22	1,22
EO x environment					<b>1.17**</b>	0,10	2,05	0,28
EO x capital					-0,97	0,06	1,06	0,29
Capital x environment					<b>-0.87*</b>	0,06	1,40	0,45
EO x environment x capital							-2,38	0,11
R <sup>2</sup>	0,281***		0,286***		0,333***		0,336***	
Adjusted R <sup>2</sup>	0,240***		0,226***		0,259***		0,255***	
$\Delta R^2$	0,281***		0,005		0,047***		0,002	

**Dependent Variable: Output on a societal level, short term**

## Appendix 8: Firms output on a societal level, long term: universal, contingency and configuration models. 'EB approach'

	1. Control variables		2. Universal model, control variables		3. Contingency model		4. Configuration model	
	B	S.E.	$\beta$	S.E.	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0.15*</b>	0,01	<b>0.15*</b>	0,01	<b>0.17**</b>	0,01	<b>0.17**</b>	0,01
Firm size	<b>0.31***</b>	0,00	<b>0.31***</b>	0,00	<b>0.30***</b>	0,00	<b>0.30***</b>	0,00
Gender	0,03	0,08	0,02	0,08	0,05	0,08	0,05	0,08
Education	<b>0.16**</b>	0,08	<b>0.16*</b>	0,08	<b>0.21**</b>	0,08	<b>0.21**</b>	0,08
<b>EO</b>			0,00	0,07	-0,57	0,34	-0,92	0,81
<b>Environment</b>			0,04	0,08	-0,71	0,46	-1,20	1,22
<b>Capital</b>			0,06	0,03	<b>1.83**</b>	0,32	0,53	1,30
EO x environment					<b>1.36**</b>	0,11	1,96	0,30
EO x capital					-0,92	0,06	0,45	0,31
Capital x environment					<b>-1.07**</b>	0,06	0,46	0,48
EO x environment x capital							-1,60	0,11
R <sup>2</sup>	0,236***		0,243***		0,303***		0,304***	
Adjusted R <sup>2</sup>	0,192***		0,179***		0,225***		0,220***	
$\Delta R^2$	0,236***		0,007		0,061***		0,001	

**Dependent Variable: Output on a societal level, long term**

## Appendix 9: EO vs. firms output on the venture level, short term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	0,00	0,02	-0,01	-0,09
Firm size	<b>0,19**</b>	0,00	<b>0,23***</b>	2,61
Gender	-0,10	0,11	-0,14	-1,56
Education	0,14	0,11	<b>0,19**</b>	2,08
Manufacturing	0,18	0,20	<b>0,29**</b>	2,49
Retail	0,02	0,17	0,02	0,19
Service	0,06	0,15	0,09	0,70
<b>Proactiveness</b>	0,09	0,05	0,65	1,04
<b>Innovativeness</b>	-0,05	0,04	<b>-0,95*</b>	-1,77
<b>Risk taking</b>	0,01	0,04	-0,49	-0,86
<b>Autonomy</b>	-0,07	0,04	-0,71	-1,55
<b>Comp. aggress.</b>	<b>0,21**</b>	0,03	<b>0,99**</b>	2,01
<b>Environment</b>	<b>0,17*</b>	0,10	0,30	0,77
<b>Capital</b>	<b>0,18**</b>	0,04	<b>1,49**</b>	2,56
Proactiveness x Environment			-0,88	-1,29
Innovativeness x Environment			<b>1,01*</b>	1,73
Risk taking x Environment			0,22	0,36
Autonomy x Environment			0,69	1,27
Compet. aggressiv. x Environment			-0,24	-0,47
Proactiveness x Capital			0,45	1,26
Innovativeness x Capital			-0,12	-0,35
Risk taking x Capital			0,41	1,40
Autonomy x Capital			0,05	0,14
Compet. aggressiv. x Capital			<b>-0,86***</b>	-2,79
Capital x Environment			<b>-1,57***</b>	-2,74
R <sup>2</sup>	0,196***		0,343***	
Adjusted R <sup>2</sup>	0,098***		0,185***	
$\Delta R^2$	0,196**		0,147***	
<b>D.V.: Output on a venture level, short term</b>				

## Appendix 10: EO vs. firms output on the venture level, long term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	-0,10	0,02	-0,12	0,02
Firm size	<b>0,27***</b>	0,00	<b>0,29***</b>	0,00
Gender	0,03	0,15	0,02	0,16
Education	<b>0,19**</b>	0,16	<b>0,19*</b>	0,17
Manufacturing	-0,06	0,27	-0,01	0,29
Retail	-0,18	0,24	-0,17	0,25
Service	-0,13	0,21	-0,10	0,22
<b>Proactiveness</b>	<b>-0,18*</b>	0,06	0,29	0,39
<b>Innovativeness</b>	<b>0,17**</b>	0,05	-0,63	0,31
<b>Risk taking</b>	0,01	0,05	-0,49	0,33
<b>Autonomy</b>	0,12	0,05	-0,28	0,27
<b>Comp. aggress.</b>	-0,02	0,05	0,60	0,27
<b>Environment</b>	0,06	0,14	-0,27	0,67
<b>Capital</b>	0,09	0,06	0,61	0,42
Proactiveness x Environment			-0,48	0,14
Innovativeness x Environment			0,80	0,12
Risk taking x Environment			0,45	0,12
Autonomy x Environment			0,38	0,10
Compet. aggressiv. x Environment			-0,25	0,10
Proactiveness x Capital			0,00	0,05
Innovativeness x Capital			0,03	0,05
Risk taking x Capital			0,09	0,05
Autonomy x Capital			0,17	0,04
Compet. aggressiv. x Capital			<b>-0,60*</b>	0,04
Capital x Environment			-0,38	0,13
R <sup>2</sup>	0,203***		0,250***	
Adjusted R <sup>2</sup>	0,106***		0,070***	
$\Delta R^2$	0,203***		0,048***	
<b>D.V. Output on a venture level longer term</b>				

## Appendix 11: EO vs. firms output on the societal level, short term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0,20**</b>	0,01	<b>0,24***</b>	0,01
Firm size	<b>0,25***</b>	0,00	<b>0,25***</b>	0,00
Gender	-0,02	0,08	-0,01	0,08
Education	0,14	0,08	<b>0,18**</b>	0,09
Manufacturing	<b>0,23**</b>	0,14	0,23	0,15
Retail	0,00	0,12	-0,02	0,13
Service	0,04	0,11	0,01	0,11
<b>Proactiveness</b>	0,14	0,03	0,64	0,20
<b>Innovativeness</b>	0,08	0,03	-0,29	0,16
<b>Risk taking</b>	-0,14	0,03	-0,42	0,17
<b>Autonomy</b>	0,06	0,03	-0,05	0,14
<b>Comp. aggress.</b>	0,09	0,02	-0,51	0,14
<b>Environment</b>	0,08	0,07	0,21	0,34
<b>Capital</b>	0,04	0,03	0,39	0,22
Proactiveness x Environment			-0,76	0,07
Innovativeness x Environment			0,68	0,06
Risk taking x Environment			0,22	0,06
Autonomy x Environment			0,09	0,05
Compet. aggressiv. x Environment			0,32	0,05
Proactiveness x Capital			0,29	0,03
Innovativeness x Capital			-0,45	0,03
Risk taking x Capital			0,16	0,02
Autonomy x Capital			-0,02	0,02
Compet. aggressiv. x Capital			0,48	0,02
Capital x Environment			-0,74	0,07
R <sup>2</sup>	0,329***		0,379***	
Adjusted R <sup>2</sup>	0,247***		0,230***	
$\Delta R^2$	0,329***		0,051***	
<b>D.V.: Output on a societal level, short term</b>				

## Appendix 12: EO vs. firms output on the societal level, long term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0,16*</b>	0,01	<b>0,19**</b>	0,01
Firm size	<b>0,28***</b>	0,00	<b>0,28***</b>	0,00
Gender	0,03	0,08	0,03	0,09
Education	0,11	0,09	<b>0,16*</b>	0,09
Manufacturing	<b>0,19*</b>	0,15	<b>0,20*</b>	0,16
Retail	0,04	0,13	0,02	0,13
Service	0,02	0,11	-0,01	0,12
<b>Proactiveness</b>	0,05	0,03	0,16	0,21
<b>Innovativeness</b>	<b>0,16*</b>	0,03	-0,12	0,17
<b>Risk taking</b>	-0,12	0,03	-0,27	0,18
<b>Autonomy</b>	0,10	0,03	0,16	0,15
<b>Comp. aggress.</b>	0,11	0,03	-0,37	0,15
<b>Environment</b>	0,09	0,08	0,28	0,36
<b>Capital</b>	0,04	0,03	0,40	0,23
Proactiveness x Environment			-0,40	0,08
Innovativeness x Environment			0,60	0,07
Risk taking x Environment			0,11	0,06
Autonomy x Environment			-0,07	0,06
Compet. aggressiv. x Environment			0,16	0,05
Proactiveness x Capital			0,40	0,03
Innovativeness x Capital			-0,49	0,03
Risk taking x Capital			0,11	0,03
Autonomy x Capital			-0,06	0,02
Compet. aggressiv. x Capital			0,49	0,02
Capital x Environment			-0,78	0,07
R <sup>2</sup>	0,302***		0,354***	
Adjusted R <sup>2</sup>	0,217***		0,199***	
$\Delta R^2$	0,302***		0,053***	
<b>D.V.: Output on a societal level, long term</b>				

## Appendix 13: EB vs. firms output on the venture level, short term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	-0,02	0,02	0,00	0,02
Firm size	<b>0,19**</b>	0,00	<b>0,19**</b>	0,00
Gender	-0,05	0,11	-0,05	0,11
Education	<b>0,15*</b>	0,11	<b>0,18**</b>	0,11
Manufacturing	0,15	0,20	<b>0,20*</b>	0,20
Retail	0,01	0,17	0,03	0,18
Service	0,02	0,16	0,01	0,16
<b>Rent seeking</b>	0,05	0,06	-0,50	0,36
<b>Unofficial behaviour</b>	0,05	0,11	-0,08	0,21
<b>Environment</b>	<b>0,17*</b>	0,04	0,61	0,37
<b>Capital</b>	<b>0,16*</b>	0,10	0,21	0,63
Rent seeking x Environment			0,37	0,12
Unofficial payments x Environment			0,20	0,07
Rent seeking x Capital			0,65	0,06
Unofficial payments x Capital			0,08	0,03
Capital x Environment			<b>-1,32**</b>	0,08
R <sup>2</sup>	0,147***		0,208***	
Adjusted R <sup>2</sup>	0,068***		0,095***	
$\Delta R^2$	0,147***		0,060***	
<b>D.V.: Output on a venture level, short term</b>				

## Appendix 14: EB vs. firms output on the venture level, long term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	-0,14	0,02	-0,14	0,02
Firm size	<b>0,26***</b>	0,00	<b>0,26***</b>	0,00
Gender	0,01	0,15	0,04	0,16
Education	<b>0,19**</b>	0,15	<b>0,17*</b>	0,16
Manufacturing	-0,05	0,27	-0,03	0,27
Retail	-0,20	0,24	-0,17	0,24
Service	-0,12	0,21	-0,09	0,22
<b>Rent seeking</b>	0,00	0,09	-0,24	0,50
<b>Unofficial behaviour</b>	0,07	0,15	0,04	0,30
<b>Environment</b>	0,10	0,06	0,70	0,51
<b>Capital</b>	0,05	0,14	-0,38	0,87
Rent seeking x Environment			0,39	0,17
Unofficial payments x Environment			0,23	0,09
Rent seeking x Capital			-0,20	0,08
Unofficial payments x Capital			<b>-0,45*</b>	0,04
Capital x Environment			-0,03	0,12
R <sup>2</sup>	0,163***		0,191***	
Adjusted R <sup>2</sup>	0,085***		0,077***	
$\Delta R^2$	0,163***		0,029***	
<b>V.: Output on a venture level, long term</b>				

## Appendix 15: EB vs. firms output on the societal level, short term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0,15*</b>	0,01	<b>0,17*</b>	0,01
Firm size	<b>0,31***</b>	0,00	<b>0,30***</b>	0,00
Gender	0,02	0,08	0,07	0,09
Education	<b>0,15*</b>	0,08	<b>0,21**</b>	0,08
Manufacturing	<b>0,20*</b>	0,15	<b>0,25**</b>	0,15
Retail	0,02	0,13	0,00	0,13
Service	-0,01	0,12	-0,04	0,12
<b>Rent seeking</b>	-0,01	0,04	-0,72	0,26
<b>Unofficial behaviour</b>	0,03	0,08	-0,11	0,15
<b>Environment</b>	0,05	0,03	<b>1,23*</b>	0,26
<b>Capital</b>	0,04	0,07	-0,61	0,44
Rent seeking x Environment			<b>1,17**</b>	0,09
Unofficial payments x Environment			0,24	0,05
Rent seeking x Capital			-0,52	0,04
Unofficial payments x Capital			-0,01	0,02
Capital x Environment			<b>-0,84*</b>	0,06
R <sup>2</sup>	0,288***		0,330***	
Adjusted R <sup>2</sup>	0,221***		0,235***	
$\Delta R^2$	0,288***		0,042***	

**D.V.: Output on a societal level, short term**

## Appendix 16: EB vs. firms output on the societal level, long term.

	1. Universal model, control variables		2. Contingency model	
	$\beta$	S.E.	$\beta$	S.E.
Firm age	<b>0,21**</b>	0,01	<b>0,25***</b>	0,01
Firm size	<b>0,29***</b>	0,00	<b>0,28***</b>	0,00
Gender	-0,02	0,08	0,03	0,08
Education	<b>0,18**</b>	0,08	<b>0,23***</b>	0,08
Manufacturing	<b>0,23**</b>	0,14	<b>0,28**</b>	0,14
Retail	-0,01	0,12	-0,04	0,12
Service	0,01	0,11	-0,02	0,11
<b>Rent seeking</b>	-0,02	0,05	<b>-0,97**</b>	0,27
<b>Unofficial behaviour</b>	0,07	0,08	-0,05	0,16
<b>Environment</b>	0,06	0,03	<b>1,21*</b>	0,27
<b>Capital</b>	0,05	0,08	-0,63	0,47
Rent seeking x Environment			<b>1,43**</b>	0,09
Unofficial payments x Environment			0,12	0,05
Rent seeking x Capital			-0,40	0,04
Unofficial payments x Capital			0,06	0,02
Capital x Environment			<b>-1,02**</b>	0,06
R <sup>2</sup>	0,248***		0,311***	
Adjusted R <sup>2</sup>	0,177***		0,214***	
$\Delta R^2$	0,248***		0,064***	

**D.V.: Output on a societal level, longer term**









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