

# **A Comparative Study of Cultural Influences on Intentions to found a New Venture in Germany and Poland**

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## **ABSTRACT**

*This study investigates cultural antecedents on (1) motivators and (2) intentions of new venture-generation. By using a sophisticated data analysis method - multi-group structural equation modeling - we compare German and Polish MBA students in order to retrieve cultural influences on entrepreneurship. In general, we find some similar but also contrasting results through the analyses of three cultural dimensions: (1) power distance, (2) collectivism, and (3) individualism. Also, results show that in both countries the motivation to start a new venture leads to the intention of new venture generation. This study not only considers different cultural antecedents but also indirectly analyzes dissimilarities between a developed and a transitional economy.*

## **1. INTRODUCTION**

Entrepreneurship is regarded as a major driving force for innovation and the wealth of regions and nations. At the very roots it is the people who have to be risk-taking and entrepreneurial. Holt (1997) defines entrepreneurs "as those who start businesses thereby assuming the psychological and financial risks of creating new ventures". Despite the large research on individual traits and values, national culture plays an important role in entrepreneurship (Holt, 1997) as it is found that culture affects entrepreneurial outcomes (Hofstede *et al.*, 1988; McGrath *et al.*, 1992; Peterson, 1988). Prior studies have shown that uncertainty avoidance, the fear of different barriers, e. g. technology bureaucracy, decreases the individuals' intention to start new ventures (Dwyer *et al.*, 2005; Russell, 1997). Still, research has barely investigated the effect of culture on entrepreneurship, in particular on motivators and intentions to found a new venture. This is an important omission envisaging the competition of nations and regions and the impact of entrepreneurship on innovation. To close this gap, this study aims to explore effects of national culture on new venture generations. Therefore, a cross-cultural study is undertaken that analyzes the impact of distinct cultural values on motivators and intentions to found a new venture.

Drawing on cross-cultural research in the tradition of Hofstede (1980) and Schwartz (1992), who investigated cultural differences, we assume commonalities of cultural dimensions, which have different scores across cultures. This study will empirically explore distinct dimensions of culture (Power Distance, Individualism, and Collectivism), that can have different scores, and which we assume to effect on intentions and motivators of new venture generations.

Our cross-cultural comparison is based on a sample of 450 MBA students in Germany and Poland. Results of this cross-national survey are derived from highly developed data analysis: Using multi-group method of structural equation modeling, we are able to measure the multifaceted character of culture and of entrepreneurship. The simultaneous estimating procedure is understood to deliver highly valid results (Arbuckle *et al.*, 2003; Byrne, 2001; Lee *et al.*, 2003).

From a theoretical point of view, the results of our study contribute to an improved understanding of cross-cultural differences of entrepreneurship. Furthermore, the results improve the comprehension of challenges in cross-national entrepreneurship collaboration and cross-national entrepreneurship teams. From a practical view, these insights can assist the formulation of national and cross-national entrepreneurship programs.

## **2. THEORY**

### **2.1 Motivators and Intentions of Entrepreneurship**

Sahlman and Stevenson (1992) define entrepreneurship as "a way of managing that involves pursuing opportunity without regard to the resources currently controlled. Entrepreneurs identify

opportunities, assemble required resources, implement a practical action plan, and harvest the reward in a timely, flexible way (Sahlman et al., 1992). Entrepreneurship covers the founding of a new venture by individuals or institutions (Hisrich, 1990). To uncover effects of the risk-laden endeavor this paper only analyzes independent entrepreneurship, where entrepreneurs differ substantively from managers (Hebert *et al.*, 1989). "Founding a new venture is challenging: it is always connected with enthusiasm, frustration, anxiety, and hard work (Hisrich, 1990).

We assume that the intentions to found a new venture are multiple, e. g. the strong desire to found a firm, the plan to start a firm shortly or after some more years of professional experience. Also, intentions can include the idea of team-founding, which is as a strategy to decrease risks. The research of Shapero and Sokol (1982), which was refined by Krueger and Brazeal (1994), analyzes the decision making process that leads to business venturing. They suggested that one who answered both questions ("Is it desirable to start a business?" and "Is it feasible to start a business?") simultaneously positive is likely to found a new business.

## **2.2 Cross-Culturality and New Venture Generation**

### **2.2.1 Cultural Comparison**

The literature indicates that there is some meaningful degree of intra-country commonalities and inter-country differences in culture. Empirical works by Hofstede (1980; 1991), Schwartz (1994), and Smith, Dugan et al. (1996) show that the countries are clearly separated from each other on national-cultural dimensions. Cultural values do have a significant effect on differences in entrepreneurial behavior, with some cultures producing more innovation and entrepreneurship than others (Baumol, 1990; Shane, 1995; Shapero et al., 1982). National culture's multifaceted character was explored in many studies, which tried to develop dimensions for distinguishing different national cultures. Hall & Reed Hall (1990) differentiate between context, space, and time orientation. Trompenaars & Hampden-Turner (2000) developed six culture dimensions: (1) universalism vs. particularism, (2) individualism vs. communitarianism, (3) specificity vs. diffusion, (4) achieved status vs. ascribed status, (5) inner direction vs. outer direction, and (6) sequential time vs. synchronous time. However, one of the most rigorous and comprehensive frameworks has been developed in the last two decades is the study of Hofstede. Hofstede's study can serve as the point of departure for understanding national culture (Steenkamp, 2001). In his study Hofstede (1980) identified four cultural dimensions power distance, uncertainty avoidance, individualism/collectivism, and masculinity/femininity through research of 116.000 employees of US computer corporate IBM in 50 countries (Deresky, 2000).

The first dimension, power distance, was defined as a degree to which a culture's people are separated by power, authority, and prestige. A high power distance points to high acceptance of unequal power distribution. The countries, which we investigate in the following, are Germany (low power distance) and Poland (high power distance). The second dimension is uncertainty avoidance, which refers to people's attitudes towards change, risk, and uncertainty and how the members of society deal with changes and risk, whether they are open to change or feel threatened. Germany and Poland, which we explore, both score high on uncertainty avoidance. The third cultural dimension, individualism, refers to the tendency of people to concentrate on themselves and neglect the needs of society. Individualistic countries emphasize such values as self-respect, autonomy, and independence. People in collectivistic countries are integrated in strong, small, and closed in-groups, being emotionally dependent on the group. Germany is, according to Hofstede, among the individualistic societies, whereas Poland is collectivistic. The fourth cultural dimension covers the spectrum of masculinity and femininity. High masculinity directs the preference of material life, work, career, associated with values of ambition and toughness. In contrast, femininity displays the feminine value of taking care of other's feeling. Germany and Poland belong to masculine cultures.

Beyond the discussion of Hofstede's cultural dimensions, we have to state that both countries, Poland and Germany, are affected by Christian culture and today have a democratic form of government. Still, cultural values of power distance and individualism show differences. So a study of these cultures with a common border and strong economic relationships, while having different cultural values, is of interest when studying entrepreneurship. We assume that differences in cultures lead to different strengths of entrepreneurial intentions.

## 2.2.2 Cultural Aspects of Entrepreneurial Intention

Erez and Early (1993) found dissimilarities of managerial behavior and entrepreneurship across cultures. Other studies have analyzed the effect of culture on the success of new ventures, embedded in different nations (Hofstede et al., 1988; McGrath et al., 1992). While the entrepreneurial environment covers socio-cultural values (Shapiro et al., 1982), researchers analyze the role of values and culture on new venture generation (Weber, 1930). Beyond this research, motives have been researched across cultures (Baker et al., 2005).

Further studies explored the influence of different cultural dimensions (e.g. Power Distance, Individualism and Collectivism) on the role of the values in entrepreneurship (Busenitz et al., 1996; McGrath et al., 1992; Mitchell et al., 2000; Morris et al., 1994; Takyi-Asiedu, 1993). From these studies we learn that power distance, individualism, and collectivism, influence new venture generation. Still, the direction of influence of the cultural dimension on motivators and intentions of new venture generation is unclear. To shed more light on this, we will first discuss the effect of power distance, then that of individualism and collectivism.

McGrath, MacMillan et al. (1992) found entrepreneurship to be associated with high scores of power distance. They also identified that individualism, masculinity, and low scores of uncertainty avoidance increases entrepreneurship. However, numerous other studies indicate that high scores of power distance reduce entrepreneurship (Aiken *et al.*, 1971; Burns *et al.*, 1961; Thompson, 1967; Zaltman *et al.*, 1973). We find some similarities to power distance in the study of organizations' character by Burns and Stalker (1961) who suggest that mechanistic organizations are less innovative than organic ones. The equality of prestige, rewards, and social power increases innovation (Burns et al., 1961). Also, Thompson (1967) suggests that discrete power structures create coalitions that support innovation. Another negative effect of power distance on entrepreneurship is the lack of communication between different hierarchical levels (Hofstede, 1980). Free communication in all directions is important for innovative organizations, researched in the U.S. and Japan (Shane, 1993; Thompson, 1967). Furthermore, power distance is related to the centralization of power (Hofstede, 1980). Instead, decentralization promotes innovation Aldrich (1979), because it provides opportunities for possible feedback from lower level staff (Hage *et al.*, 1970). Thus, we find different indicators of a negative effect on entrepreneurship through power distance, and in consequence we hypothesize:

H1: High power distance has a negative impact on entrepreneurial motivation.

Peterson (1980) suggests that the greater individualism is, the greater an entrepreneur's chances of achieving success are. According to the motivational aspects, entrepreneurs are driven by motives like developing themselves (Huisman, 1985). A study on new venture generation can also be informed by Hofstede's individualism index, which encompasses three attitudes to encourage innovation (Hofstede, 1980). (1) Importance of freedom, which directs freedom of managers to take actions they see most worthwhile. This was found to be important for innovations in the U.S. and Japan (Shane, 1993). (2) Cosmopolitan orientation of society (Hofstede, 1980). This outward orientation is important, because contacts with outsiders encourage creativity (Mueller, 1962; Pavitt, 1984; Utterback, 1974). (3) Autonomy and independence: these foster entrepreneurship and are more common in individualistic societies (Shane, 1992) as individuals with such traits are less in need of support of others or conformity to the norms of others (Sexton *et al.*, 1985). Hornaday and Aboud (1971) found that in comparison to non-entrepreneurs, entrepreneurs had higher needs for achievement and higher scores for independence in general. Therefore, we find evidence of the relationship between individualism and entrepreneurship. We hypothesize:

H2: There will be a positive relationship between individualism and the intention to found a new venture.

Still, Tiessen (1997) suggests that both individualism and collectivism are necessary for successful entrepreneurship. Similarly, Morris, Davis et al. (1994) discover that midlevel individualism-collectivism leads to greater levels of entrepreneurship. Shane (1992, 1993) analyzed data from 33 countries and found that the rate of innovation varies across cultures. Under certain circumstances such as new ventures pursuing radical innovations or in societies with a high index of collectivism, team founding is more successful and also increases the motivation to found a new venture. Thus, we hypothesize that collectivism but also individualism can have a positive effect on motivators of new venture generation, depending on contingency effects across national cultures.

H3: Collectivism and individualism will have a positive impact on motivators on entrepreneurship depending on national cultures.

Entrepreneurial personality research considers the effect of motivations related to the decision to start a new business (Korunka *et al.*, 2003; Rauch *et al.*, 2000). Individuals who lack entrepreneurial motivation will less likely start a new venture. The general proposition that entrepreneurial motivation increases the likelihood of founding a new venture will be tested here. That implies hypothesis 4.

H4: There will be a positive relationship between motivators and the intention to found a new venture.

### 3. METHOD AND DATA

#### 3.1 Survey

This study analyzes attitudes toward motivators and intentions to promote a new venture. The hypotheses were empirically tested using data collected from a survey of MBA students. The proposed model was tested on data collected from 450 students in Germany (275) and Poland (175). The entire questionnaire was subjected to double blind translation to improve the validity of the measuring instruments (Brislin, 1980). The original German questionnaire was translated into Polish by a bilingual speaker. The translation again was back-translated by a second additional bilingual translator. Latent constructs estimated as linear functions of direct measurable variables (Diamantopoulos *et al.*, 2001) refer to power distance, individualism, collectivism, entrepreneurial motivators, and intentions to promote a company. All indicators were measured on a 5-point scale from 1: "strongly disagree" to 5: "strongly agree".

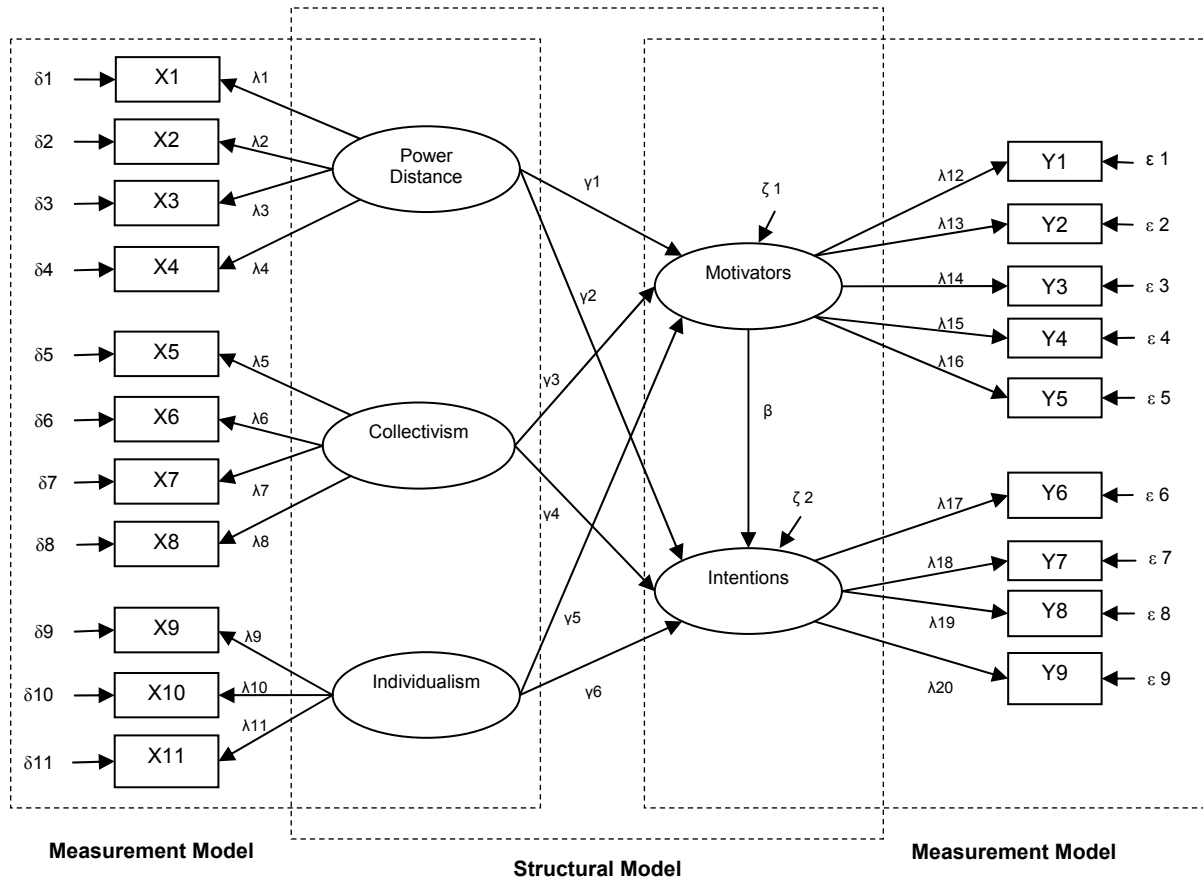
#### 3.2 Variables

For our full model and the testing of the hypothesis we used the following variables. First we present the independent variables: **Power Distance (PD)**. One can not measure power distance directly. Power distance, which we also regard to as hierarchy, is measured by questions showing the emotional dependence on powerful people. To measure power distance we used items (see table 1 and figure 2) from Maznevski, DiStefano *et al.* (2002) and Monteath (2003). **Collectivism**. Collectivists relate an individual to an in-group such as family (Fiske, 1992; Hofstede, 1980; Markus *et al.*, 1991). Collectivists internalize the group's goals and values (Hofstede, 1980; Markus *et al.*, 1991). The construct of collectivism can be defined by several attributes. To measure collectivistic attributes we used the items also shown in table 1 and figure 2. **Individualism**. Individualistic people are autonomous and independent from groups. Their personal goals are more important than the goals of their group. To measure individualism, we follow Triandis *et al.* (1988; 1990) and Shulfruf *et al.* (2003) (see table 1 and figure 2) Second, the dependent variables are: 1) **Motivators**. Motivators of entrepreneurship deal with the question what would motivate a person to become an entrepreneur. Many concepts to measure entrepreneurial motivators are possible. We restrict ourselves to the items shown in table 1 and figure 2. 2) **Intentions**. Entrepreneurial intentions reflect the willingness to start a new venture. We measured this willingness with different questions (see table 1 and figure 2). To give an overview about the data of each country we first deliver a correlation matrix (see figure 1).

**Figure 1: Correlation-matrix of items for Germany and Poland**

	Poland																			
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9
X1	1	,394(**)	,381(**)	,320(**)	-,155(*)	-0,021	0,042	0,041	0,098	-0,069	0,008	-0,004	-0,030	,156(*)	0,127	0,081	0,100	0,092	0,012	0,075
X2	,413(**)	1	,303(**)	,294(**)	,190(*)	0,074	,153(*)	0,028	0,134	0,022	-0,105	0,033	,156(*)	,220(**)	,243(**)	0,144	0,145	,230(**)	,189(*)	,199(**)
X3	,333(**)	,236(**)	1	,382(**)	-0,063	0,012	0,005	-,175(*)	,196(**)	0,016	-,180(*)	0,077	0,134	,159(*)	0,064	0,085	0,075	,168(*)	0,150	0,125
X4	,329(**)	,181(**)	,292(**)	1	0,040	-0,012	0,048	0,036	0,092	0,052	-0,088	-0,039	0,022	0,100	0,107	0,044	-0,132	0,043	0,003	-0,025
X5	-0,014	0,042	-0,062	-0,073	1	0,089	,250(**)	,176(*)	-0,013	0,074	0,054	0,052	-0,095	0,054	0,078	0,031	-0,023	0,001	0,088	0,085
X6	-0,094	-0,070	-0,063	-0,070	,363(**)	1	,268(**)	,235(**)	-0,113	-0,148	0,007	0,046	,174(*)	0,131	,183(*)	,155(*)	-0,003	-0,005	0,021	0,080
X7	-0,006	0,114	0,080	-0,049	,280(**)	,164(**)	1	0,132	-0,125	0,013	-0,017	0,084	,238(**)	,220(**)	,155(*)	0,084	0,058	0,086	0,052	0,087
X8	-0,019	-0,007	-0,044	0,013	,269(**)	0,072	0,059	1	-0,047	0,097	,193(*)	-0,004	0,049	,169(*)	,179(*)	0,029	-0,075	0,000	-0,033	-0,083
X9	0,105	,124(*)	0,016	0,028	-,166(**)	-0,029	-0,066	-0,100	1	,351(**)	,223(**)	,207(**)	0,142	,169(*)	0,107	0,063	0,119	0,086	0,012	,169(*)
X10	,143(*)	,221(**)	0,095	0,100	-0,065	0,030	0,017	-0,029	,452(**)	1	,301(**)	0,107	0,092	,155(*)	,202(**)	0,031	-0,029	-0,029	0,074	0,133
X11	0,049	0,058	-0,076	0,055	0,011	0,103	0,095	-0,011	,324(**)	,492(**)	1	,182(*)	,168(*)	,299(**)	,229(**)	0,054	-0,023	0,025	0,072	0,002
Y1	-,138(*)	-0,077	-,163(**)	-0,025	-0,011	-0,021	-0,031	-0,061	0,054	-0,024	,139(*)	1	,343(**)	,424(**)	,427(**)	,426(**)	,257(**)	,187(*)	,182(*)	0,081
Y2	-0,056	0,000	-0,025	-0,003	-0,022	0,053	0,073	0,021	-0,060	-0,004	0,082	,350(**)	1	,382(**)	,326(**)	,345(**)	0,074	0,066	0,087	0,032
Y3	-,134(*)	-0,119	-,210(**)	-0,072	,176(**)	,158(**)	,175(**)	0,053	-0,066	-0,058	0,083	,296(**)	,316(**)	1	,739(**)	,516(**)	,185(*)	,222(**)	0,148	,226(**)
Y4	-0,105	-0,086	-,202(**)	-,136(*)	,157(*)	0,083	,178(**)	-0,005	-0,052	-0,107	0,080	,318(**)	,370(**)	,810(**)	1	,555(**)	0,147	0,109	,154(*)	,161(*)
Y5	-,136(*)	-,162(**)	-,190(**)	-,130(*)	,129(*)	0,064	,153(*)	-0,001	-0,031	-0,008	0,100	,269(**)	,392(**)	,495(**)	,538(**)	1	,168(*)	0,084	0,078	0,125
Y6	0,033	-0,013	-0,029	-0,074	0,084	0,058	,180(**)	-0,032	-0,005	0,112	,163(**)	,302(**)	,334(**)	,423(**)	,445(**)	,325(**)	1	,522(**)	,216(**)	,333(**)
Y7	0,109	0,017	0,066	-0,043	0,013	-0,026	,122(*)	-0,047	-0,032	,127(*)	0,084	,242(**)	,144(*)	,189(**)	,178(**)	,151(*)	,588(**)	1	,256(**)	,339(**)
Y8	0,030	-0,075	-0,091	-0,002	0,107	0,037	-0,065	-0,059	-0,109	0,030	-0,093	0,066	0,096	0,148	,178(*)	0,116	,243(**)	,168(*)	1	,349(**)
Y9	0,013	-0,002	-0,011	0,035	0,041	0,000	,204(**)	-0,054	0,055	0,086	,216(**)	,267(**)	,320(**)	,358(**)	,383(**)	,272(**)	,667(**)	,382(**)	,185(*)	1
	Germany																			

**Figure 2: Structural Equation Model**



**Table 1: Items**

Variable	Items
X1	People in lower levels in the hierarchy should carry out the requests of senior people without question
X2	A hierarchy of authority is the best form of organization
X3	I think that the boss is always right because he or she is the boss
X4	When I don't agree with my boss, I always keep quiet
X5	I think it is important to meet colleagues in official meetings to transfer information
X6	I help my colleagues in stressful situations even when it is not my task
X7	I identify with the goals of my company
X8	My family plays an important role in my life
X9	I prefer to work alone than in teams
X10	If you want something done right, you've got to do it yourself
X11	I prefer to be self-reliant rather than depend on others
Y1	Founding an own venture gives independence from stifling organizational constraints
Y2	Founding an own venture provides free time of work and leisure
Y3	Founding an own venture allows implementation of own ideas
Y4	Founding an own venture provides realization of own targets
Y5	Founding an own venture allows interesting tasks that can strongly define myself
Y6	I have a strong desire to be an entrepreneur
Y7	I plan to found a firm before or shortly after (< 1 year) my graduation from university
Y8	If I started a new venture then I would start it with others (in a team)
Y9	I plan to found a firm after some years of practical experiences following my graduation

### 3.4 Structural equation modeling analysis for cross-cultural comparison

#### 3.4.1 Approach

To test our hypotheses and to estimate the proposed model we carried out structural equation modeling (SEM). This method allows us to a) research the relations among the latent constructs while accounting for the measurement model of the observed indicators, b) test the specific hypotheses, and c) estimate the overall fit of the hypothesized model to the data. Within SEM, multiple measures of goodness of fit are provided. Here, we first discuss the general SEM approach and its goodness of fit criteria before explaining our specific and novel approach to cross-national comparison by multi-group analyses within SEM analyses. Thus, we first explain and then report our measures of goodness of fit and afterwards with respect to the specific the multi-group procedure.

The first step in structural modeling is to assess an overall model fit with one or more goodness-of-fit measures (Arbuckle et al., 2003). Thereby one has to consider that structural modeling consists of two stages. The first stage is a measurement model that assesses reliability and validity of the scales used to measure each latent construct. The second stage includes a structural model that tests the latent constructs and estimates multiple dependent relationships between the constructs of interest (Kale et al., 2000). This sequence ensures that the researcher has a reliable and valid measure of constructs before attempting to draw conclusions about the nature of the construct relationships (Hulland, 1996).

#### 3.4.2 Procedure of Multi-group comparison with SEM across Cultures

This research addresses not only simultaneous estimations of latent constructs by taking the measurement error into consideration; it also includes a comparison of different groups with respect to the national culture. One of the most important and yet only partially answered issues in cross-cultural research is establishing construct comparability in different samples (Robert et al., 2000). Herein, the measurement of the different independent constructs (individualism, power-distance, and uncertainty avoidance) and dependent constructs (motivators and intentions of entrepreneurship) has to be statistically invariant. In all research that focuses on multi-group comparisons, the instrument of measurement has to work in the same way (Byrne, 2004). This assumption is important for implications and can be tested statistically. Before testing for invariance of the measurement model, it is customary to consider a baseline model that is estimated for each group separately. The baseline model represents a model that best fits the data, according to parsimony and substantial meaningfulness (Byrne, 2004). As the analysis of baseline models involves no constraints between groups, the data can be estimated separately for each group. In contrast, when testing for invariance across groups, equality constraints are imposed on particular parameters, and therefore the data for all groups must be estimated simultaneously in order to achieve efficient results (Bentler et al., 1987). Fixed parameters are constrained equal across groups. Instead, free parameters can take dissimilar values across groups. Nevertheless, the pattern of the fixed or free parameters across groups remains consistent with the baseline model specification.

#### 3.4.3 Baseline Models and Remarks on the Goodness of Fit

Baseline models have to be tested for the single-model goodness of fit, for the multi-group goodness of fit, and for invariance. In this section measures of the goodness of SEM are discussed and results according to our baseline model are given. The structure of the baseline model is given in figure 2. We estimated the models using the maximum likelihood (ML) estimation procedure (Byrne, 2001) of AMOS 6. The goodness-of-fit is a measure of correspondence of the observed input (covariance) matrix with the predicted from proposed model. If the proposed model has acceptable fit, by whatever criteria applied, the researcher has not 'proved' the proposed model, but has confirmed that it is one of the several possible acceptable models. In the following different measures are discussed and reported (see also table 3 for values).

We start with some important global goodness of fit. A first measure is the **chi-square** value. If the model is to provide a satisfactory representation of the data, it is important for the chi-square value to be significant ( $p < 0.05$ ). Also, we report the **normalized chi-square**, where it is adjusted by the degree of freedom (df) to evaluate model fit ( $\chi^2/df$ ). The normalized chi-square should be less than 2.0 or 3.0 for models with adequate fit (Kale et al., 2000). The next measure to report is Bentler's comparative fit index (**CFI**). This index is based on a comparison of the hypothesized model against

the independence model as baseline model (Arbuckle et al., 2003). The range of the CFI is form 0 to 1. A value > 0.9 is considered representative of a good-fit model (Byrne, 2001).

The next measure is the root mean square error of approximation (**RMSEA**). The RMSEA includes the error of approximation in the population and poses the question how well the model would fit the population matrix, when unknown parameter values were chosen *optimally very good sample size*. Values less than 0.05 indicate a good model fit. Values as high as 0.08 represent reasonable errors of approximation (Brown, 1993). The Normed Fit Index (**NFI**) compares minimum fit function value of the actual model with the baseline model (worst fitted "Independence Model"). NFI values range from 0 to 1, with higher values indicating better fit. Values greater than .90 are typically interpreted as indicating a good fit. Table 2 shows some important multiple goodness's of fit measures of our baseline models in both cultures.

**Table 2: Multiple goodness's of fit measures of the baseline model**

<i>Model</i>	<i>X<sup>2</sup></i>	<i>DF</i>	<i>X<sup>2</sup>/DF</i>	<i>CFI</i>	<i>RMSEA</i>	<i>NFI</i>
Germany	246.942	161	1.534	0.929	0.042	0.826
Poland	243.488	161	1.512	0.869	0.041	0.710

Thus, local goodness of fit adequacy of the model has to be considered by looking at: (1) individual item reliabilities, (2) the convergent validity of the measures linked with individual constructs, (3) discriminant validity and (4) adequate discriminant validity (Hulland, 1996). **Individual item reliability** can be assessed ad-hoc by examining the (standardized) loadings of the measures with their respective construct. In general (as a rule of thumb), items with loadings of less than 0.4 (a threshold commonly used for factor analysis results) should be dropped (Hulland, 1996). Moreover, it is necessary that the **loadings** are significantly related with their respective underlying constructs (t-values > 2.0 and p < 0.05). The significance of the factor loadings provides support for the convergent validity of the respective scales (Anderson, 1988). The loadings and the associated significance are shown in table 3.

**Table 3: Local goodness's of fit**

		<i>Germany</i>					<i>Poland</i>				
		<i>Loadings</i>	<i>P</i>	<i>T-Value</i>	<i>α</i>	<i>AVE</i>	<i>Loadings</i>	<i>P</i>	<i>T-Value</i>	<i>α</i>	<i>AVE</i>
<b>Power Distance</b>	<b>X1</b>	.715	-	-			.631	-	-		
	<b>X2</b>	.523	<0.01	5.619			.594	<0.01	5.111		
	<b>X3</b>	.505	<0.01	5.545	.623	.33	.600	<0.01	5.134	.623	.35
	<b>X4</b>	.460	<0.01	5.255			.516	<0.01	4.730		
<b>Collectivism</b>	<b>X5</b>	.876	<0.01	3.133			.313	0.021	2.303		
	<b>X6</b>	.412	<0.01	3.665			.520	<0.01	2.788		
	<b>X7</b>	.325	<0.01	3.298	.491	.26	.540	<0.01	2.795	.491	.20
	<b>X8</b>	.291	-	-			.359	-	-		
<b>Individualism</b>	<b>X9</b>	.538	-	-			.521	-	-		
	<b>X10</b>	.640	<0.01	5.941	.686	.44	.612	<0.01	3.650	.686	.30
	<b>X11</b>	.588	<0.01	6.672			.500	<0.01	3.627		

Motivators	Y1	.368	-	-			.528	-	-		
	Y2	.420	<0.01	4.683			.448	<0.01	4.723		
	Y3	.871	<0.01	5.992	.762	.35	.859	<0.01	6.912	.762	.32
	Y4	.916	<0.01	6.015			.847	<0.01	6.886		
	Y5	.596	<0.01	5.427			.634	<0.01	5.980		
Intentions	Y6	.965	-	-			.664	-	-		
	Y7	.602	<0.01	9.748			.711	<0.01	5.606		
	Y8	.233	<0.01	2.964	.707	.39	.408	<0.01	4.129	.707	.31
	Y9	.691	<0.01	11.122			.536	<0.01	5.100		

When multiple measures are used for an individual construct, the researcher should be concerned not only with individual measurement item reliability, but also with the extent to which the measures demonstrate convergent validity – the extent to which maximally different attempts to measure the same concept agree (Simonin, 1999).

For measuring convergent validity, two instruments are possible: Cronbach's alpha ( $\alpha$ ) and the composite reliability. Nunnally and Bernstein (1994) suggest 0.7 as a benchmark (very high quality) for Cronbach's alpha. For composite reliabilities, values greater than about 0.6 are desirable (Bagozzi, 1988). Discriminant validity represents the extent to which measures of a given construct differ from measures of other constructs in the same model. A significantly lower chi-square for the model with unconstrained correlation provides support for discriminant validity (Kale et al., 2000; Simonin, 1999). One criterion for adequate discriminant validity is that a construct should share more variance with its measures than it shares with other constructs in a given model. To assess discriminant validity, Fornell and Larcker (1981) suggest the use of the average variance shared between a construct and its measures. This measure should be greater than the variance shared between the construct and other constructs in the model. That is the case when the average variance extracted (AVE) is greater than 0.5 (Fornell et al., 1981). Unfortunately, here we face some less moderate goodness of our estimations.

In sum, both 20 item baseline models have very good fit according to the measures discussed before. Measuring models are usually group-specific and therefore the baseline models are equal across groups (Byrne, 2004).

### 3.4.4 Testing for Multi-Group Invariance

As a first step in testing for invariance of the cultural groups we assess the validity of the structure of the model across the two groups (Byrne, 2004). This test differs from the test of the baseline model. Here, the validity of the structure is tested simultaneously across the two national groups: all parameters are estimated for all groups at the same time. The fit of the simultaneous testing can provide a comparison to the baseline model against which all other models will also be tested. In this simultaneous model all parameters have no equality constraints: they are free items. In contrast to single group analyses this offers a fit-statistic for the overall model fit. With respect to chi-square statistics and their degrees of freedom that are summarized, the over all chi-square value obtained is to be tested for each group of culture. This multi-group model reflects the fit of the data when no cross-group constrains are imposed.

The chi-square of the two-group unconstrained model is reported in table 4. The chi-square value of 490.430 with 322 DF provides the baseline value against which the following test for invariance has to be compared. Comparative fit index (CFI) and root mean squared error of approximation (RMSEA) values are 0.909 and 0.029 respectively. This indicates that the hypothesized model of five constructs still represents a good fit across the two cultures.

The next step is to compare for the equality of the set of parameters of the measurement model. In different cultures it is most likely that a fully constrained model is non invariant across groups. In AMOS 6.0, which we were using, different parameters could be defined and measured fixed and free. Constraints are specified by a labeling technique where each parameter is held equal across groups. Unlabeled parameters will be freely estimated, thereby having different values across groups. As we deal with cross-cultural research, where characteristics and values are understood to be somehow different, some parameters will have to be estimated freely. The process of labeling parameters is purely arbitrary (Byrne, 2004).

Before starting the procedure of labeling specific parameters, we first estimated a model completely constrained equal across groups. Therefore, we have to investigate if there is a significant change in the chi-square statistics and their degrees of freedom (DF), the CFI, and the RMSEA. Following the suggestion by Robert, Probst et al. (2000) we primarily checked the chi-square statistics. Still, all other indices were taken into account. If there the model is significantly worse than the unconstrained model (t values are significant in the comparison of the unconstrained and constrained model), then we have to deal with some non invariance. Consequently, we have to explore if there is complete non invariance or if there are only some unequal parameters. In our study of different cultures, we find that the fully constrained model is significantly worse ( $P=0.001$ ) than the unconstrained model (refer to table 4).  $X^2$  changes from 490.430 to 531.748 ( $\Delta X^2 = 41.318$ ,  $\Delta DF = 15$ ). So we have to proceed with testing for invariance of specific parameters.

**Table 4: Comparison of unconstrained, fully constrained model fits and best fit model**

<i>Model</i>	<i>X<sup>2</sup></i>	<i>DF</i>	<i>X<sup>2</sup>/DF</i>	<i>CFI</i>	<i>RMSEA</i>	<i>NFI</i>
Unconstrained	490.430	322	1.523	0.909	0.029	0.783
Fully Constrained	531.748	337	1.578	0.894	0.031	0.765
Best Fit Model	509.622	334	1.526	0.909	0.029	0,775

After the complete procedure of testing and removing each factor and each item related to the factor we finally reached a multi-group model with some parameters fixed and some freely estimated. In this model we strive to fix as many parameters as possible but still achieving multi-group invariance. Table 4 reports the comparison of the chi-square statistics and their DF, the CFI, and the RMSEA between the unconstrained and the last model.  $X^2$  changes from 490.430 to 509.622 ( $\Delta X^2 = 18.192$ ,  $\Delta DF = 12$ ). So we have found invariant models.

Goodness of fit statistics related to this two-group partially constrained model revealed excellent fit to the data. We regard that both models are invariant. From the non-significant change and the fulfillment of the conditions we achieved measurement invariance that allows us to undertake further estimations can be compared across groups. Nevertheless, as cultures have different values of the constructs (Luthans *et al.*, 2006), non-invariance of the structural weights has to be assumed. The fit of the best fitting model that is invariant to the unconstrained model is good (refer to table 4).

### 3.4.5 Results of the Path Coefficients

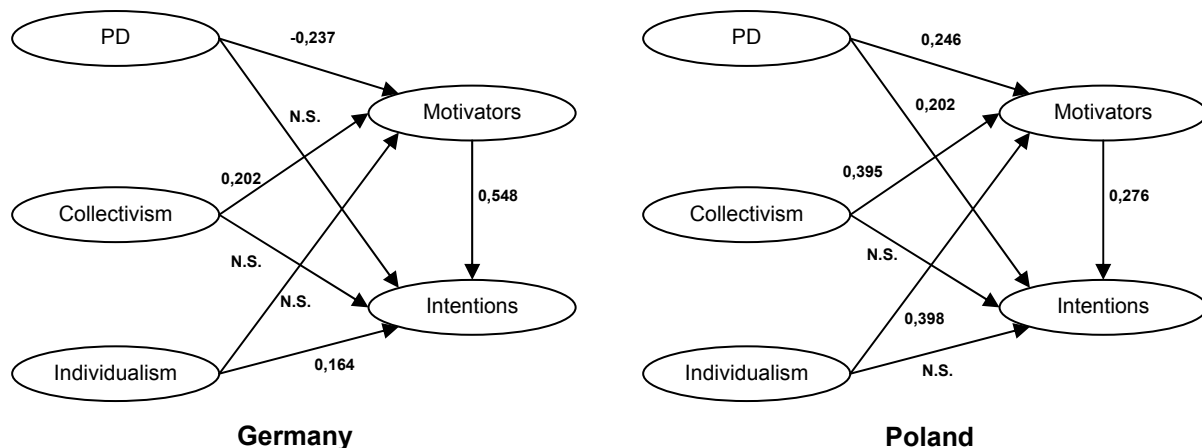
Next analyses direct, firstly, the comparison of path coefficients in the simultaneously estimated multi-group model defined above and, secondly, test for invariance. Table 5 summarizes measure according to the significance of the paths for and across the countries. The first column gives information about the specific paths being measured. The next columns inform about each of the countries' critical ratios and the significance of each path. The critical ratio (known as t-value) is the test for the grade of the effect. In general, values  $\geq 1.9$  are regarded significant on 5% level. The last two columns give information about the differences of the paths coefficients across the two countries. Levels of  $P \leq 0.05$  indicate a significant difference of the path across the countries (significant values are given in cursive writing).

**Table 5: Values of the path coefficients of Germany and Poland**

Path	Germany		Poland		Measures of Differences of Path Coefficients across Germany and Poland	
	C.R.	P	C.R.	P	$\chi^2$	P
<b>Power Distance → Motivators</b>	-3.076	.002	2.537	.011	17.224	.000
<b>Collectivism → Motivators</b>	2.406	.016	2.670	.008	.325	.569
<b>Individualism → Motivators</b>	0.054	.957	3.193	.001	10.576	.001
<b>Power Distance → Intention</b>	1.436	.151	1.607	.108	.008	.927
<b>Collectivism → Intention</b>	-0.015	.988	-.259	.795	.029	.865
<b>Individualism → Intention</b>	2.515	.012	-.058	.954	1.695	.193
<b>Motivators → Intention</b>	6.464	<.001	-1.951	.051	8.920	.003

We now move to the discussion of the culture on entrepreneurship. Data is given in figure 3. The two figures of each country are estimated on the best fitting model and give information about the direction and the strength of the path coefficients.

**Figure 3: Paths coefficients of Germany and Poland**



(a) **Power distance on entrepreneurial motivation** (regarding hypothesis 1); the 0.246 ( $P < 0.05$ ) value of the path coefficient shows a positive influence of power distance on entrepreneurial motivation in the Polish group. In contrast, the -0.237 ( $P < 0.01$ ) value of the German group indicates a negative relationship between power distance and entrepreneurial motivation. Thus hypothesis 1 is confirmed with Germans. Instead, for the Polish group hypothesis 1 has to be refused as the direction of the path is opposite as hypothesized.

(b) **Individualism on intentions to found a new venture** (regarding hypothesis 2); the value of the path coefficient of the Polish group was non significant. Hence, hypothesis 2 can not be confirmed with Polish. In contrast, the 0.164 ( $P < 0.05$ ) value of the German group path coefficient indicates a positive influence of individualism on entrepreneurship. So, hypothesis 2 has to be confirmed, but only for Germans.

(c) **Collectivism and individualism on motivators on new venture generation** (regarding hypothesis 3; here we again find differences, which are multifaceted, across the nations. In the German group the relationship between individualism and entrepreneurial motivators was non-significant. However, the relationship between collectivism and entrepreneurial motivators is positive with a 0.202 ( $P < 0.05$ ) value for Germans. Results for Polish nationals are different. In the Polish

group 0.395 ( $P < 0.05$ ) illustrates a positive relationship between collectivism and entrepreneurial motivators. The 0.398 ( $P < 0.05$ ) value indicates a positive relationship between individualism and motivators for entrepreneurship. As such, depending on the national culture's background, we find different effects through collectivism and individualism on entrepreneurship. For this reason hypothesis 3, assuming collectivism and individualism will have a positive impact on motivators on entrepreneurship depending on national cultures, can be confirmed. On top of the different directions, we gain interesting results in Poland where there is a balanced influence of individualism and collectivism on the motivators of new venture generation. This finding indicates that in some countries individualism and collectivism are different dimensions and not only opposite poles of one single dimension.

(d) **Motivators and intentions of new venture generation** (regarding hypothesis 4); both path coefficients, of the Polish and German group 0.276 ( $P < 0.01$ ) value of the Polish group and the 0.548 ( $P < 0.01$ ) are positive and significant. From the positive and significant path we find, hypothesis 4 confirmed that suggested a positive relationship between motivators and intentions of new venture generation. Furthermore, we find that the likelihood of individuals, who are entrepreneurially motivated, to found a business in Germany is higher than in Poland.

#### 4. CONCLUSION AND IMPLICATIONS

The purpose of this paper was to investigate the effects of national culture on new venture generation. We draw on the literature on culture and entrepreneurship, which informed us about different challenges and risks associated with founding a new venture as well as about different decision stages in entrepreneurship. The literature further enhanced the understanding of personality and values on entrepreneurship. In order to explore cultural differences, this study builds upon the culture-classification of Hofstede. Following Triandis (2002) we use only two of Hofstede's four cultural dimensions, namely power distance and individualism/collectivism. But we measure individualism and collectivism on two dimensions and further items.

The aim of our study was to investigate in cultural antecedents of new venture generation. Our highly developed multi-group SEM analysis with AMOS allowed us to measure not directly observable aspects like cultural dimensions and also motivators and intentions to found a new venture. AMOS enables us to estimate effects simultaneously. Largely, the results of this study provide support of our hypotheses. The findings were robust.

Our first and hypothesis predicting that influences on entrepreneurship are different across cultures is supported with Germany and Poland. To our surprise, we found a negative impact of power distance on entrepreneurial motivators with German students, in contrast to a positive one with Polish students. This finding is very interesting as it shows opposite effects in entrepreneurship across cultural backgrounds. We deduce that in Germany, where power distance is lower, individuals feel comfortable being subordinates and to be part of an organization that has less power distance across organizational levels. Contrastingly, in Poland where power distance is higher, people might have a stronger wish to escape from hierarchical restraints and follow a strong drive of improving their social status and strength by the help of entrepreneurship. Therefore, we deduce that power distance has mixed effects across cultures. Our results in Germany are consistent with prior research of power distance on entrepreneurship. However, our results with Poles are opposite to prior research (see references given on page 3). We deduce that the strong wish to escape hierarchies and control by supervisors in the ex-communist countries is a driver of entrepreneurship. Hence, the transition process in ex-communist countries delivers new and different results of cultural values and new venture generation.

In the analysis of collectivism and individualism on the motivation to found a new venture, we find further dissimilarities across Germans and Poles. In Germany, individualism has only a positive, yet small, effect on the intention to found a new venture. With Poland, collectivism and individualism have a positive effect on entrepreneurial motivators. These results are interesting in different aspects. Collectivism and individualism exerts different effects that can be redirected to national or cultural backgrounds. So, general assumptions on individualism or collectivism on entrepreneurship do not hold according to our results. Therefore, we specify and also contradict prior research (e. g. Busenitz *et al.*, 1996; e. g. Minoti, 2001; Mitchell *et al.*, 2000; Morris *et al.*, 1994), suggest that only individualism has positive impact on entrepreneurship. These assumptions only apply for Germany and merely for the intention to found a new venture, not on motivators of new venture generation. In Poland, the positive impact of both, collectivism and individualism, on motivators of entrepreneurship

is interesting. We assume that entrepreneurship also requires leveraging resources internally or by establishing external ties, so collectivism is the second attribute influential for entrepreneurship. Still, this finding was only possible as we measured individualism and collectivism according to different dimensions. From the results we also deduce that individualism and collectivism are no poles of one dimension. As such research has to move from the single dimensional measures of individualism to two dimensional measures of individualism and collectivism.

Finally, we found that the motivation to found a new venture essentially leads to intention to entrepreneurship in both countries. However, in Germany the likelihood to found a new venture is higher than in Poland. We reason that a different economic and social environment in both countries influence the intention to found. The bureaucracy, high financial risk and borrowing heavily, challenging economic-political situation as well as varying entrepreneurial climate in Poland can inhibit the motivation to found a new venture. Also the lack of social networks would reduce the willingness to found a new venture. Thus, the high risks associated with new venture generation limit the more actual intention of new business generation.

As the literature is still incomplete on this topic it calls for further theoretical and empirical studies. Further investigations could concentrate on the question how other cultural dimensions affect different aspects of entrepreneurship; in particular comparing transformational and non- transformational countries. Further studies might investigate uncertainty avoidance, as entrepreneurship is a risky process (McMullen *et al.*, 2006; Olson, 1986). The novelty of entrepreneurial actions, such as new products, new services, or new technologies (Gartner, 1990; Schumpeter, 1934), increase uncertainty (Amabile, 1997; Smith *et al.*, 2002). Further, other cultural studies, such as Hall & Reed Hall (1990), Hampden-Turner (2000), and Schwartz (1992) could be a good base for further research of entrepreneurship.

Further studies could also explore how culture impacts the motivation and success of team venturing, especially when team members belong to different cultures. Team-based entrepreneurship reduces the scarcity of resources by bringing founders with diverse profiles together that also contribute a broader portfolio of technical and managerial knowledge and resources. Team-based entrepreneurship was found to be more successful compared to single entrepreneurs (Keeley *et al.*, 1994; Mellewigt *et al.*, 2002). The team venturing has the advantage of diverse resources and competencies of individuals (Garcia-Prieto *et al.*, 2000; Harrison *et al.*, 2002; Kilduff *et al.*, 2000). The diversity in venturing teams increases when the team members come from different countries and belong to different cultures. Causes for the internationalization of entrepreneurship are cost advantages, new markets, and new knowledge. In order to be successful abroad, a venturing team has to comprise of individuals from the respective countries. These people have specific knowledge about the economic, cultural, social, and political environment of the country. However, such ventures include a high likelihood of conflicts. Thus, it appears fruitful to investigate the cultural factors on cross-cultural team venturing.

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