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# **Post-Materialism: A Cultural Factor influencing Total Entrepreneurial Activity across Nations**

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### **Abstract:**

The study of predictors of entrepreneurial activity at the country level has been dominated by economic influences. However, the relative stability of differences in entrepreneurial activity across countries suggests that other forces such as institutional and/or cultural factors are at play. The objective of this paper is to explore more specifically how post-materialism may help to explain differences in total entrepreneurial activity across countries. Total entrepreneurial activity is defined as the share of adults in the total population of 18 to 64 years old who are either actively involved in starting a new business or in managing a business less than 42 months old. The measure for post-materialism is based upon Inglehart's four-item post-materialism index. Because of the known interactions between economic, cultural, and social factors found in previous research, a set of economic, demographic and social factors is included to investigate the independent role post-materialism plays in prediction of entrepreneurial activity levels. In particular, per capita income is used to control for economic effects. Education rates at both secondary and tertiary levels is used as a demographic variable. Finally, life satisfaction are included to control for social effects. Data from 28 countries, world-wide, are used to test the hypotheses, based on intersecting data available from the Global Entrepreneurship Monitor, World Values Survey and other published sources. Findings confirm the significance of post-materialism in predicting total entrepreneurial activity even when controlling for these other factors.

### **Keywords:**

comparative analysis of economies, cultural economics, entrepreneurship, self-employment, macro-economic analyses of economic development

### **JEL codes:**

P52, Z1, M13, O11, O57

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## 1. Introduction

In the late twentieth century, entrepreneurship re-emerged as a key agenda item of economic policy makers across Europe, both for specific nations as well as for the European Union as a whole (Brock and Evans, 1986; OECD, 1998; European Commission, 1999; EZ, 1999; Carree and Thurik, 2003). Moderate economic growth coupled with persistently high levels of unemployment stimulated expectations of entrepreneurship's potential as a source of job creation and economic growth (Acs, 1992; Thurik, 1996, Audretsch and Thurik, 2000). This has not always been the case. For instance, in the early and mid twentieth century - in fact until the 1980s - a focus on entrepreneurship was absent from the European economic policy agenda. The exploitation of economies of scale and scope was thought to be at the heart of modern economies (Teece, 1993). Audretsch and Thurik (2001) characterize this period as one where stability, continuity and homogeneity were the cornerstones and thus label it the '*managed economy*'. Small businesses, and hence the self-employed, were considered to be a vanishing breed.

This period of the last two decades of the twentieth century witnessed massive downsizing and restructuring of many large firms as well as the decline of the centrally-led economies in Central and Eastern Europe built on certainty and the virtues of scale. By the 1980s evidence mounted to demonstrate that this move away from large firms toward small, predominantly young firms was a sea-change, not just a temporary aberration of the 1970s. Audretsch and Thurik (2001) label this new economic period, based less on the traditional inputs of natural resources, labor and capital, and more on the input of knowledge and ideas, as the '*entrepreneurial economy*'. Paradoxically, the increased degree of uncertainty creates opportunities for small and young firms, and hence leads to higher rates of entrepreneurship, including higher rates of self-employment. Further study shows that this change does not take place in all developed economies at the same time or to the same degree (Audretsch, Thurik, Verheul, Wennekers, 2002). Hence comparative research may explain these variations (Reynolds, Hay, Bygrave, Camp and Autio, 2000).

This study focuses on the determinants of *total entrepreneurial activity* across countries, as defined in the Global Entrepreneurship Monitor (Reynolds, Camp, Bygrave, Autio, and Hay, 2001). Total entrepreneurial activity is defined as the share of adults in the total population of 18 to 64 years old who are either actively involved in starting a new business (nascent) or in managing a business less than 42 months old (starters) (Reynolds et al 2001). This research study is part of a larger research stream predicting the rate of various business activities at the macro economic-level, including the level of activity for nascent, starter and established businesses. Until recently, the only data readily available for many countries combined starter and established business activity into a measure of self-employment. Self-employment level differs largely across countries (Audretsch, Thurik, Verheul and Wennekers, 2002; Wennekers, Thurik, and Uhlaner, 2002). Self-employment is a major factor benefiting spillover effects of entrepreneurial energy (Wennekers and Thurik, 1999; Reynolds, Hay, Bygrave, Camp and Autio, 2000). However, a widening participation of countries in the Global Entrepreneurship Monitor now makes it possible to retest some of these hypotheses more directly for entrepreneurial activity. In particular, data for GEM allows researchers to compare estimates of nascent, new, and/or established business rates (or a combination thereof) relative to the overall adult population for countries participating in the research program.

Past comparative research, whether for self-employment or aspects of total entrepreneurial activity, has focused primarily on economic factors. Policies for stimulating entrepreneurship have to take these factors into account. However, policy makers should be aware of the limits of policy influence. In particular, some factors, such as cultural characteristics, which are imbedded in the population and change more slowly, are much less susceptible to policy measures (Hofstede,

2001). That is why a different strand of research is developing which deals with sociological indicators such as culture and institutions. Some of this research uses the indices developed by Hofstede to measure different dimensions of culture, including individualism, masculinity, uncertainty avoidance and power distance (Hofstede, Noorderhaven, Thurik, Uhlaner and Wildeman, 2004; Wennekers, Noorderhaven, and Thurik, 2002). Though less well known in the economics literature, an extensive literature in political science exists using an alternative cultural indicator, post-materialism, first coined by Inglehart (1977, 1990, 1997). Post-materialism describes the degree to which a society places immaterial life-goals such as personal development and self-esteem above material security. This phenomenon is thus a candidate when using cultural characteristics for the explanation of entrepreneurship across countries. Hence, the objective of this paper is to explore whether post-materialism explains differences in total entrepreneurial activity rates across countries. In particular, we investigate to what degree economic or cultural variables including post-materialism dominate the explanation of entrepreneurial activity at the country level. Previous research on a set of 14 OECD countries found a significant linkage between post-materialism and self-employment although the relationship was weakened when other social and economic factors were controlled for (Uhlaner, Thurik, and Hutjes, 2002). However, the dependent variable in that study combined the rate of activity for both starters and established firms, and furthermore, did not include nascent entrepreneurial activity. The current study provides an opportunity to examine effects on total entrepreneurial activity separately from its effects on established firms..

Section two of the paper provides an overview of the models used to explain cross-country differences. It also provides a review of the cultural factors thought to influence the rate of total entrepreneurial activity at the aggregated societal level. Section three presents the model and hypotheses tested. Sections four through seven present the method, results, discussion, and conclusion sections respectively.

## **2. Past research on entrepreneurship rates at the aggregated society level**

The rate or level of entrepreneurship at the societal level depends upon the opportunities provided by the environment as well as the capabilities and preferences of the population. These aspects in turn are influenced by available technology, level of economic development, culture, institutions and social demographics. The focus of this section will be on a limited set of those economic, cultural and social factors thought to predict entrepreneurship, based on empirical research available to date. For a further elaboration of these issues we refer to the '*eclectic*' framework of entrepreneurship proposed by Verheul, Wennekers, Audretsch and Thurik (2002) and by Wennekers, Thurik, and Uhlaner (2002).

### **2.1. Push vs. pull factors as influences on entrepreneurship**

Applicable to both economic and cultural factors is the notion of push and pull factors for business start-up and entrepreneurship in general (Stanworth and Curran, 1973; Wennekers, Noorderhaven, Hofstede and Thurik, 2002). Pull factors are concerned with the expectation of being better off as an entrepreneur. Thus, individuals are often attracted to entrepreneurship with the expectation that it will provide greater material and/or nonmaterial benefits. Push factors take into account the conflict between one's current and one's desired state. Push factors are often associated with some level of dissatisfaction. Huisman and de Ridder (1984) report that frustrations with previous wage-employment, unemployment and personal crises are among the most cited motives of a large sample of entrepreneurs in eleven different countries. Van Uxem and Bais (1996) find that 50% of almost 2000 new Dutch entrepreneurs mention dissatisfaction with their previous job among their motives to start for themselves. At the macro level, Wennekers, Noorderhaven, Hofstede and Thurik (2002) also find support for push factors of entrepreneurship, as

measured by self-employment as a percentage of the labor force. In particular, they find higher self-employment in countries with less prosperity (lower per capita GDP), greater dissatisfaction with society and lower life satisfaction.

## **2.2. Economic influences on rate of entrepreneurship**

Early models of entrepreneurship focused primarily on economic factors to explain differences in self-employment across nations. Blau (1987) uses data on the American labor force to identify which factors caused the growth in entrepreneurship in the latter part of the twentieth century after a very long-term decline. He highlights two key factors: changes in technology and industrial structure. He suggests that these structural changes diminished the comparative advantage of larger firms (scale advantages) and created better opportunities for small firms as their survival became less dependent on their scale based on economic factors alone. In his general equilibrium model of self-employment he assumes that workers try to maximize the utility of income..

In the economic literature, other explanations for the rebound in self-employment in the late twentieth century are based on supply factors such as tax rates, unemployment, competition and female labor participation (Blau, 1987; Blanchflower and Oswald, 1994; Blanchflower, 2000; Evans and Leighton 1989; Meager 1992, Acs, Audretsch and Evans, 1994; Audretsch, Thurik, Verheul and Wennekers, 2002). Acs, Audretsch and Evans (1994), for instance, conclude that self-employment *decreases* with an increase in per capita GNP, female labor force participation, and the relative importance of manufacturing. They also conclude that self-employment *increases* with an increase in the relative importance of the service sector. Audretsch, Carree and Thurik (2001) assume a two-way causation between changes in the level of self-employment and that of unemployment-- a “Schumpeter” effect of entrepreneurship reducing unemployment and a “refugee” or “shopkeeper” effect of unemployment stimulating self-employment. They try to reconcile the ambiguities found in the relationship between unemployment and self-employment by introducing a two-equation model where changes in unemployment and in the number of business owners are linked to subsequent changes in those variables for a panel of 23 OECD countries over the period 1974-1998. The existence of two distinct and separate relationships between unemployment and self-employment is identified including significant “Schumpeter” and “refugee” effects. See Carree, van Stel, Thurik and Wennekers (2002) for a survey of the dual causality between self-employment and economic development at the country level.

Hofstede, Noorderhaven, Thurik, Uhlaner, Wennekers and Wildeman (2004) a detailed justification is provided of the use of prosperity, female labor share, earning differentials, unemployment and population density when explaining the level of self-employment. They use these economic variables for 23 OECD countries in the period 1974-1994 in their analysis of whether macro indicators of dissatisfaction influence the level of self-employment.

## **2.3. Culture and entrepreneurship**

Though the economic factors influencing entrepreneurship are clearly important, they do not address the possible impact of culture either directly on entrepreneurship or indirectly as an influence on these economic factors. Moreover, there remains a high level of unexplained variation across countries when only economic variables are taken into account. Thus, more recently, researchers have also looked toward cultural factors to explain this variation. This section reviews the basic terminology used with respect to culture, how it has been applied to entrepreneurship research, and finally how the variable of post-materialism may be thought to influence entrepreneurial activity.

### 2.3.1. Definition of culture

Kroeber and Parson (1958, p. 583) define culture as “patterns of values, ideas and other symbolic-meaningful systems as factors in the shaping of human behavior.” Barnouw (1979, p. 5) defines culture as configurations of “stereotyped patterns of learned behavior which are handed down from one generation to the next.” Hofstede (1980, p. 25) refers to culture as “the collective programming of the mind which distinguishes the members of one human group from another and includes systems and values.” Since values are typically determined early in life (Hofstede, 1980; Barnouw, 1979) they tend to be “programmed” into individuals resulting in behavior patterns consistent with the cultural context and enduring over time (Hofstede, 1980; Mueller and Thomas, 2000). Since extensive research at the psychological level shows a link between values, beliefs and behavior, it is plausible that differences in culture, in which these values and beliefs are imbedded, may influence a wide range of behaviors including the decision to become self-employed rather than to work for others (Mueller and Thomas, 2000).

Culture can be defined for a variety of levels or systems in society with potential interactions between levels. Ulijn and Weggeman (2001) identify four different cultures: occupational or professional culture (PC), organizational or corporate culture, branch or industry culture (BC) and national culture (NC). Then there are those that argue that due to shifting national borders, at least as important if not more important is the concept of culture as defined by a civilization. Huntington (1996) identifies five or six contemporary civilizations: Sinic, Japanese, Hindu, Islamic, Orthodox, Western, and African (possibly), with Western further subdivided into three components: Europe, North America, and Latin America. At each level of culture, one can identify distinct values, norms, language and symbols. Though all these layers are important, differences in cultures may be explained in turn by variations in influences from ancient and modern civilizations from which these national cultures derive (Huntington, 1996).

Since extensive research at the psychological level shows a link between values, beliefs and behavior, it is plausible that differences in national culture, in which these values and beliefs are imbedded, may influence a wide range of behaviors including the decision to become self-employed rather than to work for others (Mueller and Thomas, 2000). Using this logic, several past studies explore the relationship between various aspects of culture and entrepreneurial behaviour across cultures (Busenitz, Gómez and Spencer, 2000; Davidsson, 1995; Huisman, 1985; Lee and Peterson, 2000; McGrath and MacMillan, 1992; Mueller and Thomas, 2000; Tiessen, 1997; Wennekers, Noorderhaven, Hofstede and Thurik, 2002)

### 2.3.2. Views regarding the relationships between cultural values and entrepreneurial behavior

Hypotheses on the relationship between cultural indicators and entrepreneurship differ, depending upon whether one chooses to view the relationship from the *aggregate psychological traits* perspective and the *dissatisfaction* perspective, derived from the *social legitimation* perspective (Davidsson, 1995; Wennekers et al., 2002; Hofstede et al. 2004). The *aggregate psychological trait* explanation of entrepreneurship is based on the view that if there are more people with entrepreneurial values in a country, there will be an increased number of people displaying entrepreneurial behaviors (Davidsson, 1995). By contrast, from the social legitimation perspective, a relationship between culture and aggregate entrepreneurship does not require a corresponding relationship between attitudes and entrepreneurial behavior on the individual level (Davidsson, 1995). Taking this a step further, Wennekers, et al, (2002) and Hofstede et al (2004) propose that according to the dissatisfaction perspective, entrepreneurship may be determined by differences in values and beliefs between the population as a whole and potential entrepreneurs. Variation in entrepreneurship is thus based upon *differences* rather than similarities (in contrast to the aggregate psychological traits perspective) between the values and beliefs of potential entrepreneurs and the population as whole. It is precisely the clash of values between these two groups that drives potential entrepreneurs away from the average organization and into self-employment.

Thus, when entrepreneurial individuals are dissatisfied with existing structures (which do not offer them entrepreneurial opportunities), they leave the mainstream organizations and start their own businesses. Based on the dissatisfaction hypothesis, the predicted relationship between the cultural indicators and entrepreneurship is thus the opposite to that which might be expected according to the aggregate psychological trait view. Thus, countries with larger power distance, stronger uncertainty avoidance, lower masculinity and lower individualism appear to be characterized by more entrepreneurship (see Baum et al., 1993; Etzioni, 1987; Noorderhaven et al., 2003; Hofstede et al 2004).

### 2.3.3. *Post materialism and the cultural dimension*

Though perhaps less well known within the small business and entrepreneurial economics literature than the cultural indices developed by Hofstede (1980), Inglehart's work on post-materialism as a cultural attribute is very well established within the field of political science (1977; 1990; 1992; 1997; 1999; 2000). Inglehart uses the concept of post-materialism to help to explain observed changes in values in modern societies. The post-materialism hypothesis describes the transformation in many countries from a culture dominated by more materialistic-oriented individuals to a society in which an increasing proportion of the population favors non-materialistic life-goals over materialistic ones. The hypothesis of post-materialism is based in turn on two sub-hypotheses, that of *socialization* and that of *scarcity*. The socialization hypothesis assumes that someone's values reflect to a great extent the prevailing circumstances during his or her formative years. The scarcity hypothesis assumes that someone's priorities reflect his or her socio-economic circumstances; therefore (s)he attaches the greatest value to relatively scarce goods. Taken together these two hypotheses imply that, as a consequence of the unprecedented prosperity and the absence of war on the direct soil of Western countries since 1945, younger birth cohorts attach less importance to economic and physical security (materialistic values) than older birth cohorts who experienced poverty (and/or other ravages associated with war) in their early years. Instead, younger birth cohorts give higher priorities to non-material goals such as esteem, self-realization and quality of life (post-materialistic values) often referred to in the psychology literature as Maslow's "higher order needs" (Maslow, 1954).

In his research, Inglehart's findings also support the conclusion that due to intergenerational replacement a gradual shift takes place from materialistic priorities to post-materialistic goals in western countries. A consequence of this shift is a declining emphasis on economic growth in these countries, together with an increasing emphasis on the protection of the environment and the quality of life. Other research on post-materialism shows that in countries with a prevailing post-materialist climate, the emphasis on income attainment is smaller than in materialistic countries (de Graaf, 1988), supporting Inglehart's description of post-materialists as "economic underachievers". The assumption of stability of post-materialist value-orientations within a culture over relatively long periods of time is supported by extensive empirical research from De Graaf using panel-data for the period 1974-1985 (De Graaf, 1988; De Graaf and De Graaf, 1988), as well as others (Dalton 1984; De Graaf, Hagedaars en Luijkx 1989; Niehof, 1992; Van Deth, 1984). More recent research does show that the trend toward post-materialism is slowing (De Graaf, 1996) or even declining (Van Deth, 1995). Nevertheless, the bulk of the research shows that these values are very slow to change within particular cultures.



### 3. Model and Hypotheses

#### 3.1. Post-materialism and rate of total entrepreneurial activity

The underlying premise of this research study is that a) material gains are central or crucial to entrepreneurship; and b) since those gains, by definition, are of less value to post-materialist individuals, a society that is more postmaterialistic, is likely to be less entrepreneurial, other things being equal. This premise is probably thus more closely linked to the psychological aggregate perspective, in that it assumes that in the aggregate, a society with fewer materialistic individuals will also have fewer entrepreneurs. This premise is not tested at the macro-level of analysis but some research aggregating individual responses provides some support. For instance, research by McGrath, MacMillan and Scheinberg (1992) shows that individual business owners from a wide variety of countries are more likely to have materialistic values. Entrepreneurs in their study are more likely to define success as 'making lots of money', for instance, than their non-entrepreneur counterparts. However, McGrath et al (1992) do not test for country differences. Blais and Toulouse (1998) do make such comparisons and conclude that entrepreneurs across countries tend to have similar motivations. In another study of individual entrepreneurs, Robichaud, McGraw and Roger (2001) find a positive correlation between extrinsic motivation of the entrepreneur and sales performance whereas they find negative relationships between the independent variables, intrinsic motivation and autonomy and independence on the one hand and the dependent variable, sales performance, on the other. These findings are interesting because at the micro-level they correspond to the thesis that business owners, especially successful ones, are more materialistic than their counterparts. Lacking comparable research at the macro-level of analysis, we can only draw on these studies for our hypotheses. In particular, assuming that trends from the micro level can be aggregated to the societal level, we predict that the relationship between post-materialism and rate of entrepreneurship is also negative, i.e., the more materialistic the culture, the higher the rate of total entrepreneurial activity. Or, stated in reverse:

**Hypothesis 1:** The more post-materialistic the culture, the lower the rate of total entrepreneurial activity.

#### 3.2. Per capita income as control variables and rate of total entrepreneurial activity

The influence of economic factors on entrepreneurship is complex. Past research shows that low levels of prosperity (as measured by gross domestic product) and unemployment are push factors toward self-employment. Low wages in the regular work force often provide an incentive to establish one's own business as a way to increase material wealth (Wennekers, Noorderhaven, Thurik and Hofstede, 2002). For instance, an increase in wealth is often accompanied by technological development and an increase in the service sector, developments that – in turn – influence entrepreneurship. At the micro level rising real wages raise the opportunity costs of self-employment making wage employment more attractive (EIM/ENSR, 1996). Several studies show a negative effect of economic development on self-employment (Kuznetz, 1966; Schultz, 1990; Bregger, 1996). At the macro level there appears to be a U-shaped relationship between per capita income (economic development) and entrepreneurship (Carree et al., 2002). In most developed countries per capita income has been observed to positively impact self-employment since the 1970s (Storey, 1999; Carree et al., 2002).

Thus, to understand better the separate impact of post-materialism on rate of total entrepreneurial activity is it important to control for economic factors. High co-variation does not negate the importance of post-materialism, but a joint regression analysis allows a test of whether post-materialism may contribute independently to an explanation of variation of rate of total entrepreneurial activity. A recent study by Van Stel, Wennekers, Thurik and Reynolds (2003) finds that a

dominant economic predictor of nascent entrepreneurship is the per capita income. Thus, this variable is chosen as a control in the current study. Thus we state the second hypothesis as follows:

**Hypothesis 2:** Controlling for per capita income, we still expect to find an independent influence of post-materialism on rate of total entrepreneurial activity across countries.

Because of evidence from past research (van Stel, et al, 2003), linear as well as curvilinear effects of per capita income will be examined.

### **3.3. Education as control variable and rate of total entrepreneurial activity**

Research indicates that both nascent entrepreneurship (Delmar and Davidsson, 2000; Davidsson and Honig, 2003) and self-employment<sup>1</sup> (Robinson and Sexton, 1994; Cooper and Dunkelberg, 1987) are influenced by educational attainment. However, a study at the macro level by Uhlaner et al. (2002) shows that a higher level of education in a country is accompanied by a lower self-employment rate. This might be explained by the high covariation within the sample of firms included in that study, between overall education of the labor force and other economic indicators. Higher educational attainment is highly correlated with the per capita income, for instance. One explanation for this finding is as follows: The growing importance of knowledge and rising educational levels also require organizations to organize (the way of) production in conformity with the supply of individualistic human capital (Audretsch and Thurik, 2000). Individuals with more education thus often have the chance to achieve as much (or even more) social status when employed by others. Thus entrepreneurship is no longer the only path leading away from lower socio-economic positions. Other research also supports the notion that education may be indirectly linked to a lower rate of entrepreneurship due to its inverse relationship to unemployment (Audretsch, Thurik, Verheul and Wennekers, 2002). Thus, more highly educated people are less likely to become unemployed, which, as stated earlier, is a push factor towards business ownership.

Other research shows a fairly strong positive relationship between levels of education and post-materialism (Inglehart, 1997). That is, rising levels of education lead to rising levels of post-materialist values. Further, in an extensive study on the American occupational structure Blau and Duncan (1967) conclude that educational attainment is a more important predictor of someone's occupation than background characteristics such as the father's occupation or education. They also conclude that the intergenerational mobility within business families increases and increasingly, as a result, children of business owners choose to pursue a different career than their parents. Taking these findings together suggests that postmaterialist values may mediate the relationship between education and total entrepreneurial activity. We thus state Hypothesis 3 as follows:

**Hypothesis 3:** Controlling for education, postmaterialism is still expected to have an independent effect on total entrepreneurial activity across countries.

### **3.4. Social factors as control variables and rate of self-employment**

Certain social factors may also influence rate of self-employment. A major factor pushing people toward self-employment is job dissatisfaction. Vroom (1995) reviews literature that shows that life satisfaction is often positively related to job satisfaction. Hence, people who are satisfied with their job may also be expected to be satisfied with life. Brockhaus (1982) finds self-employed to be relatively strongly dissatisfied with their (previous) work itself, with supervision and with opportunities for promotion (but more satisfied with actual pay). More generally, the state of being out of place or between things (Shapiro and Sokol, 1982, p. 81) often precedes the formation of a

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<sup>1</sup> Self-employed people here refer to people who have moved beyond the nascent entrepreneurship stage.

company. Dissatisfaction as a motive at the micro level has often been confirmed in survey studies with respect to both job mobility and business start-ups (Noorderhaven, Wennekers and Thurik, 2003; Wennekers, Noorderhaven, Thurik and Hofstede, 2002). So at the level of the individual, a strong dissatisfaction with life in general is probably associated with a stronger propensity to become self-employed. What exists at the micro level appears also to exist at the macro level. In a study by Wennekers, Noorderhaven, Thurik and Hofstede (2002), life dissatisfaction is found to be positively correlated with self-employment. Reviewing these studies, we consider life satisfaction an important control variable. We thus state Hypothesis 3 as follows:

**Hypothesis 4:** Controlling for the social factor, life satisfaction, we still expect to find an independent influence of post-materialism on rate of total entrepreneurial activity across countries.

## **4. Research method**

### **4.1. Data and variables**

In order to test our central hypothesis about the influence of post-materialism on total entrepreneurial activity, data is used from different sources including the Global Entrepreneurship Monitor and World Value Surveys (ICPSR, 1994), and the World Development Indicators database of the World Bank (2001 and 2002). Because of the known interactions between economic, social, demographic and cultural factors found in previous research, a set of control variables is also included to investigate the independent role post-materialism plays in prediction of rate of total entrepreneurial activity. Details on the different variables used in the research are presented in Appendix 1. The measure for post-materialism is based upon Inglehart's four-item post-materialism index. Control variables include per capita income and per capita income squared, percentage of the population in secondary education, percentage of the population in tertiary education and life satisfaction. Other variables were included in initial analyses but were excluded from this report.

### **4.2. The sample**

A database is created from an intersection of available data from several sources, including the Global Entrepreneurship Monitor, the World Values Survey, and the World Bank (See Appendix 1). Although up to 37 countries are available in total, based on the fact that there is only partial overlap between these databases, 28 countries are identified for which complete data is available, including Argentina, Belgium, Brazil, Canada, Chile, China, Denmark, Finland, France, Germany (Western), Hungary, India, Ireland, Italy, Japan, Korea, Mexico, Norway, Poland, S. Africa, Slovenia, Spain, Sweden, Switzerland, The Netherlands, the United Kingdom and the United States.

### **4.3. Data Analysis**

Initially, bivariate correlations are computed to examine the effects of individual variables on the dependent variable of total entrepreneurial activity (see table 1). In order to further clarify the construct of postmaterialism in relationship to other macro indicators commonly used in the entrepreneurship literature to measure culture, we also include in this table the relationships between postmaterialism and the cultural indices measured by Hofstede. However, the Hofstede indices are excluded from the regression analyses. In an effort to disentangle the influence of economic factors, post-materialism and other cultural factors, a further set of regression analyses are carried out. A series of backward regressions included a variety of other economic factors, including the squared term for per capita income. However, due to limited degrees of freedom, high multicollinearity among variables, only those variables significantly adding to the overall model are reported in this paper. For per capita income and education, separate regressions are included in order to test for the possible intervening effects of postmaterialism on these variables. In a final set of analyses, the variables used in the model used to predict total entrepreneurial ac-

tivity are also used to predict nascent entrepreneurship, new business formation, established business rate, and total business ownership (see Appendix for definitions).

## 5. Results

### 5.1. Prediction of total entrepreneurial activity

In an initial test, using the Pearson Product-Moment Correlation coefficient, post-materialism is negatively related to total entrepreneurial activity, consistent with the prediction made in Hypothesis 1 ( $r = -.37$ ,  $p < .05$ ,  $n = 29$ ). Results of other bivariate tests for independent, control, and dependent variables are presented in Table 1. Contrary to expectations, the post-materialism index does not correlate negatively with Hofstede's masculinity index ( $r = -.15$ , ns) which one might have expected from their description. However, there is a strong positive correlations between postmaterialism and individualism ( $r = .43$ ;  $p < .01$ ) and a negative relationship between post-materialism and power distance ( $r = -.54$ ;  $p < .01$ ).

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Table 1 about here

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In the preliminary regression analyses, we included both the per capita income and per capita income squared in a model to predict total entrepreneurial activity together with post-materialism, life satisfaction, and education (both secondary and tertiary). However, in a backward regression analysis, per capita income squared is excluded due to lack of statistical significance in the overall model. Thus, in further analyses it is excluded. Regression analyses are then carried out to control for various economic and cultural effects. Table 2 presents a summary of the regression analyses carried out on TEA for the 28 countries for which comparable data is available. Post-materialism contributes to an explanation of the variation in total entrepreneurial activity, even when other variables are included. Controlling for economic (per capita income), demographic (education) and social (life satisfaction) factors, there is still a clear residual effect of post-materialism that remains significant. In particular, the findings suggest that societies with a higher level of post-materialism tend to have a lower rate of total entrepreneurial activity.

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Table 2 about here

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In a further set of analyses, the same variables are used to predict other entrepreneurial activity and ownership variables (also reported in Table 2) including nascent entrepreneurship (which is a component of total entrepreneurial activity), new business formation (the other component of total entrepreneurial activity), established businesses (which are not part of the total entrepreneurial activity rate) and finally total business ownership (which includes new business formation rates as well as established firms as a proportion of the adult population).

## 6. Discussion

### 6.1. Support for the Hypotheses

This study corrects the shortcoming of previous studies that use self-employment as a substitute for entrepreneurship activity (Uhlener, et al 2002). This research confirms the importance of

post-materialism on total entrepreneurial activity. Preliminary regression analyses check for the possibility of a curvilinear effect of per capita income on total entrepreneurial activity. However, it does not provide an added explanation of the dependent variable when postmaterialism, life satisfaction, per capita income, secondary and tertiary education are included in the model.

Some of the signs are in the expected direction, based on past research. Others are not. For instance, as predicted, postmaterialism has a negative overall effect on total entrepreneurial activity (as well as new business formation rates). Per capita income also has a negative effect, whether included alone or with the rest of the variables in the model. And secondary education, as predicted, covaries with postmaterialism, but still contributes a significant added negative effect when included in the overall regression.

However, contrary to extensive research carried out by Wenneker and colleagues (e.g. Wennekers et al, 2002), we find a nonsignificant (though slightly positive) effect between life satisfaction and any of the entrepreneurship and business ownership indicators in bivariate analyses, and a significant positive effect when controlling for other factors—not only in a model alone with post-materialism, but even in the all variables model (see table 2). This is difficult to explain in that this direction holds true even for the total business ownership dependent variable, which is supposed to be comparable to the self-employment variable used in their study. This result would suggest that it may be worth exploring curvilinear contributions of life satisfaction in future research. It could be that different parts of the U-shaped curve may be studied depending upon the time frame and the countries under study.

Also interesting is the positive contribution of tertiary education when included with the rest of the variables (though it is nonsignificant when included by itself in a regression model). This is perhaps easier to explain in that a greater pool of university students may provide more impetus to ‘high-tech’ entrepreneurship initiatives.

A comparison of results using different models further suggests that post-materialism probably most directly influences the new business formation rate (starters) in the adult population, not nascent or established firms.

## **6.2. Further discussion: Limitations and directions for future research**

This study is limited by its small sample size (twenty-eight countries) and by its particular period of time (2002). For clarity regarding time lags, all variables reflect a measurement in one point in time. Sometimes the year chosen was more for practical reasons (more countries available for instance for 1990 than for 1998 for the postmaterialism index). However, it is possible that the relationships may alter if data is examined from different periods of time and/or different sets of countries. Thus the conclusions drawn from this study should be tentative, at best. However, the strength and size of the findings, with respect to their significance levels and amount of variation explained, suggest the possible benefits of pursuing the impact of post-materialism on rate of entrepreneurial activity, especially the rate of new businesses (starter). One aspect that needs to be further taken into account is the relative stability of post-materialism. Although earlier research (De Graaf, 1984) pointed to the stability of this cultural characteristic, more recent research suggests that it may be declining. On the other hand, if this characteristic is declining only slowly, and in line with major historical changes (i.e. the strong recession of the 1980s), perhaps it is nevertheless an important cultural variable.

It is interesting that, whereas post-materialism does serve to predict entrepreneurial activity, in past research a different operationalization of the similar concept, Hofstede’s masculinity index, which essentially also measures the degree of materialism in a society, is not associated with the entrepreneurship indicators used in this study. On the other hand, postmaterialism is negatively associated with Hofstede’s power distance and positively correlated with Hofstede’s individual-

ism indicator. Thus, further research needs to rule out method bias and examine whether indeed the underlying construct of post-materialism is being appropriately measured. However, given the extensive research already undertaken using this measure over the past thirty years, Inglehart's measure appears to be well validated.

In summary, future research should further explore the construct validity of the different cultural indices used in the past and present research in entrepreneurial economics. Furthermore, longitudinal effects would be helpful although this is hampered somewhat by erratic data collection for many of the key social and cultural variables. The present work does suggest that it may be worth the effort to continue exploring these effects and how they interact with one another and with economic and demographic variables at the country level. Regional effects might also be explored (clustering for instance, countries based on different super-categories as identified by Hofstede and others (Hofstede et al 2004).

## **7. Conclusion and Practical Implications of the Research**

Audretsch, Carree, van Stel and Thurik (2002) propose that a process of industrial restructuring, in which large corporations account for less economic activity and small firms accounting for a greater share of economic activity, is transforming developed economies. Not all countries, however, experience the same shift in their industrial structures. Audretsch et al (2002) provide empirical evidence to support the proposition that there may be a cost, measured in terms of forgone growth, of impeding this restructuring process. This cost is measured by linking growth rates of European countries to deviations from the “optimal” industrial structure. The important role that entrepreneurship plays in economic growth leads to the subsequent research question: What are its determinants, in turn? Much of the past research in this area has been dominated by investigation of economic factors. This study is not intended to discount the role that governmental policies may play in stimulating self-employment and entrepreneurship. However, the results of this study provide added support for the role of cultural, social and demographic factors. One implication of these results may be to suggest that the effectiveness of various policy responses may be limited partially by cultural factors beyond the control of policy makers. Alternatively, policies to stimulate entrepreneurship in the future might be customized toward the cultural biases present in a particular society. Thus for instance, in a more post-materialistic culture, it may be important to emphasize the nonmaterial benefits of launching one's own firm (autonomy, creativity, etc.) rather than on the economic benefits.

Two caveats are appropriate here. First, even if the relationship between post-materialism and rate of total entrepreneurial activity holds across nations, it may not hold true for individuals within countries. The extent of materialist values at the individual level may play a role in predicting entrepreneurship behavior within countries but this cannot be concluded from this cross-national study. Secondly, one must be prudent in extrapolating the conclusions found in this study to worldwide relationships. This study is based on a range of countries on four continents (North and South America, Europe, and Asia). However, it is limited to only twenty-eight countries, due to limitations in data availability. But this limitation does not disqualify important findings from this study, which shows that for the countries under study, national culture may have powerful effects on rate of entrepreneurial activity, especially the rate of new business formation.

In summary, the primary purpose of the present study is to test the relationship between post-materialism and levels of nation-wide entrepreneurial activity. The findings clearly confirm a negative relationship between post-materialism and entrepreneurial activity: countries marked by less materialistic values tend to have lower total (nascent and starter combined) entrepreneurial activity as a proportion of the overall labor force. Further, per capita income and the proportion of the population enrolled in secondary level education are both negatively associated with entre-

preneurial activity, as well have a negative relationship with total entrepreneurial activity, whereas life satisfaction and tertiary education levels have the opposite effect, when other variables are controlled for. It is interesting that in spite of relatively high multicollinearity among the variables of the present study, each variable also appears to contribute a unique portion of the variance explained for the dependent variable of total entrepreneurial activity. Further research should be done to confirm the stability of this relationship in a broader sample of countries and where available, with longitudinal data.

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## **Appendix 1: Details regarding Measurement of Variables**

### **Dependent Variables**

Data on the entrepreneurial activity variables below are taken from the GEM 2002 Adult Population Survey. This database contains various entrepreneurial measures that are constructed on the basis of surveys of –on average- some 3,000 respondents per country (37 countries in total).

#### ***Total Entrepreneurial Activity 2002***

Total entrepreneurial activity is measured as the percentage of people in age group of 18 to 64 years who are actively engaged in the start-up process or managing a business less than 42 months old in 2002 (expressed in %). *Source: Global Entrepreneurship Monitor*

#### ***Nascent entrepreneurial activity 2002***

The nascent entrepreneurship rate is defined as the number of people that are actively involved in starting a new venture, as a percentage of adult population (18-64 years old). An individual may be considered a nascent entrepreneur if the following three conditions are met: if he or she has taken action to create a new business in the past year, if he or she expects to share ownership of the new firm, and if the firm has not yet paid salaries or wages for more than three months (Reynolds et al., 2002, p. 38). *Source: Global Entrepreneurship Monitor*

#### ***New businesses (Starter entrepreneurial activity) 2002***

New business activity is measured as the percentage of people in age group of 18 to 64 years who are managing a business less than 42 months old in 2002 (expressed in %). A firm is defined as a ‘new business’ if the firm has paid salaries and wages for more than three months but for less than 42 months. *Source: Global Entrepreneurship Monitor*

#### ***Established businesses 2002***

This variable is computed as a percentage of adult population (18-64 years old) with an ‘established business’. A firm is defined as an ‘established business’ if the firm has paid salaries and wages for more than 42 months (Reynolds et al., 2002, p. 38). *Source: Global Entrepreneurship Monitor*

#### ***Total business ownership 2002***

This variable is computed as the sum of ‘new businesses’ and ‘established businesses’, both measured as a percentage of adult population (18-64 years old), taken from the GEM 2002 Adult Population Survey. A firm is defined as a ‘new business’ if the firm has paid salaries and wages for more than three months but for less than 42 months, and as an ‘established business’ if the firm has paid salaries and wages for more than 42 months (Reynolds et al., 2002, p. 38). The business ownership variable thus measures the stock of incumbent business owners. *Source: Global Entrepreneurship Monitor*

## Independent Variables

### *Per capita income*

Gross national income per capita 2001 is expressed in purchasing power parities per US\$, and these data are taken from the 2002 World Development Indicators database of the World Bank.<sup>2</sup> We do not use GDP per capita from the GEM database because this variable is measured at exchange rates.<sup>3</sup> We do not want fluctuations in exchange rates to impact the ranking of countries with respect to their level of economic development.

### *Participation in education (1997).*

We have included gross enrollment ratios in secondary education and tertiary education. Gross enrollment ratios are defined as the total number of students enrolled divided by the total number of people in the appropriate age range. These data are taken from Table 2.12 of the 2001 World Development Indicators database from the World Bank. *Source: World Bank*

### *Post-materialism*

The source of the postmaterialism data is the World Values Survey, 1990-1993 (ICPSR, 1994). The mean score on Inglehart's 4-item post-materialism index (range between 0 and 3). Respondents were asked to select the most important and second important goal a country should have from the following four items: a) Maintaining order in the nation, b) Giving people more to say in important government decisions, c) Fighting rising prices and d) Protecting freedom of speech. The post-materialism index is constructed as follows:

Materialist: first choice item a, second choice item c or first choice item c and second choice item a.

Mixed: first choice item a or c and second choice item b or d or first choice item b or d and second choice item a or c.

Post-materialist: first choice item b and second choice item d or first choice item d and second choice item b.

Source: World Values Survey and European Values Surveys, cumulative data: 1990-1993.

### *Life Satisfaction*

Life satisfaction is also derived from the World Values Survey, 1990-1993 (ICPSR, 1994). The score for this variable is constructed as the average score of the inhabitants of a country rating life as a whole (life satisfaction) on a scale ranging from 1 (completely dissatisfied) to 10 (completely satisfied). *Source: World Values Survey and European Values Surveys, cumulative data: 1990-1993*

### *Hofstede's cultural indices*

Hofstede's indices were collected by two different groups of researchers. The original data was collected from 1976 and 1973 and was available for 22 of the countries (Hofstede, 1980). Hoppe also collected cultural data using a version of Hofstede's indices in 1984 (Hoppe, 1990). (See Hofstede, 2001).

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<sup>2</sup> Internet: <http://www.worldbank.org/data/databytopic/GNIPC.pdf>.

<sup>3</sup> GEM label GDPPC01.

**Table 1: Pearson Product-Moment Correlations among the independent, dependent and control variables<sup>1</sup>**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Total entrepreneurial activity (%)	1.00													
2. Nascent entrepreneurs (%)	.94**	1.00												
3. New businesses (%)	.91**	.72**	1.00											
4. Established businesses (%)	.68**	.52**	.78**	1.00										
5. Total business ownership (%)	.82**	.64**	.92**	.96**	1.00									
6. Per capita income	-.43**	-.40*	-.33*	-.14	-.23	1.00								
7. Postmaterialism	-.37*	-.23	-.45*	-.18	-.32	.70**	1.00							
8. Life satisfaction	.16	.15	.17	.26	.24	.64**	.68**	1.00						
9. Education-secondary	-.55**	-.58**	-.39*	-.19	-.29	.68**	.59**	.42*	1.00					
10. Education-tertiary	-.25	-.26	-.14	-.02	-.07	.76**	.62**	.40*	.68**	1.00				
11. Power distance (Hofstede)	.13	.17	.00	-.15	-.09	-.54**	-.59**	-.67**	-.58**	-.51**	1.00			
12. Individualism (Hofstede)	-.24	-.20	-.20	-.14	-.18	.61**	.63**	.53**	.72**	.57**	-.68**	1.00		
13. Masculinity (Hofstede)	.03	.06	-.01	-.07	-.05	.07	-.15	-.12	-.16	-.08	.05	.14	1.00	
14. Uncertainty avoidance (Hofstede)	.01	-.01	.01	-.01	-.00	-.32	-.22	-.44*	-.13	-.16	.36*	-.30	.09	1.00
Mean	7.99	4.66	3.70	6.25	9.96	19.69	1.90	7.18	99.35	43.21	49.72	55.25	47.16	61.41
SD	4.59	2.82	2.37	3.32	5.38	8.97	.20	.76	25.73	20.70	19.16	24.10	21.19	23.42
N	37	37	37	37	37	37	29	30	34	34	32	32	32	32

\*\* Correlation is significant at the .01 level (two-tailed)

\* Correlation is significant at the .05 level (two-tailed)

<sup>1</sup> Correlations are based on pair-wise deletion of missing data for 37 countries with actual N ranging between 24 and 37 depending upon the relationship. (For all but the relationships involving the Hofstede indices, there are at least 27 cases).

**Table 2: Regressions on Total Entrepreneurial Activity (TEA) and other ownership variables across 28 Countries**

Variable	Post-materialism on TEA	Post-materialism Life satisfaction On TEA	Per capita income on TEA	Education on TEA	All Variables on TEA	All variables on %nascent Businesses	All variables on starters	All variables on established businesses	All variables on Total business ownership
Constant	B 26.75**	B 16.09	B 13.39**	B 22.44**	B 9.67	B 3.91	B 6.90#	B 9.19	B 16.09
Post-materialism Life Satisfaction	-9.80*	-17.46**			-9.56*	-1.13	-9.77***	-7.44	-17.21*
Per capita Income		3.49*	-27**		4.02***	1.67*	2.60***	1.89	4.49*
Education-secondary					-24*	-11	-12#	-07	-19
Education-tertiary					-12***	-09***	-04*	-04	-08
R2	.21	.35	.32	.60	.11**	.05#	.07**	.06	.13*
Adj. R2	.17	.29	.30	.57	.81	.72	.74	.26	.51
F-Statistic, df	17.58*** (5,21)	6.39** (2,24)	11.95** (1,25)	18.14*** (2,24)	17.58*** (5,21)	10.86*** (5,21)	11.68*** (5,21)	1.50 (5,21)	4.45** (5,21)

# p<.10; \* p<.05; \*\* p<.01; \*\*\* p<.001