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# THE EFFECTS OF ENTREPRENEURIAL ACTIVITY AND PREFERENCE FOR AVOIDING UNCERTAINTY ON NATIONAL ECONOMIC GROWTH

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**Abstract**

Entrepreneurs play an important role nowadays as well as in the history of economic thought - entrepreneur used to be the one bearing the risk of buying at certain prices and selling at uncertain prices, protagonist of economic activity and innovating so the new combinations of inputs are used in order to create new output. Nevertheless, relationship between entrepreneurial activity and national growth is not so straightforward. This study aims to contribute to the stream of research that tries to uncover the ultimate results of entrepreneurship. This paper seeks to explore influence of TEA in countries that belongs to different categories regarding 'uncertainty avoidance' cultural dimension. Our results could not confirm that entrepreneurial activity increases with increase of per capita income. We argue that entrepreneurial activity could contribute to GDP growth regardless of current level of development. We find that the entrepreneurial activity can increase or decrease GDP growth rates depending on level of preferences for uncertainty avoidance. We argue that TEA in countries with lower and higher preferences for uncertainty avoidance will negatively influence the GDP growth. Possible explanation is that less innovative ventures are created in countries with lower preference for uncertainty avoidance thus no considerable influence on GDP could be expected while more ventures fail as the entrepreneurs starts riskier business in the countries with higher preferences for uncertainty avoidance. Countries in the middle of these two extreme values can expect positive effect of TEA on GDP growth since preference for uncertainty is neither too high nor too low. Nevertheless, these results should be taken with caution since not all results were statistically significant. The main limitation is lack of data on entrepreneurial activity for all countries so instead of using TEA in the period preceding the GDP growth, average TEA for 2010-2011 was used.

**Keywords:** Entrepreneurial Activity, TEA, GDP Growth, Uncertainty Avoidance

## 1. Introduction

Entrepreneur used to play different important roles in the economic thought – entrepreneur used to be the one bearing the risk of buying at certain prices and selling at uncertain prices, protagonist of economic activity and the innovator (i.e. carrying out of new combinations). Despite how we define entrepreneurship, both the entrepreneur and intrapreneuers are essential for new firm creation.

Three main streams of research as classified by Stevenson and Jarillo (1990) are: considering what happens when entrepreneurs act (i.e. studying the results of entrepreneurship); considering why entrepreneurs act (studying the causes of entrepreneurship) and considering how entrepreneurs act (i.e. studying entrepreneurial management). This study aims to contribute to the first stream of research in the field on entrepreneurship, i.e. studying the results of entrepreneurship.

This paper is structured as follows: (1) Introduction, (2) Literature Review, (3) Methodology, (4) Results and Discussion and (5) Conclusions.

## 2. Literature Review

Stel *et al.* (2005) indicate that relationship between entrepreneurship activity and growth is not well documented because of difficulties defining and measuring entrepreneurship. Shane and Venkataraman (2000) point out that conceptual framework for phenomenon of entrepreneurship lacks, but show that entrepreneurship is a promising field of study. Entrepreneur was an important factor in the orthodox microeconomic theory (Barreto, 1989). However, as microeconomic theory was advancing, the idea of having entrepreneur was abandoned. Barreto (1989, p. 141) explains reasons for disappearance as: “it [entrepreneur] cannot be neatly packaged within a mechanistic, deterministic model.” Nevertheless, entrepreneur played an important role in microeconomic theory such as role of coordination, arbitrage, innovation, and uncertainty-bearing.

Issues related to defining and measuring entrepreneurship make this field of study more complex. However, some authors present arguments to emphasize importance of entrepreneurship for growth of the national economies. Stel *et al.* (2005) summarize importance of entrepreneurship on economic performance of the nation state: introduction of important innovations (new products and services); increase of productivity by increasing competition and enhancing our knowledge of what is technically viable to produce. Galindo and Méndez-Picazo (2013) have concluded that entrepreneurs have a positive effect on innovations while innovation plays a central role in the economic growth process. They introduce term “virtuous circle”: innovations would have positive effects on economic growth and entrepreneurship while entrepreneurship encourages innovation activity which allows a positive effect on economic activity.

Stel *et al.* (2005, p. 315) investigated whether “entrepreneurship may be considered a determinant of economic growth”. Their main conclusion is that the impact of the TEA rate on GDP growth is not simple linear and straightforward: TEA rate has negative impact on GDP growth for relatively poor countries but positive impact for the relatively rich countries. Nevertheless, the conclusion that TEA rate does not have impact on GDP growth for relatively poor countries should be drawn with caution. Stel *et al.* (2005) discuss two explanations for such results: not enough large firms in relatively poor countries, and lower level of human capital in relatively poor countries. Large firms create opportunities for new firms and deliver necessary skills and knowledge for entrepreneurs that once were employed in those large firms. On the other hand, lower human capital will influence the type of business in the relatively poor countries (such as shopkeepers instead of more innovative entrepreneurs in new sectors). The main limitation of this research is relatively small number of countries (37) and possible causality problems because growth rates are measured in periods preceding the measurement of the global competitiveness index (GCI).

Tang and Koveos (2004) conclude that venture entrepreneurship (new venture creation) is positively related to GDP growth while innovation entrepreneurship (innovations within existing companies) is negatively related to economic growth rates in high-income countries.

Relationship between entrepreneurial activity and GDP growth rates for middle and low-income countries are mixed. Hafer (2013, p. 67) have concluded that "…an increase in the level of entrepreneurial activity is robustly associated with an increase in economic growth." In this study Kauffman Index of Entrepreneurial Activity (KIEA) was used instead of TEA.

Culture plays an important role in explaining economic phenomena (Franke *et al.*, 1991). Hofstede (2001, p. 19) argues that "...people carry 'mental programs' that are developed in the family in early childhood and reinforced in schools and organizations and that these mental programs contain a component of national culture." Those programs are usually manifested through values that predominant among people from different nations and therefore belonging to different culture can directly manifest in the behavior of people. Zhao *et al.* (2012) investigated whether national culture could be important in interpreting the differences of entrepreneurial activities between countries and have concluded that culture does matter and the culture should be included in the explanation of entrepreneurship theory. Individualism, power distance and uncertainty avoidance are often related to entrepreneurship activities (Hayton *et al*., 2002).

Entrepreneurship is usually related to introduction of new innovations and inventions. Galindo and Méndez-Picazo's (2013) findings showed that entrepreneurs have a positive effect on innovations which play key role in the economic growth process. In order to introduce innovative products and services, we argue that low preference for avoiding uncertainty is expected. This paper seeks to explore influence of TEA in countries that belong to different categories regarding 'uncertainty avoidance' cultural dimension. The impact of entrepreneurship on growth may differ for countries with very high or very low preference for avoiding uncertainty. For countries with very low preference for avoiding uncertainty we expect a positive impact of entrepreneurship on growth (more ventures with innovative products are created which in the long run influence GDP growth substantially) while for countries with very high preference for avoiding uncertainty we expect a negative impact of entrepreneurship on growth (ventures with more stable and less innovative products are created). Biswas (2016) points out that a significant role in determining the growth of an economy is an individual's awareness of the existence of entrepreneurial opportunities as well as peer and social acceptance of entrepreneurship. These two factors manifest themselves through "...the channel of innovative ideas and new firm formation" (Biswas, 2016, p. 14).

## 3. Data and Methodology

### 3.1. Research questions

Starting with the Stel *et al.* (2005) model, the aim of this paper is twofold: test the model of Stel *et al.* (2005) regarding impact of TEA rate on GDP with more recent dataset and with more countries included, and contribute to understanding of importance of preferences for avoiding uncertainty (one of Hofstede cultural dimensions) on GDP growth. In other words, this paper seeks to test how preferences for avoiding uncertainty and entrepreneurial activity contribute to explanation of variability of the response variable. Thus research questions are focused on:

- Testing whether influence of entrepreneurial activity on GDP growth depends on the level of economics development
- Exploring how entrepreneurial activity and preferences for avoiding uncertainty contribute to explanation of variability in GDP growth

### 3.2. Data

Dependent and independent variables are selected based on reasoning of Stel *et al.* (2005) and McArthur and Sachs (2002). Dependent variable represents average annual growth over a period of five years (2011-2015). Data on GDP growth rates are taken from World Bank Data. McArthur and Sachs (2002) have demonstrated that global competitiveness index (GCI) has a strong relationship with recent economic growth controlling for initial income level. Consequently, GCI for 2011 and (the logarithm value of) gross national income per capita for 2011 were collected and they both represent independent variables. GCI data are taken from Global Competitiveness Report while gross national income from World Bank Data. Variable

'lagged growth rates' represents average annual growth over the period 2006-2010 and is included in the model to limit the potential impact of reversed causality. Entrepreneurial activity is measured by TEA rate which explains the percentage of adult population involved in starting a business or owning a business not older than 42 months. TEA was taken from GEM study for the 2010 and 2011 and represents average value in this period. This is, however, different than Stel *et al.* (2005) approach where TEA rate for single year was used. As noted in Stel *et al.* (2004) entrepreneurial activity may be seen as a structural characteristic of an economy. A positive high correlation exists between different TEAs for the period 2006-2015 which suggest it does not matter a lot which TEA value is used. In order to include more countries in regression analysis, average TEA over the period 2010-2011 is calculated. Table 1 shows selected variables, their types, codes and the sources data were collected. Uncertainty avoidance values were taken from Hofstede (2001). Based on these values, the countries were divided into three groups: lower preference for uncertainty avoidance (UNA < 59), moderate preference for uncertainty avoidance (UNA between 60 and 82) and higher preference for uncertainty avoidance (UNA > 83).

**Table 1. Variable type and data sources**

| Variable name | Code | Variable type | Data source |
|---|---|---|---|
| GDP growth rates | GDP | Dependent variable | World Bank Database (http://data.worldbank.org/) |
| Entrepreneurial activity | TEA | Independent variable | GEM (n.d.) (http://www.gemconsortium.org/data/key-aps) |
| Gross National Income per capita | GNIC | Independent variable | World Bank Database (http://data.worldbank.org/) |
| Global Competitiveness Index | GCI | Independent variable | World Economic Forum (n.d.) (http://reports.weforum.org/global-competitiveness-index/) |
| Uncertainty Avoidance | UNA | Independent variable | Hofstede (2001) |

Data on entrepreneurial activity, GDP per capital income, global competitiveness index were collected for 65 countries. However, data on preferences for avoiding uncertainty and total early-stage entrepreneurial activity were available for only 58 countries. Table 2 shows total number of countries included in the analysis arranged by two categorical variables: income level, and preferences for avoiding uncertainty. Income classification was taken from World Bank database.

**Table 2. Number of countries participated in the analysis (Income group * Preference for avoiding uncertainty)**

| **Preference for avoiding uncertainty** | **Lower preference for avoiding uncertainty (UNA values from 0 to 59)** | | **Moderate preference for avoiding uncertainty (UNA values from 60 to 82)** | | **Higher preference for avoiding uncertainty (UNA values from 83 to 100)** | |
|---|---|---|---|---|---|---|
| Income level | Number of countries | % | Number of countries | % | Total | % |
| Low income and lower middle income | 2 | 10.00% | 4 | 20.00% | 7 | 12.07% |
| Upper middle income | 5 | 25.00% | 7 | 35.00% | 7 | 32.76% |
| High income | 13 | 65.00% | 9 | 45.00% | 10 | 55.17% |
| **Total** | **20** | **100%** | **20** | **100%** | **18** | **100%** |

Table 3 provides useful information regarding average TEA value among different country groups. Average TEA value is lower for the countries with higher income than for the countries with upper middle income, low and lower middle income. Entrepreneurial activity is generally higher as the country development level moves down along this category.

**Table 3. Descriptive statistics of TEA (Income group * Preference for avoiding uncertainty)**

| Income level | Preference for avoiding uncertainty | | Entrepreneurial activity (TEA) | | | | |
|---|---|---|---|---|---|---|---|
| | | Count | Mean | St. Dev. | Median | Min. | Max |
| Low income and lower middle income | Lower | 2 | 33.81 | 1.67 | 33.81 | 32.63 | 34.99 |
| | Moderate | 4 | 15.70 | 12.40 | 10.92 | 7.02 | 33.95 |
| | Higher | 2 | 18.65 | 1.20 | 18.65 | 17.81 | 19.50 |
| Upper middle income | Lower | 5 | 11.73 | 5.30 | 12.10 | 4.94 | 19.19 |
| | Moderate | 7 | 19.34 | 6.80 | 19.51 | 10.04 | 31.94 |
| | Higher | 7 | 14.05 | 7.50 | 13.44 | 4.26 | 25.07 |
| High income | Lower | 13 | 8.38 | 4.03 | 7.01 | 4.2 | 18.84 |
| | Moderate | 9 | 6.81 | 2.81 | 6.81 | 2.35 | 11.26 |
| | Higher | 10 | 8.01 | 5.25 | 5.88 | 4.15 | 20.23 |

### 3.3. Models

The first model used in this paper was originally presented by Stel *et al.* (2005). The purpose of their model was to investigate whether entrepreneurship should be considered a determinant of economic growth (Model 1). Interaction term TEA x GNIC was used since countries with different national income (development level) could reflect different types of entrepreneurs. As in the original model, we want to test whether the value of *c* is positive.

Model 1:

$$\Delta GDP_{i,t} = a + b\ x\ TEA_{i,t-1} + c\ x\ TEA_{i,t-1}\ x\ GNIC_{i,t-1} + dx\ log\left(GNIC_{i,t-1}\right) + e\ x\ GCI_{i,t-1} + fx\ \Delta GDP_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

The second approach to observe differences between relatively poor and relatively rich countries is to split data into different groups. We used the World Bank classification and formed three groups of countries: (A) low income and lower middle income; (B) upper middle income and (C) high income. We expect to find that value of parameter “b” is larger for relatively richer countries. The second model is similar to the first one except interaction term TEA x GNIC was not included:

Model 2:

$$\Delta GDP_{i,t} = a + b\ x\ TEA_{i,t-1} + d\ x\ log\left(GNIC_{i,t-1}\right) + e\ x\ GCI_{i,t-1} + f\ x\ \Delta GDP_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

We assume that the impact of entrepreneurial activity depends on preferences for avoiding uncertainty. Therefore, UNA was introduced in the first model as well as interaction term of the total entrepreneurial activity and preferences for avoiding uncertainty. TEA rates may reflect different types of entrepreneurs in countries with different level of preferences for uncertainty avoidance.

Model 3:

$$\Delta GDP_{i,t} = a + b\ x\ TEA_{i,t-1} + c\ x\ TEA_{i,t-1}\ x\ UNA + dx\ UNA + e\ log\left(GNIC_{i,t-1}\right) + f\ x\ GCI_{i,t-1} + g\ x\ \Delta GDP_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

UNA – preferences for uncertainty avoidance
TEA –total entrepreneurial activity
GNIC – per capital income
GCI – growth competitiveness index
ΔGDP – growth of GDP (2011-2015)
$\Delta GDP_{i, t-1}$ - lagged GDP growth (2006-2010)
i – country
t – period (year)

Interaction term TEA x GNIC is not included in the third model. In order to include this variable as well, the data were split into three groups: countries with (a) lower preference for avoiding uncertainty; (b) countries with moderate preference for avoiding uncertainty and (c) countries with high preference for avoiding uncertainty. In order to observe how TEA, UNA and GNIC contribute to explanation of variability in GDP growth, the first model was used.

## 4. Results and Discussion

The regression results for all three models presented in previous sections are given in Table 4 and Table 5. Number of countries participated in analysis is 58 (models that include Hofstede preference for uncertainty avoidance) and 65 for the first model. All models include lagged growth (GDP growth 2006-2010), global competitiveness index (GCI), gross national income per capita (GNIC) and entrepreneurial activity (TEA). Models 1, 1-G, 1-H and 1-I include interaction term TEAxGNIC. Models 2A, 2B and 2C include all elements from Model 1 with TEAxGNIC excluded since all countries are divided into three categories according to their income level. Model 3 represents our new model which includes preference for uncertainty avoidance and interaction term TEA x UNA.

The results of all models confirm negative effect of GNIC and positive effect of the GCI. The positive effect of GCI is significant in Model 1 and Model 2-B. The additional of a GCI and (log of) GNIC increase significantly adjusted $R^2$ while the additional of a linear TEA term and interaction term TEAxGNIC in Model 1 increase slightly adjusted $R^2$ but the effect is not significant. The parameter of TEA x GNIC is though positive and parameter of TEA is negative as expected and as presented in original Stel *et al.* (2005) research. However, since the effect is not found to be significant we cannot conclude that entrepreneurial activity contribute to explanation of variability in GDP growth nor that impact of entrepreneurial activity increases with per capita income. We run Model 1 only with the countries that participated in the research of Stel *et al.* (2005) but significant results were not obtained. We argue that countries could gain benefits from entrepreneurship regardless the level of development they are at the moment.

Interaction term TEAxGNIC is not included in the Models 2-A, 2-B and 2-C as countries are classified into three categories regarding development level. The effect of TEA is again not significant for countries belonging to any income level (low income and lower middle income, upper middle income and high income). Coefficient of TEA is positive for low income and lower middle income as well as for upper middle income and high income. However, the value of *b* parameter in Model 2 is larger in higher income countries than the value of *b* parameter in lower income country. Again, we run model with the countries from the Stel *et al.* (2005) research. The effect of TEA was found to be significantly positive only for the countries with high income (at 10%) and negative for the countries that belong to low and middle income level (but not statistically significant). This conclusion is in accordance to Stel *et al.* (2005) but we were not able to gain significant results for our dataset. The countries with lower income may fail to gain benefits from entrepreneurial activity as the countries with higher income because of the (a) not enough large opportunities created by large firms and (b) lower availability of human capital.

**Table 4. Estimation results (Model 1 and Model 2)**

| | **Model 1** | **Model 2-A** | **Model 2-B** | **Model 2-C** |
|---|---|---|---|---|
| | All data | Low income and lower middle income | Upper middle income | High income |
| Constant | 8.746 (1.639*) | 23.050 (2.378*) | 2.602 (0.205) | -2.739 (-0.250) |
| GDP growth 2006-2010 | 0.332 (3.247***) | -0.218 (-0.738) | 0.322 (1.888*) | 0.367 (1.921*) |
| log (GNIC) | -3.917 (-2.484**) | -4.286 (-1.722) | -2.977 (-0.940) | -0.718 (-0.239) |
| GCI | 1.904 (3.326***) | -0.702 (-0.349) | 2.531 (2.655**) | 1.247 (1.350) |
| TEA | -0.190 (-0.694) | 0.056 (1.365) | 0.062 (0.776) | 0.123 (1.219) |
| TEAxGNIC | 0.066 (0.935) | - | - | - |
| Number of observations | 65 | 9 | 21 | 33 |
| $R^2$ | 0.536 | 0.720 | 0.555 | 0.295 |
| Adjusted $R^2$ | 0.497 | 0.496 | 0.451 | 0.198 |

**Note:** t-values are between brackets
*** Significant at 0.01 level, ** Significant at 0.05 level, *Significant at 0.10 level.

Adjusted $R^2$ is slightly improved when preferences for uncertainty avoidance is included (UNA) as well as interaction term TEAxUNA. There is negative effect of UNA on GDP growth rate which is significant at the 5% level. Hence we argue that preference for uncertainty avoidance is relevant for explanation of GDP growth. Interestingly, TEAxUNA is also found to have significant effect on GDP growth (at the 5% level). The impact of entrepreneurial activity changes with the increase of preferences for uncertainty avoidance (highest UNA value explain countries that are more rigid in maintaining codes of belief and behavior, more intolerant of unorthodox behavior so innovation may be resisted). In order to understand this in more details, we decided to see weather TEA and TEAxGNIC contribute to explanation of variability in GDP growth when countries are divided into three categories: lower preference for uncertainty avoidance (UNA < 59), middle preference for uncertainty avoidance (UNA between 60 and 82) and higher preference for uncertainty avoidance (UNA > 83).

**Table 5. Estimation results (preferences for uncertainty avoidance included)**

| | **Model 3** | **Model 2-D** | **Model 2-E** | **Model 2-F** | **Model 1-G** | **Model 1-H** | **Model 1-I** |
|---|---|---|---|---|---|---|---|
| | | Preference for avoiding uncertainty | | | Preference for avoiding uncertainty | | |
| | All data | Lower UNA 0 - 59 | Moderate UNA 60-82 | Higher UNA 83-100 | Lower UNA 0 - 59 | Moderate UNA 60-82 | Higher UNA 83-100 |
| Constant | 12.844 (2.593**) | 7.205 (0.716) | 10.265 (1.664) | 11.146 (1.075) | 0.477 (0.035) | 6.666 (0.859) | 37.797 (1.925*) |
| GDP growth 2006-2010 | 0.359 (3.269***) | 0.423 (2.043*) | 0.108 (0.615) | 0.939 (4.589***) | .493 (2.132**) | 0.093 (0.519) | 0.844 (4.157***) |
| log (GNIC) | -3.792 (-2.961***) | -2.445 (-0.936) | -4.192 (-2.467**) | -5.956 (-2.203**) | 0.238 (0.052) | -3.096 (-1.395) | -12.788 (-2.529**) |
| GCI | 1.592 (2.541**) | 1.061 (0.787) | 2.072 (2.043*) | 3.183 (3.514***) | 0.180 (0.098) | 1.906 (1.817*) | 3.923 (4.002***) |
| TEA | -0.176 (-1.426) | -0.030 (-.256) | 0.094 (1.523) | -0.043 (-0.522) | 0.529 (0.682) | 0.493 (0.959) | -1.900 (-1.600) |
| TEAxGNIC | - | - | - | - | -0.155 (-0.728) | -0.104 (-0.782) | 0.437 (1.568) |
| TEAxUNA | 0.003 (1.912**) | - | - | - | - | - | - |
| UNA | -0.040 (-2.014**) | - | - | - | - | - | - |
| Number of observations | 57 | 19 | 19 | 17 | 19 | 19 | 17 |
| $R^2$ | 0.568 | 0.420 | 0.585 | 0.853 | 0.441 | 0.602 | 0.878 |
| Adjusted $R^2$ | 0.517 | 0.265 | 0.474 | 0.808 | 0.241 | 0.460 | 0.827 |

**Note:** t-values are between brackets

*** Significant at 0.01 level, ** Significant at 0.05 level, *Significant at 0.10 level.

The effect of TEA is found to be negative (but not significant) for countries with lower preference for avoiding uncertainty and negative (but again not significant) for countries with higher preference for avoiding uncertainty. The parameter of TEA is found to be positive (not significant) for the countries with the uncertainty avoidance between 60 and 82. We argue that countries with the culture of more willingly taking risk (their preference for uncertainty avoidance is lower than 59) and countries with higher preference for uncertainty avoidance (UNA larger than 83) could expect decrease in GDP growth due to the fact that less innovative ventures are created (UNA larger than 82) and more businesses fail as the entrepreneurs start more riskier business (UNA less than 59). Countries in the middle of these two “extreme” values can expect positive effect on GDP growth since preference for uncertainty is neither too high nor too low. Those new firms are probably more advances, more innovative and yet not too risky, hence in the long run influence substantially GDP growth. Entrepreneurs in those countries are less threatened by unpredictable future situations and show less desire to follow established rules so they contribute to the creation of truly innovative companies. Such companies may contribute to the GDP growth. In contrast to this, countries that do not prefer taking risk and show strong desire to establish rules (higher predictability of behavior) will start more stable and less innovative businesses and therefore the influence of entrepreneurial activity is negative or not as large as in the countries with moderate preference for uncertainty avoidance.

Interestingly, when impact of interaction term TEAxGNIC is included in the third model, the explanation regarding influence of TEA is somewhat different. Again all non-significant effects are found, but the effect of TEA is positive for the countries with lower preferences for uncertainty avoidance, positive (but lower) for countries with moderate preferences for

uncertainty avoidance and the negative for the countries with higher preference for uncertainty avoidance. Gross national income may be important as countries with higher income have higher human capital levels. Future research could try to explore this phenomenon in more details.

## 5. Conclusion

Studying entrepreneurship is challenging task since credible data are difficult to obtain. However, in this paper, we contribute to stream of research that tries to uncover the ultimate results of entrepreneurship. While we were not able to completely obtain the results of Stel *et al.* (2005) research, their model helps us to better understand influence of cultural dimension and entrepreneurial activity on GDP growth. Our results could not confirm that entrepreneurial activity increases with increase of per capita income. We argue that entrepreneurial activity could contribute to GDP growth regardless of current level of development.

Cultural dimensions (especially preferences for uncertainty avoidance) may play an important role in explanation of GDP growth. The influence of the entrepreneurial activity can increase or decrease GDP growth rates depending on level of preferences for uncertainty avoidance (countries with higher preferences for uncertainty avoidance are more rigid in maintaining codes of belief and behavior, more intolerant of unorthodox behavior so innovation may be resisted while countries with lowest preferences for uncertainty avoidance express fair degree of acceptance for new ideas and a willingness to try something different or new). We found negative significant effect of preferences for uncertainty avoidance on GDP growth rate. Hence we argue that preference for uncertainty avoidance is relevant for explanation of GDP growth. Interestingly, the impact of entrepreneurial activity changes with increase of preferences for uncertainty avoidance. This effect is significant effect at the 5% level.

Separate models provide interesting but non-significant results. We argue that TEA in countries with lower and higher preferences for uncertainty avoidance will negatively influence the GDP growth. Possible explanation is that less innovative ventures are created in countries with lower preference for uncertainty avoidance so no considerable influence on GDP growth could be expected while more ventures fail as the entrepreneurs start riskier business in the countries with higher preferences for uncertainty avoidance. Countries in the middle of these two extreme values can expect positive effect of TEA on GDP growth since preference for uncertainty is neither too high nor too low. Those new firms are probably advanced, innovative and yet not too risky, thus GDP increases substantially in the long-run. Nevertheless, these results should be taken with caution since not all results were statistically significant.

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