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STATE TAXES AND CULTURAL VALUES: EVIDENCE FROM THE MICROECONOMIC DATA

The role played by the state in economy is one of the most important problems in economic science. With regard to this role and its relevance, it is often forgotten that the state is largely influenced by the cultural values of its citizens. This paper evaluates the role of cultural values in explaining the differences in state tax revenues as % of GDP in the cross-country perspective. The sample of 41 countries has been used to demonstrate the factors that affect the collected taxes with regard to cultural views and people behavior. The our results obtained suggest there is a statistically significant relationship between shared cultural values and state tax revenues. It seems to be important to take culture into account when designing optimal economic policies and optimizing tax revenues.
Keywords: tax revenues; public economics; cultural values; GDP.
JEL classification: H21, P48.

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ПОДАТКИ ТА КУЛЬТУРНІ ЦІННОСТІ: АНАЛІЗ МІКРОЕКОНОМІЧНИХ ДАНИХ

У статті досліджено вплив культурних цінностей громадян країн на економічну роль держави. У тому числі, зроблено спробу пояснити різницю у податкових надходженнях у різних країнах саме через культурні цінності. На вибірці з 41 країни продемонстровано вплив різноманітних культурних чинників на збирання податків. Вплив культурних цінностей на податкові надходження доведено статистично. Таким чином, вплив культури необхідно враховувати при оптимізації економічних політик та реформування податкових практик.
Ключові слова: податкові надходження; державна економіка; культурні цінності; ВВП.
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НАЛОГИ И КУЛЬТУРНЫЕ ЦЕННОСТИ: АНАЛИЗ МИКРОЭКОНОМИЧЕСКИХ ДАННЫХ

В статье исследовано влияние культурных ценностей граждан страны на экономическую роль государства. В том числе, сделана попытка пояснить разницу в налоговых поступлениях в различных странах именно культурными ценностями. На выборке из 41 страны продемонстрировано влияние различных культурных факторов на сбор налогов. Влияние культурных ценностей на налоговые поступления доказано статистически. Таким образом, влияние культуры необходимо учитывать при оптимизации экономических политик и реформировании налоговых практик.
Ключевые слова: налоговые поступления; государственная экономика; культурные ценности; ВВП.

Introduction. The role of state in economy has always been a hot-debated topic amongst many prominent economists. For instance, a Nobel Prize winner (1976) M. Friedman (Friedman and Friedman, 1980) claimed that economic processes should be given a chance for self-regulation. According to him, the level of taxation

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should be minimized. On the contrary, supporters of the welfare state theory cherish the idea of the state as a "provider" (Wilensky, 1975).

Tax revenues constitute the main source of redistribution of goods and services and are therefore very important for the existence of state as such. However, it is not always possible to set an optimal amount of taxation and the optimal size of state due to cultural differences. The levels of taxation in different countries vary considerably. For example, despite very close GDP per capita figures in Denmark and Germany and in Norway and the USA, there is a huge disparity in tax revenues.

Our research focuses on analyzing the relationship between cultural values and tax revenues in the cross-country perspective.

Human values and economic effects. The research literature on cultural values tried to come up with a systematic concept of human values applicable in different countries and to compute the indicators which would allow comparing cultural values (Inglehart et al., 1998; Schwartz, 1994a, 1994b; Hofstede, 2001; Hofstede and Hofstede, 2005; Trompenaars, 1993). Hofstede (2001) introduced the concept of problems (relation to authority, self-concept, ways of managing conflicts) and cultural dimensions (power distance, individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance, long-term vs. short-term orientation) of national cultures and computed the cultural indices on the five-dimensional scale. The first indices were computed in the 1970s on the basis of the surveys for IBM in all the countries where it had subsidiaries. The last indices (mostly for transition economies) were computed at the beginning of the 21st century on the basis of surveys and estimates.

Kirkman et al. (2006) showed that the research based on the indices designed by G. Hofstede successfully managed to differentiate countries by cultural values and thus to increase variance. In addition, Kirkman et al. (2006) claimed that most of country differences predicted by Hofstede (2001; 2005) were later supported.

The literature on the effect of cultural values on economic, social and psychological processes grows exponentially. More recent studies based on Hofstede's cultural indices can be divided into two categories. The first category continues to look for the effects on cultural values on economic, social, psychological and other processes either through simple correlations, or via more complicated procedures described partially above. The second category of papers discusses the whole concept of cultural dimensions and correctness and relevance of Hofstede's estimates.

Cultural indices represent a valid tool for international differentiation of countries by the relevant cultural values. Even though some indices were computed at the end of the last century, the explanatory power of them seems to be comparable to the explanatory power of other similar tools computed more recently, while the simplicity and practical applicability exceeds the alternatives. Using cultural indices in economic research bring new meaningful insights into economic processes.

State revenue and culture: the methodology. Hofstede defines power distance as the extent to which less powerful members of institutions and organizations within a country accept that power is distributed "unequally" (Hofstede, 1991). Since taxation is an important way to redistribute wealth from the rich to the poor and thus reduce the inequality in society, it seems reasonable to expect that in large power distance countries the level of taxes proportionally to GDP per capita is lower comparing to the countries characterized by small power distance.

Individualism-collectivism dimension is defined as follows: "individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive ingroups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede, 1991). It seems reasonable to assume that in the countries characterized by collectivism more importance would be assigned to ingroup solidarity and redistribution comparing to state-level solidarity and redistribution, while in the countries characterized by individualism, ties between individuals within ingroups are loose and it is more reasonable to assume more importance put on the state level redistribution comparing ingroup solidarity and redistribution. Thus, it is expected that individualist countries are more inclined to large taxation, while the level of taxation in collectivist countries is relatively small.

The dimensions of power distance and individualism-collectivism represent, to a large extent, similar sets of values. From the point of view of a person with individualist small power distance values, both of them are dependence relations — power distance represent the dependence on powerful others (immediate authority), individualism-collectivism — the dependence on ingroups (Hofstede, 1991). It is no wonder that these two dimensions are negatively correlated. Therefore, it seems reasonable to expect, that in both cases of dependency one would expect help and support rather from the immediate ingroup (collectivism) or authority (power distance), than from an impersonal state.

Hofstede defines this dimension as follows: "masculinity pertains to societies in which social gender roles are clearly distinct (i.e., men are supposed to be assertive, tough, and focused on material success whereas women are supposed to be more modest, tender, and concerned with the quality of life; femininity pertains to societies in which social gender roles overlap i.e., both men and women are supposed to be modest, tender, and concerned with quality of life)" (Hofstede, 1991). Than Hofstede (1991) finds out that women in masculine countries are more "tough" compared to women in feminine countries. Thus, the masculinity-femininity dimension may be also interpreted as the level of assertiveness and toughness in a country as a whole on one side vs. modesty and concern for quality of life on the other.

Hofstede reports that masculinity-femininity dimension affect political priorities in the following areas:

1. "Reward for the strong vs. solidarity with the weak.

2. Economic growth vs. environment protection.

3. Arms spending vs. aid to poor countries" (Hofstede, 1991; following Hoppe, 1990).

Since taxation represents a certain form of redistribution and solidarity, it seems reasonable to expect that the countries with more pronounced masculine values have less redistribution and lower tax revenue as compared to the countries with more feminine values.

In the analysis of the impact of masculinity-femininity dimension onto tax revenues it seems to be important to take into account the dimension of individualism-collectivism. Reward to the strong, as one of the masculine poles of political priorities may collude with the collectivistic tendency for redistribution within an ingroup.

Thus, it seems reasonable to expect that lower tax revenues will be observed in the countries characterized by both masculinity and individualism.

Uncertainty avoidance is defined as "the extent to which the members of a culture feel threatened by uncertain or unknown situations. This feeling is, among other things, expressed through nervous stress and in a need for predictability: a need for written and unwritten rules" (Hofstede, 1991). Thus, it seems reasonable to assume, that uncertainty avoidance will have the most effect not on the volume of tax revenue, but rather on the strictness and elaborateness of legislation. We do not expect any statistically significant relation between uncertainty avoidance and tax revenues. Therefore, this study aims to test the following hypotheses:

1. The greater is the individualism of citizens, the greater are tax revenues measured as a % of GDP.

2. The greater is the power distance of citizens, the lower are tax revenues measured as % of GDP.

3. The more masculine and individualistic is the culture, the greater are tax revenues measured as % of GDP.

4. There might not be any relation between the level of uncertainty avoidance and tax revenues as % of GDP.

In all the cases we control the level of economic development measured by GDP per capita. Our study does not test the hypothesis on the fifth dimension (long-term orientation) because of the lack of data.

The data and the empirical model. The data on GDP per capita in constant international dollars according to the purchasing parity is a measure of GDP which takes into account not only the financial estimates of GDP but also the amount of goods and services, which can be bought with the same amount of money in different countries. Both the data for GDP per capita and tax revenues as a percentage of GDP come from the International Monetary Fund database and the World Bank statistical database. This study uses the data for 41[4] countries for the year 2002, since this was the year with the biggest number of countries available.

The data on cultural dimensions represent a position of countries on the four-dimensional scale by G. Hofstede. The latest available version of these data can be found in (Hofstede and Hofstede, 2005).

The first model includes the tax revenue in 2002 (% of GDP) vs. Individualism Index controlling for GDP per capita. The model can be written as follows:

$$TAX = b_0 + b_1 IDV + b_2 GDP + \zeta, \qquad (1)$$

where TAX — tax revenue as % of GDP (2002); IDV — the index of Individualism-collectivism; GDP — GDP per capita (international dollars 2002, purchasing power parity); b_1 and b_2 are the regression coefficients; b_0 — the intercept; ζ — the error term. The results are presented in Table 1 that follows.

The first hypothesis (the greater is the individualism of citizens, the greater is the tax revenue measured as % of GDP controlling for GDP per capita) is confirmed at the 7% significance level.

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[4] The 41 countries in question include: Australia, Austria, Belgium, Bulgaria, Canada, Chile, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Malta, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.

Table 1. **Tax Revenue in 2002 (% of GDP) vs. Individualism Index and GDP per capita: key regression output,** *calculated by the authors*

	Coefficient	P-value
Intercept	10.05578[a]	1.13E-05
IDV	0.10859[c]	0.067716
GDP per capita PPP 2002 (const. international USD)	0.000119	0.404784
R-squared		0.319
Observations		41

[a] significant at the 1% level; [b] significant at the 5% level; [c] significant at the 10% level.

The second model includes tax revenues in 2002 (% of GDP) vs. PDI and GDP per capita. The second model can be described as follows:

$$TAX = b_0 + b_1 PDI + b_2 GDP + \zeta, \qquad (2)$$

where TAX − tax revenues as % of GDP (2002); PDI − the power distance index; GDP is GDP per capita (international dollars 2002, purchasing power parity); b_1 and b_2 are the regression coefficients; b_0 − the intercept; ζ − the error term. The results of the regression output are presented in Table 2.

Table 2. **Tax Revenues in 2002 (% of GDP) vs. PDI and GDP per capita: key regression output,** *calculated by the authors*

	Coefficient	P-value
Intercept	19.27374[a]	0.000108
PDI	-0.0974[c]	0.082981
GDP per capita PPP 2002 (const. international USD)	0.000198[c]	0.092134
R-squared		0.313
Observations		41

[a] significant at the 1% level; [b] significant at the 5% level; [c] significant at the 10% level.

The second hypothesis (the greater is the power distance of citizens, the lower is tax revenue measured as % of GDP controlling for GDP per capita) was confirmed at the 9% significance level.

The third model includes tax revenues in 2002 (% of GDP) vs. individualism and masculinity. The third model can be presented as follows:

$$TAX = b_0 + b_1 IDV + b_2 MAS + \zeta, \qquad (3)$$

where TAX − tax revenue as % of GDP (2002); IDV − the index of Individualism-collectivism; MAS − the index of masculinity-femininity; b_1 and b_2 − the regression coefficients; b_0 − the intercept; ζ − error term. The results of the regression output are presented in Table 3.

There is a statistically significant relation between masculinity and tax revenue at the 10% significance level, the coefficient of masculinity is less than zero. Therefore, it appears that the less masculine and the more individualistic the culture is, the greater is the tax revenue measured as % of GDP. Interestingly, without individualism added as an independent variable masculinity dimension was not significantly related to tax revenue.

Table 3. **Tax Revenues 2002 (% of GDP) vs. IDV, MAS:
key regression output,** *calculated by the authors*

	Coefficient	*P-value*
Intercept	13.82008[a]	2.82E-05
MAS	-0.08007[c]	0.097194
IDV	0.152221[a]	8.82E-05
R-squared		0.355
Observations		41

[a] significant at the 1% level; [b] significant at the 5% level; [c] significant at the 10% level.

The fourth model on the tax revenue in 2002 (% of GDP) vs. IDV, MAS controlling for GDP per capita is presented as:

$$TAX = b_0 + b_1 IDV + b_2 MAS + b_3 GDP + \zeta, \tag{4}$$

where TAX − tax revenue as % of GDP (2002); IDV − the index of Individualism-collectivism; MAS − the index of masculinity-femininity; GDP is GDP per capita (international dollars 2002, purchasing power parity); b_1, b_2 and b_3 − the regression coefficients; b_0 − the intercept; ζ − the error term. The results are presented in Table 4.

Table 4. **Tax Revenues in 2002 (% of GDP) vs. IDV, MAS controlling
for GDP per capita: key regression output,** *calculated by the authors*

	Coefficient	*P-value*
Intercept	13.569[a]	9.19E-05
MAS	-0.07519	0.150254
IDV	0.139284[b]	0.027286
GDP per capita PPP 2002 (const. international USD)	3.92E-05	0.794776
R-squared		0.357
Observations		41

[a] significant at the 1% level; [b] significant at the 5% level; [c] significant at the 10% level.

When controlling for GDP per capita, the relation between tax revenue as % of GDP and the index of masculinity-femininity disappears (P-value is greater than 0.10). The index of individualism-collectivism stayed significant at the 3% significance levels.

The fifth model describing the interdependence of tax revenue in 2002 (% of GDP) vs. uncertainty avoidance controlling for GDP per capita can be specified as follows:

$$TAX = b_0 + b_1 UAI + b_2 GDP + \zeta, \tag{5}$$

where TAX − tax revenue as % of GDP (2002); UAI − the index of uncertainty avoidance; GDP − GDP per capita (international dollars 2002, purchasing power parity); b_1 and b_2 − the regression coefficients; b_0 − the intercept; ζ − the error term. The results of the regression output are presented in Table 5.

As it was expected, there is no relation between uncertainty avoidance and tax revenue controlling for GDP per capita (P-value is greater than 0.10). Moreover, there is no relationship between uncertainty avoidance and tax revenue even if GDP per capita is not controlled for.

Table 5. **Tax Revenues 2002 (% of GDP) vs. UAI controlling for GDP per capita: key regression output,** *calculated by the authors*

	Coefficient	*P-value*
Intercept	12.64115	0.000503
UAI	-0.00974	0.806386
GDP per capita PPP 2002 (const. international USD)	0.000325	0.001182
R-squared		0.257
Observations		41

Conclusions and discussion. The role of the state in economic life and, in particular, the optimal level of taxation is one of the very much discussed topics in economic literature. What is not frequently discussed is that there might be no optimal level of taxation for all countries. In this paper we tested the hypotheses on the relation between culture and taxation measured by the tax revenue as % of GDP on the cross-sectional data for 41 countries. The results suggest that:

1. The greater is the individualism of citizens, the greater are tax revenues measured as % of GDP (controlling for GDP per capita the relation was confirmed at the 7% significance level).

2. The greater the power distance of the citizens, the lower is tax revenue measured as % of GDP (controlling for GDP per capita the relation was confirmed at the 9% significance level).

3. The less masculine and more individualistic is the culture, the greater is the tax revenue measured as % of GDP. The relationship was confirmed at the 10% significance level, however, when controlling for GDP per capita, the relationship disappears. Interestingly the dimension of individualism and masculinity in this research should be assessed together, for masculinity stays significant only if the index of individualism is controlled for, which corresponds to the theoretical hypothesis presented earlier.

4. No relation was found between the level of uncertainty avoidance and tax revenue and % of GDP, which corresponded to theoretical expectations.

The results above pose several sets of important questions: given that culture plays an important role in economic policies of different countries, should we introduce the cultural factor to economic discussion on the optimal level of taxation and, in general, the role of the state in economic processes? Which culture does the current core economic theory correspond to? How to adapt the suggested economic policies to be applicable in countries with different cultures? To our knowledge, these questions the economic theory failed to answer so far.

Another important set of questions concerns the possible effects of economic policies on cultural values, or, in other words, the question whether economic policies are able to change cultural values. There are several arguments for the relative stability of cultural values over time. The first, presented by Hofstede (1991), states, that most of cultural values we acquire in early childhood in the process of socialization. In this period we are mostly influenced by our parents, who, in their turn, learned their cultural values during their childhood. Economic policies seem to play little role in this process. The second argument in favor of the relative stability of cultural values states, that it is possible to trace differences in cultural values back to the history

as far as 2000 years ago (Hofstede, 1991) through their impact on philosophical and religious theories developed at that time in certain geographical territories, which currently approximately correspond to geographic boundaries of certain countries or groups of countries (Hofstede, 1991). The third argument in favor of the relative stability of cultural values over time tells about the correlations of cultural values with other variables, which are stable over time. For example, Hofstede reports statistically significant correlation of Power Distance Index with geographical latitude — higher latitudes are associated with lower Power Distance Index (Hofstede, 1991), statistically significant correlation of Individualism index with geographical latitude measured by the distance from equator to country's capital city — countries with moderate and cold climates tend to have more individualist cultures (Hofstede, 1991). On the other hand, there are some correlations which change over time. For example, both Individualism and Power Distance are correlated to economic wealth. Individualism is also correlated to population growth, Power distance — to population size in a country (Hofstede, 1991). These factors may change and do change over time. Most importantly, these factors, among others, may be affected by economic policy. However, these effects are indirect and are preconditioned by cultural values.

References:

Balkiene, K. (2013). Sustainable innovativeness: issues and public policy. Journal of Security and Sustainability Issues, 3(2): 53—76.

Friedman, M., Friedman, R. (1980). Free to choose. A Personal Statement. Harcourt; 1st ed.

Hofstede, G. (1980). Culture's consequences: international differences in work-related values. Sage, Beverly Hills, CA.

Hofstede, G. (1991). Cultures and Organisations. Software of the Mind. MsGraw-Hill.

Hofstede, G. (2001). Culture's Consequences. Thousand Oaks, London, New Delhi, Sage.

Hofstede, G., Hofstede, G.J. (2005). Cultures and Organizations. Software of the Mind. MsGraw-Hill.

Hoppe, M.H. (1990). A Comparative Study of Country Elites: International Differences in Work-related Values and Learning and their Implications for International Management Training and Development. Ph.D. thesis, University of North Carolina at Chapel Hill.

Inglehart R., Basanez, M., Moreno, A. (1998). Human values and beliefs: A Cross-cultural source-book. Argot. University of Michigan.

Jung, D.I., Avolio, B.J. (1999). Effects of leadership style and followers' cultural orientation on performance in group and individual task conditions. Academy of Management Journal, 42(2): 208—218.

Kirkman, B.L., Lowe, K.B., Gobson, C.B. (2006). A quarter century of Culture's Consequences: a review of empirical research incorporating Hofstede's cultural values framework. Journal of International Business Studies, 37(3): 285—298.

Schwartz, S.H. (1992). Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries. In: M.P. Zana (ed.). Advances in Experimental Social Psychology, Vol. 25 (pp. 1—65). Academic Press, New York.

Schwartz, S.H. (1994a). Are there Universal Aspects in the Structure and Contents of Human Values. Journal of Social Issues, 50(4): 19—25.

Schwartz, S.H. (1994b). Cultural dimensions of values: towards and understanding of national differences. In: U. Kim, H.C. Triandis, C. Kagitcibasi, S.C. Choi and G. Yoon (eds.). Individualism and Collectivism: Theoretical and Methodological Issues (pp. 85—119). Sage: Thousand Oaks, CA.

Schwartz, S.H. (1994c). Beyond individualism/collectivism: New cultural dimensions of values. In: U. Kim, H. C. Triandis, C. Kagitcibasi, S. C. Choi, & G. Yoon (Eds.). Individualism and collectivism: Theory, methods, and applications (pp. 85—119). Thousand Oaks: Sage Publications.

Soares, A.M., Farhangmehr, M., Shoham, A. (2007). Hofstede's dimensions of culture in international marketing studies. Journal of Business Research, 60(3): 277—284.

Triandis, H.C. (2004). The many dimensions of culture. Academy of Management Executive, 18(1): 88—93.

Trojanek, M. (2010). Sources of Municipal Incomes in Poland – Current State. Journal of International Studies, 3(1): 9–17.

Trompenaars, F. (1993). Riding the Waves of Culture: Understanding Diversity in Global Business. Irwin: Chicago, IL.

Wilensky, H. (1975). The Welfare State and Equality: Structural and Ideological Roots of Public Expenditure. Berkeley, University of California Press.

World Bank (2011). GNI per capita, PPP (current international $) Database. Accessed 14.10.2014 http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD.

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