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The Role of Culture Attributes in Inequality

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The Role of Culture Attributes in Inequality

Abstract

This paper used cross country data in order to identify the variables that determine the inequality and poverty within countries. The main result is that culture differences have a significant role in the explanation of inequality and poverty differences between countries. Other interesting results are that globalization above a certain level contributes to inequality and poverty, and that inequality and poverty have an inverse U relation in relation to literacy.

Introduction

The increasing inequality in world economies has led to intensive discussion focused on economic inequality (e.g. Gustafsson and Johanson 1997). People around the world are becoming more aware of the gap between the rich and the poor. Policy makers, researchers and academics are also increasingly recognizing the links between inequality and other social and economic phenomena. Heshmati (2004) in a cross country research found that inequality is declining as the GDP increases. According to Kuznets (1955), a country in its initial stage of development exhibits low per capita income level and relatively low inequality level. As the country develops and per capita income increases, inequality tends to increase as well. At a more advanced stage of the development process, however, the per capita income-inequality relationship turns from positive to negative. That is, as a country becomes rich, inequality falls. Therefore, according to his view there is a trade-off between growth and equality, though over the entire development process the relationship between per capita income levels and inequality is non-linear. Today, the inverted-U hypothesis is strongly rejected by many economists, Bruno et al. (1996) tested the inverted-U hypothesis using cross countries panel data and found no sign that growth has any systematic impact on inequality. Heshmati (2004) in one of his models found that higher level of



education reduces inequality, and found that openness has an insignificant impact on inequality. However, Mah (2002) found that liberalization increase inequality.

This paper will use cross country data in order to identify the variables that determine the inequality and poverty within countries. In addition, variables that utilize culture differences as an explanatory variable will be introduced.

When national culture and Gini are entered in Google scholar search, no work that tested the correlation and relations between those two variables comes up. But national culture affects a wide range of economic satiations and managerial decisions, such as Entry choice of multinational firms (Kogut and Singh 1988), the development of trust between employees (Doney et al. 1998), control methods (Chow et al. 1999; Shoham et al. 2003) and many more.

Hypothesis

A culture difference between countries is a significant explanatory variable for inequality and poverty differences between countries, in addition to other economic, demographic and geographic variables.

The Variables

All variables in this paper except the culture ones are from the CIA World Fact Book¹. The countries' information has been updated as of 30 August, 2005. Data were used from 54 countries. These countries were selected according to the availability of the data regarding culture indices as they appear in Hofstede's 1980 and 1983 research.

¹ <http://www.cia.gov/cia/publications/factbook/index.html>



The dependent variables

Gini index (Distribution of family income) – Inequality is often studied as part of broader analyses covering poverty, although these concepts are distinct. Inequality is a broader concept than poverty in that it is defined over the whole distribution, not only in the censored distribution of individuals or households below a certain poverty line. Incomes at the top and in the middle of the distribution may be just as important in perceiving and measuring inequality as those at the bottom. Although all three capture the whole distribution of a given indicator, inequality is independent of the means of the distribution and instead is solely concerned with the dispersion of the distribution.

This paper will measure inequality using the Gini index. The Gini index measures the extent to which the distribution of income among households within a country deviates from a perfectly equal distribution. If income is distributed with perfect equality, the index would be zero; if income is distributed with perfect inequality, the index would be 1.

Poverty index (Population below poverty line) – In the CIA fact book poverty is measured using the percentage of population that is located under the poverty line. The definitions of poverty vary considerably among nations because rich nations generally employ more generous standards of poverty than poor nations.

The independent variables

The culture variables

Cultural differences affect the way people think and react. A major research study on national cultural differences published by Hofstede (1980; 1983) is based on research conducted on IBM personnel from 50 countries, using 116,000 questionnaires. The questions regarding employee values demonstrated the differences among countries in four cultural dimensions:

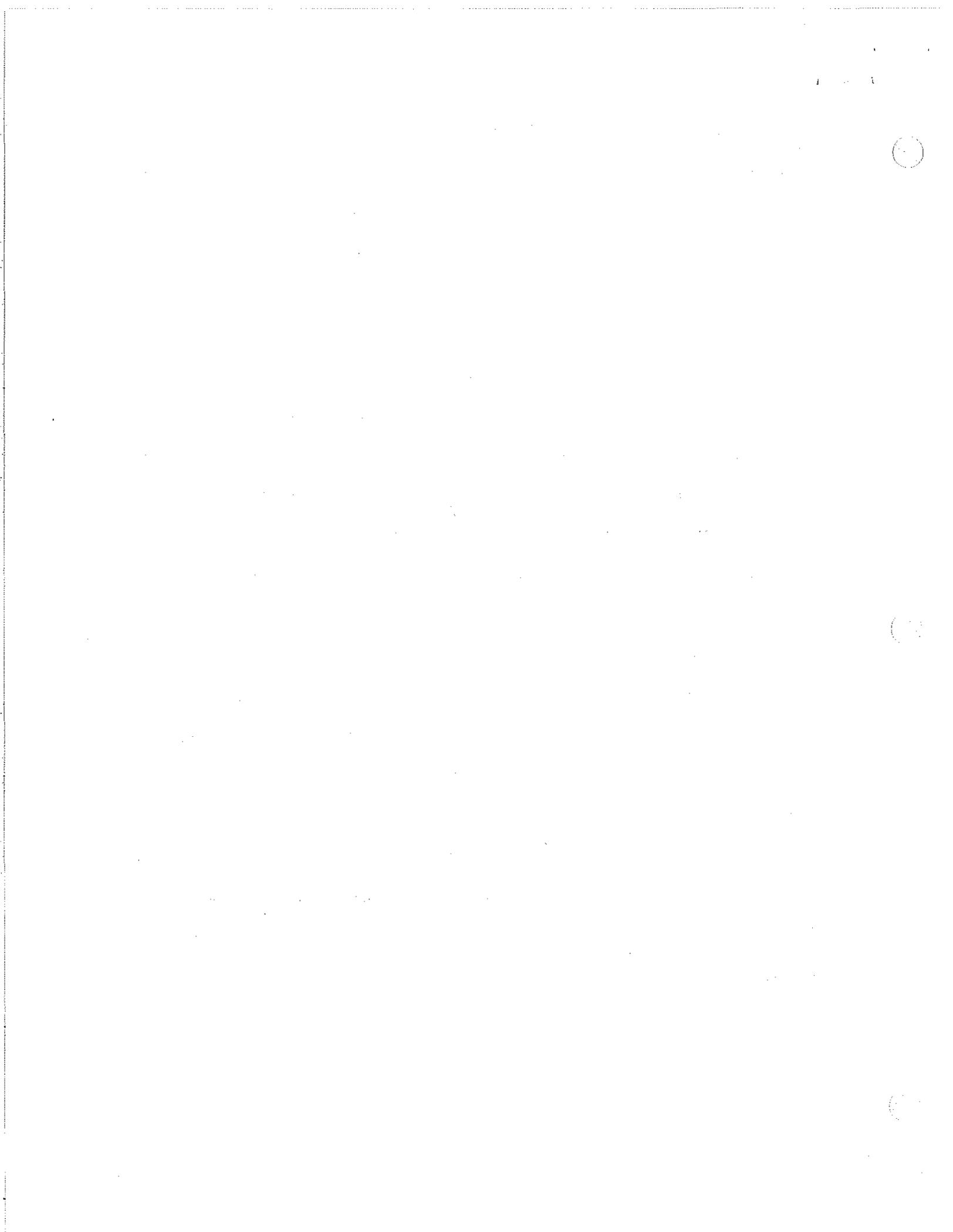


Power Distance Index, Individualism, Masculinity and Uncertainty Avoidance Index Hofstede's culture dimension are still a key layer in culture evaluations and empirical tests (Crotts and Erdmann 2000; Downey et al. 2005; Dwyer et al. 2005). The four dimensions produced four variables representing the countries culture. This paper labels these variables PDI (power distance), IDV (individualism), MAS (masculinity), and UAI (uncertainty avoidance).

Power Distance Index (PDI) - PDI focuses on the degree of equality, or inequality, between people in the country's society. A high Power Distance ranking indicates that inequalities of power and wealth have been allowed to grow within the society. These societies are more likely to follow a caste system that does not allow significant upward mobility of its citizens. A low Power Distance ranking indicates the society de-emphasizes the differences between citizen's power and wealth. In these societies equality and opportunity for everyone is stressed.

Individualism (IDV) - IDV focuses on the degree the society reinforces individual or collective achievement and interpersonal relationships. A low Individualism ranking typifies societies of a more collectivist nature. These cultures reinforce extended families and collectives where everyone takes responsibility for fellow members of their group.

Masculinity (MAS) - MAS focuses on the degree the society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power. A high Masculinity ranking indicates the country experiences a high degree of gender differentiation.



Uncertainty Avoidance Index (UAI) – UAI focuses on the level of tolerance for uncertainty and ambiguity within the society. A high Uncertainty Avoidance ranking indicates the country has a low tolerance for uncertainty and ambiguity.

Hofstede and Bond (1984; 1988) discovered a fifth dimension, named Long-Term Orientation (LTO). The present paper does not use this dimension because it uses values for just a few countries, and therefore using this dimension creates a statistical problem.

Hofstede measures continue to enjoy strong support among researchers (e.g. Sivakumar and Nakata 2001) and serve as a *de facto* set of benchmark measures.

The economic variables

Globalization

This variable should reflect the scope of interactions between the country and the world. An acceptable measure for this is the ratio between the sum of import and export in relation to the

GDP, that is –
$$\frac{IMPORT(\$) + EXPORT(\$)}{GDP(\$)}$$
.

Literacy

This entry includes a definition of literacy and Census Bureau percentages for the total population, for males and for females. All rates are based on the most common definition – the ability to read and write at a specified age. The literacy data is probably the most easily available and valid for international comparisons of educational results.

Labor force

The labor force is calculated as the percentages out of the total population of the nation.

Labor force, that is –
$$\frac{\text{Labor force figure}}{\text{Population figure}}$$
.

Population density

The population density is the total population in the country in relation to the total area.



Infrastructure

The opulence of infrastructure in the country is calculated as the ratio between the km of railroads and highways to the area of the country.

Budget

This is the ratio between the government budget and the GDP. The budget includes revenues, total expenditures, and capital expenditures. These figures are calculated on an exchange rate basis. The GDP in the CIA fact book gives the value of all final goods and services produced within a nation in the year 2004. The GDP estimates are derived from purchasing power parity (PPP) calculations.

Estimation results

OLS regressions were used to test the models in this paper because both dependent variables are normally distributed according to a Kolmogorov-Smirnov goodness-of-fit test. The OLS regressions were built in the following way: They began with a regression including all the economic and culture information variables that can influence the two dependent variables. The most insignificant variable was then deleted, and this was stopped when the Adjusted R-Square started to decline.



The model

Model 1:

$$GINI = \alpha + \beta_1 * IDV + \beta_2 * LITERACY + \beta_3 * LITERACY^2 + \beta_4 * INFRASTRUCTURE + \beta_5 * POP_DENSITY + \beta_6 * GLOBALIZATION + \beta_7 * GLOBALIZATION^2 + \varepsilon$$

Model 2:

$$POVERTY = \alpha + \beta_1 * IDV + \beta_2 * LITERACY + \beta_3 * LITERACY^2 + \beta_4 * GLOBALIZATION + \beta_5 * GLOBALIZATION^2 + \beta_6 * LABOR_FORCE + \beta_7 * BUDGET + \beta_8 * BUDGET^2 + \varepsilon$$

Results of Model 1:

Adjusted R squared-0.54, Prob (F-statistic)-0.000

TABLE 1: DEPENDENT VARIABLE- GINI

Independent variables	Coefficient	Significance
IDV	-0.11	0.03
Literacy	186.54	0.02
Literacy ²	-118.71	0.02
Infrastructure	-66.05	0.08
Pop_Density	-0.008	0.05
Globalization	-25.64	0.01
Globalization ²	15.50	0.02

This model explaining inequality is significant with an R square of 0.54. The most interesting result is that the individual (IDV) culture of the nation contributes to minimizing inequality, and is significant. This could be explained by one of the fundamental theories of economy, 'the invisible hand', which means that when each economic unit or individual seeks to maximize its utility, the overall economy will be at its optimal level.



An inverse-U relation was found between inequality and literacy, that is, when the literacy rate is either low or high the inequality is low. In countries where the level of literacy is relatively low or relatively high the population is homogeneous and therefore the inequality is low. When the level of literacy is intermediate it means that the population isn't homogeneous and therefore the differences in literacy increase inequality.

Infrastructure has a negative impact on inequality, which means that as the accessibility to each region is relatively easy, the wage gaps can't be great; that is, without appropriate accessibility it could be that one region pays high salaries while another region pays low salaries, and that could increase inequality between regions.

Population density has a negative impact on inequality that stems from the fact that as the density is high the individuals are relatively close geographically to one another, and that doesn't allow for large gaps in income. For example, if the distance between two identical individuals is high then it is possible that the gap in their income will be high, but if they are very close geographically to each other it is unlikely that the income difference will be high or will exist at all.

Inequality is high in economies with either a low level of globalization or a high level of globalization, i.e. in the first stage of integration with the world, the level of inequality decreases. This could be explained by the fact that in close economies the markets are relatively concentrated, such as in monopolies; in those kinds of economies the inequality is relatively high. In countries that are in the first stage of integration, the level of competition rises and the profits of the ex-monopolies are reduced. Countries that pass a certain level of integration suffer again from rising inequality, stemming from the fact that in a high level of integration industries start to move to countries with comparative advantages. In those countries the uneducated workers lose their jobs and the educated workers get a higher premium for their jobs via the high-tech export.

Results of Model 2:



Adjusted R squared-0.45, Prob (F-statistic)-0.001

TABLE 2: DEPENDENT VARIABLE – POVERTY

Independent variables	Coefficient	Significance
IDV	-0.003	0.04
Literacy	4.018	0.04
Literacy ²	-2.475	0.05
Globalization	-0.769	0.02
Globalization ²	0.358	0.07
Labor_force	-0.789	0.01
Budget	1.041	0.19
Budget ²	-1.154	0.29

Model 2 explaining poverty is significant with an R square of 0.45. The most interesting result is that the individual (IDV) culture of the nation contributes to minimizing poverty, and it is significant. As the society is more individualistic, each one seeks to maximize his or her utility and therefore if possible seeks employment, because everyone is aware that if they don't work there will be no one to help/give assistance.

This paper found an inverse U relation between poverty and literacy. It should be kept in mind that poverty is a relative index, so in the beginning of development when the level of literacy is relatively small and when the process of increasing rates of literacy takes place, the income of part of the population rises while the others remain with low income. This process makes those that remain illiterate poor in certain cases. However, when the starting point is the intermediate level of literacy, increasing rates of literacy could help lift some of the poor above the poverty line and thus cause the poverty to decrease.



Poverty is high both in economies with a low level of globalization and a high level of globalization. In the first stage of globalization the main interaction with the world is via investment, which creates jobs and could enable more individuals to work. This could decrease poverty. However, in a high level of globalization an increase in the level of globalization, even though an increase in total income would probably lead to unemployment or a decrease in wages of simple workers. This could bring those workers under the poverty line and therefore increase poverty.

As the share of labor force is high the poverty is low, and this means that as the potential level of work force out of the population is high more individuals could be employed, and that gives the individual a better option to lift himself above the poverty line.

Another interesting result is that unless the budget doesn't exceed a certain level, it will not contribute to poverty reduction. If we look at the USA budget which is relatively small, and the Scandinavian states' budget which is relatively high, the USA is considered as a free market state. Therefore the budget of the USA is only sufficient for basic needs, such as government activities and the provision of public goods, while the Scandinavian states are considered as welfare states and therefore need a higher budget which allows for a higher welfare budget allocation that could lead to poverty reduction.

Concluding Remarks

This paper found that culture differences have a significant role in the explanation of inequality and poverty differences among countries. It was found that as the society is more individualistic the rate of inequality and poverty are relatively low. This can be explained by the fact that if individuals consider only their own utility, they can't be dependent upon someone else, and this increases the motivation of each individual to go to work and to take care of him- or herself and his or her family.



The paper found that inequality and poverty have an inverse U relation in relation to literacy. This could be explained by the fact that in countries where the level of literacy is relatively low or relatively high, the population is homogeneous and therefore the inequality is low. When the level of literacy is intermediate it means that the population is not homogeneous and therefore the differences in literacy increase inequality. Another interesting result is that globalization above a certain level contributes to inequality and poverty. In any case, increases in the budget above a certain level can decrease poverty.



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