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The Impact of Governance on Happiness: Evidence from Quantile Regressions

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***Abstract*—**This study utilizes the quantile regression analysis to examine the impact of governance (including democratic quality and technical quality) on happiness in 101 countries worldwide, classified as "developed countries" and "developing countries". The empirical results show that the impact of democratic quality and technical quality on happiness is significantly positive for "developed countries", while is insignificant for "developing countries". The results suggest that the authorities in developed countries can enhance the level of individual happiness by means of improving the democracy quality and technical quality. However, for developing countries, promoting the quality of governance in order to enhance the level of happiness may not be effective. Policy makers in developed countries may pay more attention on increasing real GDP per capita instead of promoting the quality of governance to enhance individual happiness.

***Keywords*—**Governance, happiness, multiple regression, quantile regression.

I. Introduction

MOST people believe that good governance can increase the happiness. This issue is gradually being taken seriously. In recent years, many governments have not only focused on global and national competitiveness but also paid more attention on happiness and subjective well-being. Happiness seems to have become economic and political issues as well as important emerging issues. Because of the growing interest in happiness, some governments and organizations have set and published the happiness index.

King of Bhutan Jigme Singye Wangchuck proposed the Gross National Happiness (GNH) Index that is the first to quantify the concept of happiness index [1]. Then, the Organization for Economic Cooperation and Development (OECD) firstly published *Better Life Index* in 2011 [2], and the United Nations (UN) also firstly released the *World Happiness Report* in 2012 [3].

According to the 2015 *World Happiness Report* [4], revealing well-being for 158 countries around the world, average happiness is range from 7.587 in Switzerland to 2.839 in Togo. As shown in Table I, the top ten happiest countries, are Switzerland, Iceland, Denmark, Norway, Canada, Finland, Netherlands, Sweden, New Zealand, and Australia those are in the global north and rank among the world's wealthier countries. Except for war-torn Syria and Afghanistan, the bottom ten unhappiest countries are all in Saharan or sub-Saharan Africa those have problems of unrest and extreme poverty.

TABLE I
THE TOP TEN HAPPINESS AND BOTTOM TEN UNHAPPINESS COUNTRIES

Top ten			Bottom ten		
Rank	Country	Score	Rank	Country	Score
1	Switzerland	-7.587	149	Chad	-3.667
2	Iceland	-7.561	150	Guinea	-3.656
3	Denmark	-7.527	151	Ivory Coast	-3.655
4	Norway	-7.522	152	Burkina Faso	-3.587
5	Canada	-7.427	153	Afghanistan	-3.575
6	Finland	-7.406	154	Rwanda	-3.465
7	Netherlands	-7.378	155	Benin	-3.340
8	Sweden	-7.364	156	Syria	-3.006
9	New Zealand	-7.286	157	Burundi	-2.906
10	Australia	-7.284	158	Togo	-2.839

Note: Data are from the 2015 *World Happiness Report* [4], pp. 26-28.

Generally speaking, good governance will enhance the levels of happiness, while different dimensions of governance quality may have different impacts on the levels of happiness. Can governments enhance the levels of happiness by improving different dimensions of governance quality? This is worth exploring. There has been a number of empirical studies examined the impact of governance on economic growth; most of which suggest that good governance helps to enhance economic growth, such as: [5]-[18]. However, few cross nations studies focus on the impact of governance on happiness. One of the main reasons maybe global happiness indices such as OECD's Better Life Index and UN's Happiness Index have developed recently. Few empirical studies examine the relationship between governance and happiness, for example, Ott [19] employs Veenhoven's [20] World Database of Happiness which the survey period was in 2006 to conduct the analysis for 130 worldwide and suggests good governance produces a higher level of happiness.

The purpose of this paper is to explore the impact of governance quality on happiness and investigate whether governments can use different levels of governance quality improvement to enhance people's well-being. The remainder of the paper is organized as follows. Section II discusses the data and quantile methodology used in this study. The empirical results are presented in Section III. Section IV concludes the paper.

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II. Data and Methodology

A. Data

This study examines the impact of governance on happiness for 101 worldwide nations classified as 30 developed countries and 71 developing countries using the Human Development Index by United Nations Development Programme. The variables in this study include two types of governance quality - democratic quality (*DemoQ*) and technical quality (*TechQ*), happiness index (*Happ*), and the natural log of real GDP per capita GDP (*lnGDPPC*).

The quality of governance is measured by the World Bank's Worldwide Governance Indicator (WGI). The WGI consists of six indicators, including voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. The first two have to do with the political situation and the remaining four have to do with the institutional quality and effectiveness. Following [21] and [19], the quality of governance is classified as democratic quality that is the average of the first two indicators of WGI and technical quality that is the average of the last four dimensions of WGI. The happiness index is obtained from the 2015 *World Happiness Report* published by World Bank and GDP per capita (constant 2005 US$) is obtained from the World Bank database.

Table II provides the summary statistics of happiness, the quality of governance including democratic quality and technical quality, and real GDP per capita (*GDPPC*) for all countries. Among the 101 worldwide countries, the maximum and minimum happiness index scores are 7.587 (Switzerland) and 2.906 (Burundi), respectively. The highest and lowest democratic quality scores are 1.426 (Finland) and -1.810 (Afghanistan). Besides, the highest and lowest technical quality scores are 2.109 (Singapore) and -1.577 (Venezuela). The greatest real GDP per capita is US$67,246 (Norway) and the lowest real GDP per capita is US$153 (Burundi).

TABLE II
SUMMARY STATISTICS OF ALL VARIABLES

Variable	Mean	Max.	Min.	Std. dev.
HAPP	5.471	7.587	2.906	1.141
DEMOQ	0.018	1.426	-1.810	0.811
TECHQ	0.105	2.109	-1.577	0.954
GDPPC	10692	67246	153	14964

B. Methodology

To examine the impact of governance on happiness at different points of the happiness distribution, we use the quantile regression (QR) analysis introduced by Koenker and Bassett [22]. Standard Ordinary least squares (OLS) techniques concentrate on estimating the mean of the dependent variable subject to the values of the independent variables. When the errors are not normally distributed, QR technique is more appropriated than OLS. QR allows us to estimate effects at different points of the conditional outcomes distribution.

The basic QR model specifies the conditional quantile as a linear function of covariates and it is as

$$Y_i = X_i^{'}\beta_\theta + \varepsilon_{\theta i} \quad (1)$$

or

$$Quantile_\theta(Y_i \mid X_i) = X_i^{'}\beta_\theta \quad (2)$$

where θ is the location of quantile, β_θ is the vector of parameter for θ's quantile, and $Quantile_\theta(Y_i \mid X_i)$ denotes the conditional expected value of dependent variable Y_i in θ quantile, given specified regressor vector X_i under the assumption $Quantile_\theta(\varepsilon_{\theta i} \mid X_i) = 0$. The θth regression quantile of Y is the solution of the objective function as:

$$\min_{\beta}\left\{\sum_{i:Y_i \geq X_i^{'}\beta} \theta \cdot \left|Y_i - X_i^{'}\beta\right| + \sum_{i:Y_i < X_i^{'}\beta} (1-\theta)\cdot\left|Y_i - X_i^{'}\beta\right|\right\} \quad (3)$$

This study sets up five quantiles as 0.15, 0.35, 0.5, 0.65, 0.85.

III. Empirical Results

Because of the 2015 update of WGI's project reports governance indicators for 215 economies, the World Happiness Report 2015 encompasses 158 nations, and the annual Human Development Index for 2015 consists of 188 countries. For the sake of consistency, there are 101 countries employed in this study. The 101 countries consist of 31 developed countries and 70 developing countries.

Before examining the impacts of governance on happiness, a Pearson correlation test is conducted. As shown in Table III, there are high positive correlations among happiness, democratic quality, and technical quality for all countries and developed countries. However, for developing countries, the correlation coefficient of happiness and democratic quality is low (0.279) and the correlation coefficient of happiness and technical quality is low (0.256).

TABLE III
PEARSON CORRELATION COEFFICIENTS BETWEEN HAPPINESS AND GOVERNANCE

Variable	HAPP	DEMOQ	TECHQ
All Countries			
HAPP	1		
DEMOQ	0.614***	1	
TECHQ	0.648***	0.864***	1
Developed Countries			
HAPP	1		
DEMOQ	0.652***	1	
TECHQ	0.686***	0.798***	1
Developing Countries			
HAPP	1		
DEMOQ	0.279**	1	
TECHQ	0.256**	0.658***	1

Note: ** and *** denote significance at the 5% and 1% levels (2-tailed).

To examine the impact of quality of governance such as democratic quality and technical quality on the individual

happiness, OLS regression analysis and QR are utilized. OLS estimates effects at the mean. The QR results suggest some important differences across different points in the conditional distribution of happiness. When dependent variable is not standard normal distribution or is heterogeneous, QR analysis is preferred. Many empirical studies not only focus on the average performance of dependent variables but also concern about the behaviors of the tails. Then, the QR analysis plays a very important role.

As to developing countries group in Table IV, both OLS and QR results show that real GDP per capita has a significantly positive impact on happiness but democratic quality has no significant impact on happiness.

TABLE IV
HAPPINESS AND DEMOCRATIC QUALITY: OLS AND QR ESTIMATES

Independent Variable	Dependent Variable: HAPP					
	OLS	0.15	0.35	0.5	0.65	0.85
	All Countries					
Constant	1.029	-0.125	0.095	1.053	1.190	1.187
	(1.631)	(-0.219)	(0.105)	(1.240)	(1.448)	(0.924)
DEMOQ	0.100	-0.042	0.071	0.286*	0.134	-0.179
	(0.704)	(-0.321)	(0.398)	(1.697)	(0.648)	(-0.713)
lnGDPPC	0.536***	1.345***	1.404***	1.219***	1.272***	1.413***
	(7.065)	(8.004)	(5.725)	(5.368)	(5.484)	(4.156)
	Developed Countries					
Constant	2.193	-3.476	-1.376	-1.930	0.883	5.677*
	(1.357)	(-1.098)	(-0.635)	(-0.616)	(0.351)	(2.005)
DEMOQ	1.440***	1.734**	1.771***	1.206*	1.240**	0.913
	(3.711)	(2.375)	(4.115)	(2.035)	(2.064)	(1.580)
lnGDPPC	0.287	1.768**	1.339**	1.660**	1.051	0.133
	(1.672)	(2.191)	(2.509)	(2.127)	(1.631)	(0.178)
	Developing Countries					
Constant	0.259	-0.056	0.812	0.321	0.942	0.305
	(0.347)	(-0.172)	(0.791)	(0.264)	(0.853)	(0.486
DEMOQ	-0.006	-0.133	0.158	0.215	0.169	0.138
	(-0.036)	(-1.147)	(0.695)	(0.708)	(0.602)	(1.060)
lnGDPPC	0.637***	1.298***	1.214***	1.459***	1.374***	1.753***
	(6.716)	(11.495)	(4.007)	(3.951)	(4.067)	(10.432)

Notes: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The t-statistics are in parentheses.

The empirical results of happiness and technical quality OLS and QR estimates for all countries, developed countries, and developing are presented in Table V. For all countries group, both OLS and QR results show that real GDP per capita has a significantly positive impact on happiness but democratic quality has no significant impact on happiness. For developed countries group, technical quality has a significantly positive effect on happiness from OLS and QR results but real GDP per capita only has a significantly positive effect on happiness in the 0.15 quantile. As to developing countries group, both OLS and QR results show that real GDP per capita has a significantly positive effect on happiness but technical quality has no significant effect on happiness with the exception of QR in 0.35 quantiles.

TABLE V
HAPPINESS AND TECHNICAL QUALITY: OLS AND QR ESTIMATES

Independent Variable	Dependent Variable: HAPP					
	OLS	0.15	0.35	0.5	0.65	0.85
	All Countries					
Constant	0.993	-0.032	1.500	0.505	1.374	0.951
	(1.412)	(-0.062)	(1.462)	(0.981)	(1.525)	(0.723)
TECHQ	0.072	-0.019	0.315	0.027	0.110	-0.164
	(0.527)	(-0.141)	(1.551)	(0.296)	(0.632)	(-0.744)
lnGDPPC	0.540***	1.322***	1.011***	1.361***	1.224***	1.480***
	(6.289)	(7.921)	(3.473)	(9.042)	(4.709)	(4.175)
	Developed Countries					
Constant	3.680**	-2.143	4.306	3.528	3.722**	5.489***
	(2.146)	(-0.693)	(1.267)	(1.000)	(2.512)	(6.049)
TECHQ	0.775***	0.760**	1.315***	1.322***	0.934***	0.774***
	(3.834)	(2.455)	(4.038)	(3.813)	(3.456)	(2.824)
lnGDPPC	0.178	1.602*	0.087	0.290	0.414	0.112
	(0.976)	(2.036)	(0.105)	(0.338)	(1.197)	(0.556)
	Developing Countries					
Constant	-0.465	-0.064	-0.529	-0.554	-0.686	-0.626
	(-0.573)	(-0.080)	(-0.537)	(-0.468)	(-0.738)	(-0.519)
TECHQ	-0.300	-0.113	-0.474*	-0.427	-0.393	-0.385
	(-1.482)	(-0.451)	(-1.694)	(-1.305)	(-1.508)	(-1.249)
lnGDPPC	0.718***	1.320***	1.558***	1.666***	1.817***	1.927***
	(7.093)	(5.297)	(5.239)	(4.794)	(6.637)	(5.746)

Notes: *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The t-statistics are in parentheses.

IV. CONCLUSION

In recent years, under the impact of globalization, economic competition among nations into a global phenomenon is becoming a serious challenge for all governments. Many governments are engaged in increasing national competitiveness as well as promote individual happiness pursuit. This study examines whether government can enhance people's well-being by adopting good governance or not.

This study utilizes the OLS and QR to examine the impacts of governance quality on for worldwide 101 countries classified as developed countries and developing countries. According to the OLS results, democratic quality only has a positive and significant effect on happiness in developed countries. Base on the QR results, democratic quality has positive and significant impacts on happiness for developed countries in all five quantiles with the exception of 0.85 quantile. The results indicate that good governance of democratic quality can make a positive contribution to enhance individual happiness in developed countries, especially for developed countries with low and median levels of happiness. However, good democratic quality may not be helpful for promoting individual happiness in developing countries. Similarly, technical quality has a positive and significant effect on happiness in developed countries from the OLS and QR results. This implies that enhancing technical quality is helpful for promoting individual happiness in developed countries. Meanwhile, enhancing technical quality may not be useful to promote individual happiness for developing countries. Additionally, OLS results show that real GDP per capita has a significantly positive effect

on happiness in developing countries. The QR results are the same as OLS results. QR results show that for developing countries, real GDP per capita has a significantly positive impact on happiness in all five quantiles.

To sum up, governance quality such as democratic quality and technical quality leads to more significant happiness in developed countries when compared to developing countries. However, real GDP per capita leads to more significant happiness in developing countries when compared to developed countries. Governance quality is one of the main factors to affect happiness in developed countries. Meanwhile, real GDP per capita is the main factor to happiness in developing countries.

The findings of this study indicate that developed countries should focus more on the quality of governance such as democratic quality and technical quality to enhance individual levels of happiness. Meanwhile, policy makers in developed countries should pay more attention on increasing real GDP per, in order to promote individual levels of happiness.

REFERENCES

[1] GNH Centre Bhutan, *The Story of GNH*, Retrieved from: www.gnhcentrebhutan.org/what-is-gnh/the-story-of-gnh/
[2] R. Boarini, "The OECD Better Life Initiative," *The Statistics Newsletter – OECD*, no. 52, pp. 14-43, 2011.
[3] J. Helliwe, *First World Happiness Report Launched at the United Nations*, The Earth Institution Columbia University, 2012, Retrieved from: http://www.earth.columbia.edu/articles/view/2960
[4] J. F. Helliwell, H. Huang and S. Wang, "The geography of world happiness," in *World Happiness Report 2015*, J. Helliwell, R. Layard and J. Sachs Ed., pp. 14-43, 2015.
[5] G. W. Scully, "The institutional framework and economic development," *Journal of Political Economics*, vo1. 96, no. 3, pp. 652-662, 1988.
[6] J. Sachs and A. Warner, "Natural resource abundance and economic growth," *National Bureau of Economic Research Working Paper*, No.5398, 1995.
[7] D. Rodrik, "TFPG Controversies, institutions and economic performance in East Asia," *NBER Working Paper*, No. 5914, 1997.
[8] R. E. Hall and C. I. Jones, "Why do some countries produce so much more output per worker than others?" *Quarterly Journal of Economics*, vol. 114, no. 1, pp. 83-116, 1999.
[9] D. Kaufmann, A. Kraay, and P. Zoido, "Governance matters," *World Bank Policy Research Working Paper*, No. 2196, 1999.
[10] S.-J. Wei, "Negative alchemy? Corruption and composition of capital flows," *OECD Technical Paper*, No.165, 2000.
[11] D. Acemoglu, S. Johnson, and J. Robinson, "The colonial origins of comparative development: An empirical investigation," *American Economic Review*, vol. 91, no. 5, pp. 1369-1401, 2001.
[12] H. L. F De Groot, G. J. Linders, P. Rietveld, and U. Subramanian, "The institutional determinants of bilateral trade patterns," *Kykios*, vol. 57, no. 1, pp. 103-123, 2004.
[13] R. Rigobon and D. Rodrik, "Rule of law, democracy, openness and income: Estimating the interrelationships," *Economics of Transition*, vol. 13, no. 3, pp. 533-564, 2005.
[14] H. Jalilian, C. Kirkpatrick, and D. Parker, "The impact of regulation on economic growth in developing countries: a cross-country analysis," *World Development*, vol. 35, pp. 87-103, 2006.
[15] E. N. Gamber and A. K. S. Scott "A threshold analysis of the relationship between governance and growth," *International Economic Journal*, vol. 21, no. 2, pp. 255-278, 2007.
[16] V. C. Arusha, "Government expenditure, governance and economic growth," *Comparative Economic Studies*, vol. 51, no. 3, pp. 401-18, 2009.
[17] A. Y. Evrensel, "Corruption, growth, and growth volatility," *International Review of Economics and Finance*, vol. 19, pp. 501-514, 2010
[18] M.-P. Marı´a-Teresa, M.-A. Galindo-Martı´nb, and D. Ribeiro-Sorianoc, "Governance, entrepreneurship and economic growth," *Entrepreneurship and Regional Development*, vol. 24, pp. 865-877, 2012.
[19] J. C Ott, "Government and happiness in 130 nations: Good governance fosters higher level and more equality of happiness," *Social Indicators Research*, vol. 102, no. 1, pp. 3-22, 2011.
[20] R. Veenhoven, *World database of happiness*. Erasmus University Rotterdam, Netherlands, 2010. Retrieved from: http://worlddatabaseofhappiness.eur.nl.
[21] J. Helliwell and H. Huang, "How's your government? International evidence linking good government and well-being," *British Journal of Political Science*, vol. 38, pp. 595–619, 2008.
[22] R. Koenker and G. S. Bassett, "Regression quantiles," *Econometrica*, vol. 46, no. 1, pp. 33-50, 1978.