LIVE LONG AND PROSPER WITHOUT ECONOMIC GROWTH? POSSIBILITIES IN DEVELOPING COUNTRIES

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Abstract: The discussion of aiming at zero economic growth has re-emerged in late 2000s after the financial crisis coinciding with environmental concerns. Here we see a parallel with the concept of zero economic growth in 1970s, i.e., steady-state economy in Herman E. Daly's word. The oil crisis stimulated some scientists to rediscover and to rethink the limit of growth, especially towards the way it had turned out in the modern economy. Why the 1970s movement did not succeed in shifting the paradigm? What makes the paradigm shift more likely to occur nowadays? This paper makes an attempt to answer the question from the perspective of neo-institutionalism. Besides, the discussion about steady-state economy or prosperity without growth mostly focuses on developed countries. The possibility of its occurrence in developing countries is hardly addressed. Here I would like to shift the focus to the potentials of developing countries to take this route. First, low income countries which score high in specific development indicators are identified. Data of GDP per capita, life expectancy at birth, and adult literacy rate are taken from Human Development Index year 2007. Additionally, the index of life satisfaction (year 2006) is employed. Countries which score low in life expectancy at birth, adult literacy rate, or life satisfaction but with relatively higher level of GDP per capita are selected for comparing with the former. Document analysis and open-ended interviews are employed in order to identify possible factors that lead to the good performance of the aforementioned low income counties. Furthermore, factor analysis is conducted in order to investigate the aggregated development factors. The findings are to be compared with elements identified in the above low income but well performed countries and with aforementioned factors of paradigm shift. The purpose is to identify the underlying factors for development. This paper concludes with implications for development policies and development studies for the developing world.

Keywords: Development policy, Factor analysis, Neo-institutionalism, Steady-state economy

I. INTRODUCTION

How to flourish with zero-growth/de-growth? Sometimes, to answer a fundamental question like this, history instructs. Research debate in 1970s lays the ground work for development without growth, such as Space-Ship Economy by Boulding (1966), Limits to Growth by Meadows *et al* (1972; better known as by Club of Rome), the application of Net Energy concept by Odum (1973) and Steady-State Economy by Daly (1974). Prosperity without growth is, however, expected to be a controversial topic especially for developing countries. This concept goes against the catching-up and convergence hypotheses that have been rooted in most literature on economic growth and development studies.

I do not advocate going against growth in developing countries. The reason for asking developing countries to be aware of their development patterns is based on the fact that once the traditional value, traditional skills and social ties disappear, it is costly to recover. These are the assets. Just like the environmental assets! Under what conditions that a developing country can focus on development without having economic growth? What should developing countries do to prosper if it does not aim at having economic growth? This article is a preliminary effort in this regard.

II. WHY THE SHIFT IS MORE LIKELY THIS TIME? A NEO-INSTITUTIONALISM PERSPECTIVE

Why would the shift to the paradigm of faviouring zero growth more likely to occur now, comparing to 1970s? This section outlines the answer employing neo-institutionalism. Structure of the society, by definition, consists of basic determinants of performance (North, 1981). Neo-institutionalism explains the structure of the society and its change using the following three theories: the theory of ideology, the theory of property right and the theory of state. Even though this section is evolved mainly along neo-institutionalism, the discussion also contains traits of neo-classical economics.

2.1. The change of ideology: Concern of environment and health

The thought in 1970s related to environmental movement. However, the revival of this thought nowadays covers not only concerns for environment but also pursuits of mental and physical health, failure of trickle down effect on income distribution, and lifestyle of down-scaling. Gaining the key to happiness becomes one of the major concerns in our current society in which rate of mental illness is higher than that in 1970s. The importance of leisure is reflected by increasing tourist number and the voluntarily decreased work hours. Since the opportunity cost of working an additional hour (and receiving additional income) is the leisure forgone, according to neo-classical economists, an increase in leisure value may then make the choice of long-hour work expensive. Neo-classical economics here can be applied to explain the phenomenon of voluntarily reduced work hours. The increasing scale of inequality occurs not only in the developing world, but also in OECD countries. The trickle down effect which is supposed to bring wealth to the poor simply does not occur in the way its hypothesis suggests.

Additionally, the set of consumer's preference has changed. In neo-classical economists' word, what one places in a utility function has altered. Consumers are inclined to favour traditional, local, environmental and hand-made and tailor-made commodities. Organic products and slow food are products available and to a certain extent also affordable for the general public. However, neo-classical economists' assumption of 'preferring more goods' is to be re-considered. The reasons are three: First, there is an increasing environmental awareness. This can of course partly be attributed to Schumacher (1973)'s work 'Small is beautiful'. The second reason was pointed out by Daly (1973): It is the (capital) stock that we should aim at increasing, not the flow. However, this argument does not stand while talking about fashion. Thirdly, responsibility comes along with possession. Apart from requiring

space to accommodate them and resources to maintain them, the increasing adoption of disposal fees in societies does impose an additional cost of owning more.

2.2. The change of property rights: Internalising externalities

Nature provides various functions of sustaining livelihoods: forest provides firewood, wildlife offers nutrition and wetland retaining flood and purifying water. Once the function is lost, restoring destroyed natural resources or replacing it with engineering work is often costly. Odum (1973) names it 'economic handicap'. Conservation seems to be an economic option, especially for the developing countries which still possess these natural assets. Here are the two aspects concerning the change of property rights that may help avoid a society's turning into 'economic handicap': application of property rights that internalise externalities and increasing attempts of community-based management. Both of them are employed to avoid the route of 'destroy first; then recover.'

First, North (1981) explains technology improvement, what neoclassical economists consider to be the driving force of economic growth, is stimulated by the institutional changes that approximate private return with social return. In the application of environmental protection, economic instruments such as fees and taxes which bring the private cost close to the social cost. Thus, the cost of consuming more or of producing more has increased wherever this internalization mechanism is comparatively more in place nowadays. Secondly, community-based management gains its attention again after Ostrom's 2009 Nobel Prize. Community-based management requires cooperative management within the community and exclusion of outsiders by local users. In other words, certain user rights are tailored and enforced by community itself, rather than the usual State. Appropriation of resources in a fair and sustainable manner and social capital, rather than financial aid, are key to the success of management of this sort. Social capital is therefore crucial to achieve this aim.

2.3. The change of State: transformation of the relation between state and the economy

State often plays the role of specifying and enforcing property rights and other regulations. However, compliance can also be done via informal institutions such as norms, moral suasion, and ethical concerns. These factors may relate to the aforementioned ideology change. Even if enforcement is in place, these factors may also help reduce enforcement costs. Polanyi (1944) suggests the economy grows into a strongly equivalent power to State during the

Industrial Revolution. The strength of the economy has grown stronger and stronger. Nowadays, the more and more freely mobalised production factors and products, together with multi-national enterprises, further raise the bargaining power of the economy. Even so, State still has its role to play.

While the environmental awareness is growing internationally, most states can hardly shirk their environmental 'responsibility'. Enforcing property rights in environmental goods and services is sometimes attractive to states because it brings in revenue such as fees and taxes or green business. State's concern of the economy also reflects on its economic policies. For instance, there are some institutional changes such as cutting working hours to create jobs. The Wassenaar Agreement was reached in 1982 between employers' organisations and labor unions in the Netherlands. Its purpose was to restrain wage growth in return for the adoption of policies to combat unemployment and inflation, such as decreasing working hours and increasing part-time employment. The agreement has been credited with ending the wage-price spiral of the 1970s and reducing unemployment. Policies of this sort may avoid unemployment problems for an economy which chooses to develop without growth.

Apart from the aforementioned three theories, transaction cost also has an important role to play in the analysis of neo-institutionalism. Of course, a substantial transaction cost may hamper current system's transformation to a better system. The economic crisis started in 2008 prepares the public for income reduction and savings. It therefore helps reduce the transaction cost of this transformation.

III. SOME FACTS – COULD LOW INCOME COUNTRIES PERFORM WELL?

It is commonly recognised that life expectancy, adult literacy, and life satisfaction do not increase further with GDP per capita once a country reaches a certain level of wealth. Rather than looking at the rich end of the spectrum, I would like to draw your attention to the varied performance of low income countries. In other words, with GDP per capita below 4,000 US dollars for instance, there is huge difference between life expectancy (around 30 years of age), large discrepancy of literacy rate (more than 70%), and huge difference of life satisfaction (more than 4 points out of 8 as the full mark). What lessons can be learnt from some of these developing countries which are in fact rather developed in certain aspect but with low GDP per capita? Three indicators, namely life expectancy at birth, adult literacy rate and life satisfaction are applied to identify potentially interesting cases.

3.1. Life expectancy at birth of countries with GDP per capita below 4,000 US dollars in 2007

Figure 1 shows life expectancy at birth of 182 countries with corresponding GDP per capita. Among them, 7 countries whose GDP per capita are below 4,000 US dollars have their life expectancy at birth above 70 years. They are, from lower to higher GDP per capita, Occupied Palestinian Territories (Middle East), Nicaragua (Latin America), Viet Nam (Southeast Asia), Cape Verde (Central Atlantic Ocean), the Philippines (Southeast Asia), Indonesia (South Asia), Tonga (South Pacific Ocean), and Honduras (Latin America). Among them, Viet Nam, the Philippines, Indonesia, and Honduras have a national or unified health system. Basic medication is provided at relatively lower cost and with easier access. While there is no information available in Occupied Palestinian Territories; Cape Verde and Tonga do not have a national health system. Geographically speaking, these 7 countries are no land-lock. Instead, all of them have a long coastline. Furthermore, the interview result from cases in Viet Nam, Cape Verde, the Philippines, and Indonesia also suggests social capital (close family bond and community tie) serves as safety net, in this case, a health insurance.

If the relation of life expectancy and income is, like shown in Figure 1, positive but diminishing, we then have 5 outlier countries. They are, from lower to higher GDP per capita, Republic of Congo, Angola, Swaziland, South Africa and Botswana. Note all of them are African countries. Both Republic of Congo and Angola suffered from civil war: Republic of Congo in year 1997 and Angola during 1975-2002. HIV/AIDS is the major cause to the low life expectancy in the rest three countries. Their HIV/AIDS adult prevalence rates are high in the three relatively richer countries: 26.10% in Swaziland, 18.10% in South Africa and 23.90% in Botswana in year 2007. Pandemic also play a crucial role in affecting life expectancy in some high income countries. Equatorial Guinea's GDP per capita is 30,627 US dollars. However, its life expectancy at birth is merely 49.9. The major reason for this low life expectancy is malaria, which is however 'preventable'.

3.2. Adult literacy rate of countries with GDP per capita below 4,000 US dollars in 2007

Figure 2 shows the adult literacy rate of 182 countries with corresponding GDP per capita. Among them, 5 countries whose GDP per capita below 4,000 US dollars have their adult literacy rate close to 100%. They are, from lower to higher income, Tajikistan, Kyrgyzstan, Moldova, Guyana and Tonga.
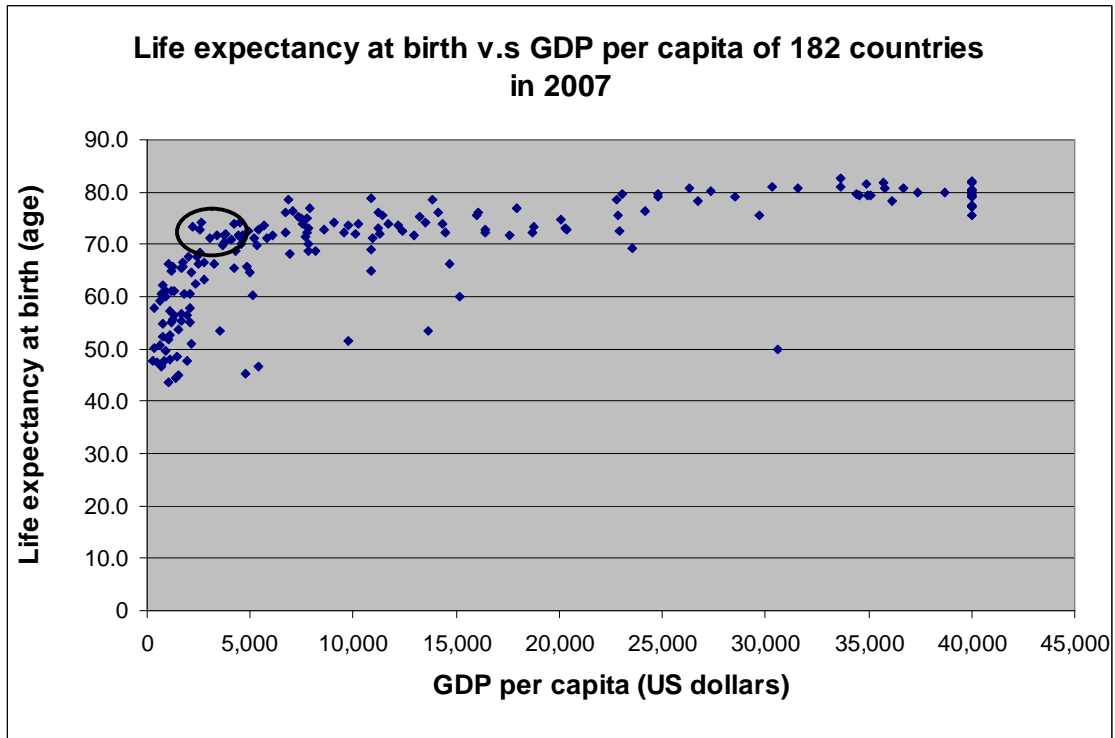
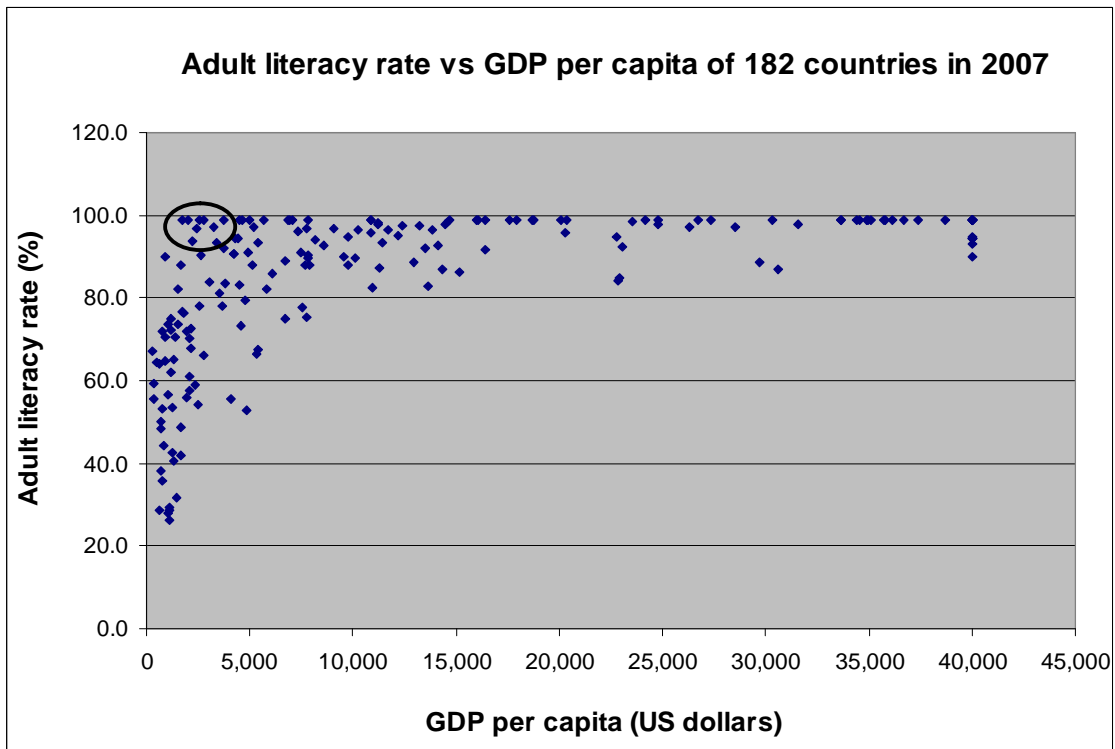**Figure 1:** Life expectancy vs GDP per capita

Figure 2. Adult literacy rate vs GDP per capita

All of them adopt compulsory educational system and are able to carry it out. On the other hand, adult literacy rates of 7 countries with income higher than 4,000 per capita are ranging between 50% and 80%. They are, from lower to higher income, Morocco, Bhutan, Egypt, Angola, Belize, Tunisia, and Algeria. Except from Bhutan, all other 6 countries also implement a compulsory education system. However, most of their literacy rates are skewed to male (Morocco, Angola, Egypt and Algeria). Apart from Angola, a Christian country and came out from a long civil war (1975-2002), the rest three are muslim countries. In Egypt and Angola, it is also skewed to rich regions/urban areas.

3.3. Life satisfaction (data of year 2006) of countries with GDP per capita below 4,000 US dollars in 2007

Figure 3 shows the life satisfaction of 176 countries (rather than 182, due to data availability) with corresponding GDP per capita. Among them, 10 countries whose GDP per capita below 4,000 US dollars in 2007 score above 6.5 out of the 8.0 scale. They are, from lower to higher income, Timor Leste (Southeast Asia), Sao Tome and Principe (Western equatorial coast of Africa), Solomon Islands (Southwestern Pacific Ocean), Kyrgyzstan (Central Asia), Guyana (South America), Mongolia (East and Central Asia), Vanuatu (South Pacific Ocean), Indonesia (South Asia), Tonga (South Pacific Ocean), and Honduras (Latin America).

Geographically speaking, Kyrgyszstan and Mongolia are located in Central Asia and are land-locked, the rest 8 countries are either islands (6) or with a long coastline (2).

On the other hand, 5 countries whose GDP per capita higher than 5,000 US dollars have their life satisfaction lower than 4.5. They are, from lower to higher income, Armenia, Ukraine, Belarus, Bulgaria and Russian Federation. All of them are post-communist countries. Inequality is often blamed for the unhappiness. However, apart from Russian Federation, none of the other 4 countries has its Gini coefficient larger than 40. Interestingly, in the aforementioned 10 high life satisfaction countries, the high value of Gini coefficient in both Honduras (53.8) and Guyana (43.2) indicates a phenomenon of inequality.

Whether globalization brings more or destroys more life satisfaction, the globalization index (KOF) does not seem to reveal much information. 4 out of the 10 high level life satisfaction island countries are with no data (Timor Leste, Sao Tome and Principe, Solomon Islands and Tonga). The globalization index of the rest 6 countries ranges from 55.27 to 63.85. For reference, the index in the Netherlands is 89.92 in 2006 while Ireland tops the chart by 91.02. Nevertheless, the globalization index of the 5 low life satisfaction countries range from 53.46 to 74.85.
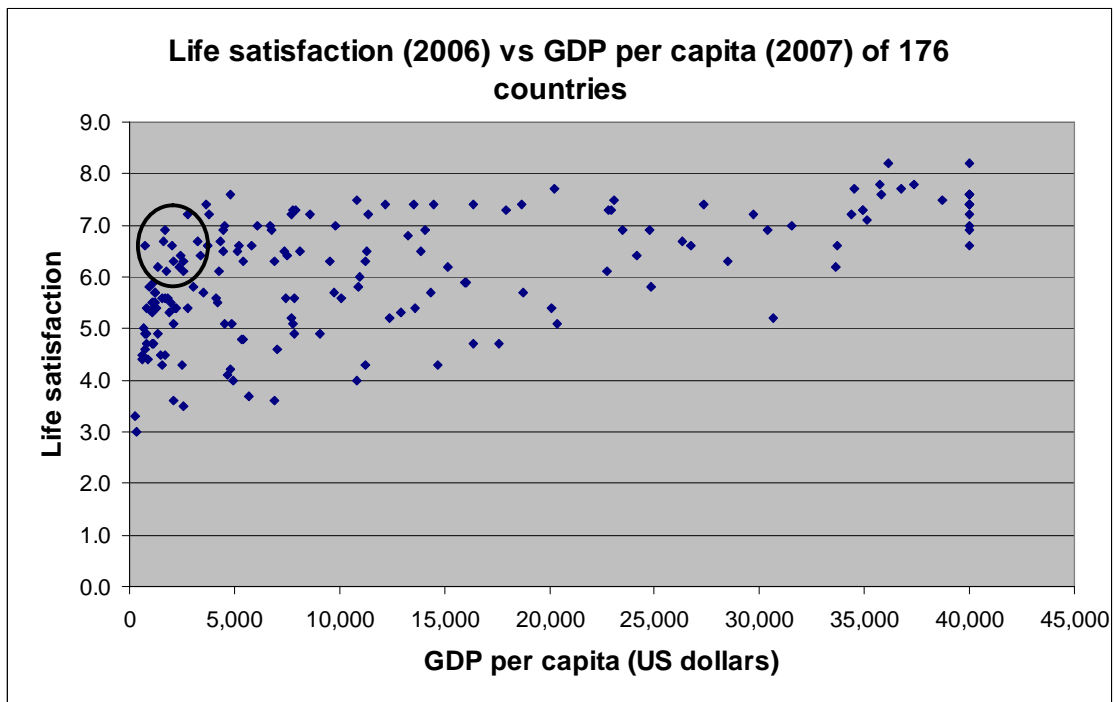

Figure 3. Life satisfaction vs GDP per capita

IV. FACTOR ANALYSIS

The application of factor analysis aims at finding out aggregated factors of development by examining the correlation between development indicators. World data is employed for conducting this factor analysis. The aim is to obtain implications for developing countries from the world perspective.

The result shown in Table 1 indicates four components concerning development. Note components 1, 3, 4, and 5 are highly or moderately loaded by more than two factors. The possible interpretation of these four components is the following, respectively: institutions and basic facilities, human capital, environment, and sector related capital.

Even though an enormous number of indicators are included in this factor analysis, it is worthwhile to point out that cultural and value related indicators are in general missing at the worldwide scale. Note selection bias resulted from the developed world researchers/decision-makers may also present.

V. REFLECTION

This paper employs neo-institutionalism to argue that our society is more prepared than that in 1960s to embrace development without growth. Whether this is also applicable to the developing countries or not, statistics offers some hints. Section 3 demonstrates the fact that some low income countries can still score high in some development indicators. Note that most of these countries score high in one of some aspects, not all though. Further investigation on why they score low in other aspects will help answer whether growth is the route to take or not.

Our factor analysis suggests that institutions, facilities and various forms of capital are the crucial factors in our measurement of national development. Even though this result confirms concepts in conventional development economics, it also reveals the limitation of development measurement. There is relatively insufficient availability of cultural and value related indicators at the worldwide scale. Before these data are in place, in-depth interview on development factors will be conducted in further research.

Even though it is still too early to answer whether it is possible for developing countries to take the route of developing without growth, some implications could be drawn from here: Developing countries should notice their strength in their social, cultural, and other traditional assets. Copying developed countries' route does not guarantee success. After all, developed countries may also make mistakes. If the developed world would like to have their development assistance effective, attention would need to be paid to whether the aid/assistance affects these 'assets' in the countries one intended to help. Additionally, aid/assistance which aims to encourage transition from developing status to more developed status may cause instability to the society. In other words, the transaction costs should be taken into account.

REFERENCES

[1] Boulding, K.E. (1966) The economics of the coming spaceship earth, in *Environmental Quality in a Growing Economy*, ed. H. Jarrett, John Hopkins Press for Resources for the Future.

[2] Daly, H.E. (1972) In defense of a steady-state economy, *American Journal of Agricultural Economics*, Proceedings issue, 54: 5: 945-954.

[3] Meadows, D.H., Meadows, D.L., Randers, J. and Behrens, W.W. (1972), *Limits to Growth*, Club of Rome.

[4] Odum, H.T. (1973) Energy, ecology, and economics, *AMBIO*, 2: 6: 220-226.

[5] Polanyi, K. (1944; 1957; 2001) *The Great Transformation: The Political and Economic Origins of Our Time,* Boston: Beacon Press.

[6] Schumacher, E.F. (1973; reissued in 1989) Small is Beautiful: Economics as if People Mattered, London: Perennial Library.

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Please see next page for Table 1

Table 1. Component Matrix of Preliminary Factor Analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
GDP index (HDI modified 1, 2007)	.942	.175	-.079	-.021	-.104	.028	.106	.001	.014	-.033	.110	.018	-.034	.042	.048	-.060
Life expectancy index (HDI 2007)	.848	.170	-.120	-.035	-.026	-.191	-.025	-.110	.249	.031	.161	.104	.006	.069	.169	-.021
Adult literacy rate (2007)	.682	.241	-.304	.199	-.144	.492	.002	.054	.062	.044	.110	.094	-.010	.083	-.073	-.102
Life satisaction (2006)	.737	-.226	.210	-.065	.259	.046	-.178	.008	.206	.181	-.027	.034	-.102	-.054	.195	.133
Eco-footprint (2006)	.877	.041	.272	.055	-.044	.075	.190	.147	-.055	.142	.134	-.090	.085	-.003	.029	.028
Happy Planet Index (2006)	-.413	-.128	-.119	-.110	.319	-.187	-.413	-.243	.420	.063	-.115	.205	-.199	-.101	.164	.101
HDI trend (2007)	.923	.198	-.165	.028	-.106	.080	.045	.006	.092	.008	.146	.038	-.009	.058	.051	-.032
Urban share of the population (%) (2010)	.671	.037	.110	-.025	-.328	-.145	-.457	-.101	-.052	-.002	.160	-.044	.184	.150	-.190	.093
Female adult literacy rate (aged 15 and above) (1997-2007)	.675	.212	-.306	.176	-.086	.532	-.012	.065	.082	.048	.098	.075	.050	.087	-.036	-.116
Population density (people/km2) wiki (2008-2010)	.273	.175	-.243	.028	.295	-.162	-.269	.101	-.119	-.579	-.252	.256	.161	.053	.115	-.134
globalisation_KOF index (2006)	.866	-.172	-.071	-.282	.027	.085	.098	-.067	-.019	.012	.151	.062	-.068	-.043	.009	.054
Proportion of terrestrial and marine areas protected MDG 2007	.243	.014	.092	.303	.421	.201	-.052	-.421	-.156	.226	-.218	.251	-.284	.194	.026	.088
Proportion of land area covered by forest % 2005	.324	-.122	-.351	.589	.281	-.182	.250	.188	.273	.076	.018	-.008	.091	.000	-.092	.055
Employment-to-population ratio, both sexes % 2006	.074	-.239	.226	.433	.184	.543	-.130	.306	.129	.014	-.249	-.205	-.123	-.012	.086	.061
Corruption Perceptions Index 2009	.912	-.253	.187	.014	.034	-.067	.038	.015	.053	-.033	-.103	.059	-.089	.030	-.090	.044
Internet users % 2007	.929	-.087	-.040	.040	.128	-.067	.052	.068	-.003	-.110	-.090	-.041	.122	-.047	.094	-.058
Mobile cellular telephone subscriptions per 100 population 2007	.555	.147	-.352	-.375	.073	.144	.295	.063	-.213	-.076	.114	.077	-.060	-.054	.067	-.043
Telephone lines per 100 population 2006	.910	.076	.068	.006	.030	-.006	.044	-.008	-.075	.000	.074	.093	-.045	.164	.071	-.061
Overall index of economic freedom 2010 (of the following 10)	.790	-.136	.342	-.086	.052	.130	.174	-.024	.196	-.257	-.077	.119	.048	.101	-.092	-.030
Business Freedom 2010	.733	.064	.192	-.188	-.045	-.146	.107	.348	.000	-.202	-.076	-.094	.075	-.067	.102	-.141
Trade Freedom 2010	.706	-.106	-.028	.082	-.065	.349	.233	-.276	-.138	-.164	.250	-.093	-.103	.015	-.062	-.100
Fiscal Freedom 2010	-.747	.119	.067	.225	-.092	.163	.179	-.141	.208	.036	-.097	-.037	.004	.258	-.130	-.145
Gov't Spending 2010	-.651	.135	.159	.206	-.124	.104	-.068	-.197	.412	-.074	-.116	.078	-.012	.008	-.038	-.149
Monetary Freedom 2010	.680	.076	.086	-.176	.056	-.415	.285	.002	.021	-.217	-.097	.071	-.079	.149	.103	.226
Investment Freedom 2010	.671	-.253	.162	-.247	.160	.003	.075	-.162	-.049	-.289	.065	.216	.272	.095	.051	-.107
Financial Freedom 2010	.685	-.301	.170	-.132	.118	.252	.211	.090	.008	-.285	.120	.052	.024	-.086	-.099	.130
Property Rights 2010	.887	-.204	.198	-.112	.126	-.091	.136	.032	.035	-.100	-.047	.115	-.027	.061	-.100	.007
Freedom from Corruption 2010	.908	-.247	.181	-.013	.066	-.106	.040	.017	.060	-.062	-.045	.071	-.091	.048	-.087	.090
Labor Freedom 2010	.295	.229	.417	-.125	-.032	.516	-.022	.147	.263	-.089	-.244	.058	.115	.098	-.088	.080
Urbanisation 2001	.719	.123	.005	-.038	-.328	-.190	-.403	-.111	-.067	-.067	.093	.011	.129	.200	-.118	.067
Urban population 2005	.677	.044	.108	-.031	-.335	-.140	-.450	-.099	-.058	.002	.159	-.038	.178	.148	-.188	.091
Global competitiveness index 2008-9	.901	.032	.186	.010	.095	-.060	.069	.094	.081	-.080	-.203	.076	-.036	-.108	-.079	-.049
Soundness of banks 2009	.342	-.533	.053	-.003	.058	.028	.251	.127	.467	.091	.265	.254	-.027	-.065	.007	.221
Global peace index 2007	-.686	.432	.197	.122	.014	.192	.026	.032	-.095	-.068	.135	-.016	-.074	-.075	.205	-.166

Internal water footprint 2004	.116	.527	.583	.317	.178	.021	.215	-.058	-.156	.154	.124	.000	.171	-.238	-.025	.026
External water footprint 2004	.385	.581	.281	.317	.303	-.202	.074	-.013	-.260	-.031	-.013	.060	.151	.019	.006	-.039
Total water footprint 2004	.190	.569	.539	.334	.219	-.033	.191	-.050	-.190	.116	.097	.015	.175	-.186	-.019	.011
Per capita CO2 emissions from the consumption and flaring of fossil fuels 2005	.712	.181	.352	.056	-.219	.177	.086	.189	-.042	-.100	-.012	-.075	.026	.065	.155	.076
Environmental performance index 2008	.692	-.193	-.207	-.027	.238	-.089	.104	-.162	.234	.308	.071	.057	.062	-.009	-.018	-.233
Global gender gap index 2008	.619	-.252	-.105	.002	.118	.428	-.074	.110	-.055	.432	.031	-.143	.008	-.083	.070	-.104
Voice and accountability_WDI 2008	.901	-.014	-.028	-.046	-.170	.052	.067	-.160	-.075	.006	.023	-.137	-.133	-.102	-.037	.098
Political stability no violence WDI 2008	.787	-.076	-.033	-.202	-.108	.081	.245	-.069	.083	-.030	-.249	-.174	-.036	-.188	.034	-.047
Government effectiveness WDI 2008	.921	.104	-.051	-.091	-.192	-.055	.016	-.065	.118	.034	-.082	-.145	-.042	.003	.089	-.012
Regulaion quality_WDI 2008	.905	.170	-.058	-.126	-.266	.062	-.007	-.162	.070	.034	-.001	-.043	-.053	-.005	.012	.002
Rule of law_WDI 2008	.883	.128	-.022	-.210	-.154	-.035	.041	-.003	.037	.072	-.160	-.217	-.034	.034	.109	.076
Control of corruption WDI 2008	.895	.090	.029	-.188	-.175	-.151	.018	-.098	.078	.045	-.068	-.188	-.104	-.031	.075	.021
Agricultural land (% of land area) 2007	-.159	.121	.211	-.322	.449	.475	-.340	-.145	-.102	-.203	.194	.062	.039	-.021	.098	.048
Agriculture value added (% GDP) 2004	-.779	-.292	.140	.091	.158	.173	-.005	.180	-.189	-.029	-.131	.055	.204	.066	.024	-.047
Arable land (% of land area) 2007	.095	.268	-.143	-.247	.347	.561	-.276	-.060	-.115	-.221	.072	-.139	-.106	-.188	-.257	.147
Business extent of disclosure index (0=less disclosure to 10=more disclosure) 2009	.184	.228	-.004	.413	-.260	-.120	-.437	.135	-.060	.040	.184	-.066	-.209	-.329	.159	-.022
Ease of doing business index (1=most business-friendly regulations)	-.773	-.103	-.081	-.070	.356	-.024	.142	.192	-.073	.024	.213	.152	-.059	.100	-.091	.191
Employment to population ratio, 15+, total (%) 2007	.403	-.209	.199	.536	-.274	.077	.060	-.116	-.091	-.176	.003	-.072	-.305	.020	-.006	.080
Final consumption expenditure, etc. (% of GDP) 2005	-.417	.433	.296	-.457	.062	-.193	-.050	.211	.026	.345	-.012	.154	-.062	.157	-.173	-.087
Fixed broadband Internet subscribers (per 100 people) 2008	.948	-.106	-.062	.032	.015	-.023	-.032	.070	-.065	-.037	-.092	-.033	.027	-.014	-.035	.014
Fuel exports (% of merchandise exports) 2005	-.172	-.713	.254	.246	.038	.089	-.073	.272	-.268	.190	-.011	.064	.174	.073	.001	-.013
Fuel imports (% of merchandise imports) 2005	-.247	.532	-.240	.394	-.034	.032	.116	.423	.108	-.198	-.011	.163	-.194	-.003	-.157	.178
GEF benefits index for biodiversity (0 = no biodiversity potential to 100 = maximum) 2005	-.018	.117	.493	.618	-.139	.022	-.048	-.055	.185	.045	.248	.079	-.086	.067	.012	.242
General government final consumption expenditure (% of GDP) 2007	.522	-.022	-.035	-.468	.043	-.288	-.031	.385	-.219	.108	-.082	-.024	-.036	-.305	-.010	.217
Gross capital formation (% of GDP) 2007	-.389	.097	-.350	.016	-.480	.259	.047	-.125	.027	.155	-.263	.219	.402	-.105	.143	.201
Gross domestic savings (% of GDP) 2007	.374	-.532	-.241	.452	-.047	.158	.081	-.281	-.106	-.331	.012	-.111	.080	-.127	.145	.010
Gross fixed capital formation (% of GDP) 2007	-.367	.203	-.338	-.020	-.476	.269	.073	-.022	.069	.061	-.259	.252	.332	-.126	.205	.215
Health expenditure, private (% of GDP) 2007	.054	.376	.660	-.009	.187	-.093	.240	-.151	.234	.138	.010	.018	.181	-.082	.176	-3.03E-005
Health expenditure, public (% of GDP) 2007	.869	.045	.003	-.227	.162	-.077	.041	.069	-.088	.125	.075	.045	-.001	-.109	-.115	.023
International tourism, expenditures (% of total imports) 2007	.040	-.360	.354	.024	-.230	.096	-.044	.389	-.292	.160	-.302	.160	-.150	.255	.151	-.111
International tourism, receipts (% of total exports) 2007	-.341	.289	.007	-.485	-.298	.188	.326	.221	.129	.171	.091	-.026	-.140	.195	-.021	-.110
Internet users (per 100 people) 2008	.946	-.036	-.088	.037	-.050	-.025	-.019	-.005	-.059	.047	-.103	-.010	.133	-.012	-.139	.012

Logistics performance index: Ability to track and trace consignments (1=low to 5=high) 2009	.945	.039	-.051	.185	.036	-.046	-.100	.022	-.031	.042	.077	-.005	.022	.045	.038	-.029
Logistics performance index: Competence and quality of logistics services (1=low to 5=high) 2009	.937	.017	-.038	.172	.106	-.040	-.148	.019	-.020	.039	-.060	.047	.016	-.034	.025	-.056
Logistics performance index: Ease of arranging competitively priced shipments (1=low to 5=high)	.818	.149	-.195	.055	-.069	.043	-.161	.154	.043	.068	-.114	-.007	-.154	.057	.052	.019
Logistics performance index: Efficiency of customs clearance process (1=low to 5=high) 2009	.953	.006	-.051	.156	-.005	-.017	-.118	.056	-.093	.065	-.048	-.019	-.005	.054	.002	-.020
Logistics performance index: Frequency with which shipments reach consignee within scheduled or expected time (1=low to 5=high) 2009	.878	.007	-.078	.190	.093	-.004	-.275	.090	-.063	.110	.042	.094	.070	.057	.044	-.042
Logistics performance index: Overall (1=low to 5=high) 2009	.955	.042	-.066	.165	.051	-.027	-.159	.068	-.027	.062	-.012	.025	-.009	.030	.030	-.034
Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high) 2009	.943	.051	-.009	.172	.112	-.063	-.149	.080	.019	.046	.013	.040	-.031	.002	.026	-.062
Manufactures exports (% of merchandise exports) 2006	.344	.558	-.379	-.089	.403	-.012	-.056	-.177	.299	-.025	-.137	-.177	.087	-.001	-.114	-.001
Manufactures imports (% of merchandise imports) 2006	.229	-.590	.388	-.237	.041	.077	-.027	-.407	.073	.188	.176	-.096	.235	-.051	.017	-.091
Mobile cellular subscriptions (per 100 people) 2008	.547	.173	-.461	-.253	.005	.298	.209	-.091	-.139	.072	-.003	.284	-.092	-.073	.015	.027
Motor vehicles (per 1,000 people) 2007	.886	.112	.102	.056	-.011	.011	.069	-.035	-.053	.174	-.017	.062	.089	.036	.073	.102
Ores and metals exports (% of merchandise exports) 2006	-.263	-.067	.257	.087	-.517	-.210	.157	-.090	-.004	-.247	.231	.358	-.255	-.197	.079	-.263
Ores and metals imports (% of merchandise imports) 2006	.415	.009	-.476	.359	.355	-.239	.026	.213	.198	.012	-.058	-.175	.085	.020	.076	-.230
Permanent cropland (% of land area) 2007	-.355	.196	-.213	-.054	.201	-.014	.033	.102	.024	-.143	.417	-.222	.078	.416	.446	.222
Rigidity of employment index (0=less rigid to 100=more rigid) 2009	-.176	-.153	-.670	.110	.122	-.056	.118	.036	-.283	.238	.312	.200	.029	-.001	.023	.003
Forest area (% of land area) 2007	.270	-.083	-.378	.604	-.120	-.238	.382	-.062	-.045	.017	-.035	-.024	.161	.022	-.223	.097
Telephone lines (per 100 people) 2007	.870	.143	-.009	-.059	.057	.161	.085	.026	-.072	.038	.007	.027	-.039	.163	.002	-.038
Terrestrial protected areas (% of total surface area) 2008	.242	.224	-.042	.102	.108	-.111	.148	-.578	-.429	.168	-.376	.128	-.222	.113	.064	.080
Urban population (% of total) 2008	.704	.059	.055	.039	-.062	.076	-.344	.172	.142	.045	.118	.459	.021	-.178	-.019	-.108