

Ability to sacrifice vs. propensity to absorb: a synthesis with the average and total principles in capability framework¹

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Abstract: *By making a logical foundation, the paper introduces new concepts like ability to sacrifice and propensity to absorb. The foundation is laid by combining basic principles and / or practices of Capability Approach with Derek Parfit's framework on redistribution of resources. Parfit has beautifully elaborated the debate between the average and total principles and introduced us with his Utility Monster and a similar one imagined by Robert Nozick. These Monsters are based on sacrifice of resources (or whatever makes life worth living) from the better off groups in a society to the worse off ones. The paper projects the view that such redistribution of resources and the resultant outcomes are good or at least not bad for humanity. The ideas of ability to sacrifice and propensity to absorb are operationalised following appropriate procedures for 125 countries, and tested with the average and total principles. The paper concludes with two paradoxes.*

Key words: ability to sacrifice, average principle, capability approach, redistribution of resources, total principle

JEL Classification: D630, I390, O110, O570

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1. Introduction

“The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else.” (J. M. Keynes)

The index of Gross Domestic Product in Human Development Index measures ‘ability to have access to the resources needed for a decent standard of living’. It is true that income after certain level has nothing to do with standard of living. For this reason, income at high level is discounted heavily using appropriate techniques. However, is this the usefulness of income to human beings – in true sense on self? Can we think of other qualities beyond the concept of standard of living, which is generated by the excess income of one person, where excess income may be comprehended as actual income minus income needed for decent standard of living? In the present paper, we have assumed that when individual income crosses certain threshold level, it enables the individual with some power to sacrifice² – which may be comprehended as ‘ability to sacrifice’. When the excess income is negative, one may need assistance to attain a decent standard of living. Such a need for assistance may be comprehended as ‘propensity to absorb’.

The logical foundation of the paper is laid down by combining basic principles and / or practices of Capability Approach (CA henceforth) with Derek Parfit’s framework (1986, p. 145-164) on redistribution of resources. Parfit has beautifully elaborated the debate between the average and total principles and introduced us with his Utility Monster and a similar one imagined by Robert Nozick (1988, p. 41). These Monsters are based on sacrifice of resources (or whatever makes life worth living) from the better off groups in a society to the worse off ones. The paper projects the view that such redistribution of resources and the resultant outcomes are good or at least not bad for humanity. In the present paper, the ideas of ability to sacrifice and propensity to absorb are operationalised following appropriate procedures for 125 countries, and tested with the average and total

principles. The empirical exercise is done utilising data on per capita GDP (\$PPP), GDP index, Gini index, and total population from Human Development Report 2006. The paper concludes with two paradoxes.

Let us consider some ideas and issues as following:

1.1. Average principle vs. total principle

Figure 1 shows two countries: **A** and **B**, where height of each bar measures how well off people are, and the width represents quantity or size (or growth) of population. We may imagine **A** as any of the Western European or North American or Asian industrially developed nations (in true sense, countries in the post-transitional phase), and **B** as India or China or any of the similar other biggies in the pre- or mid- and / or transitional phase.

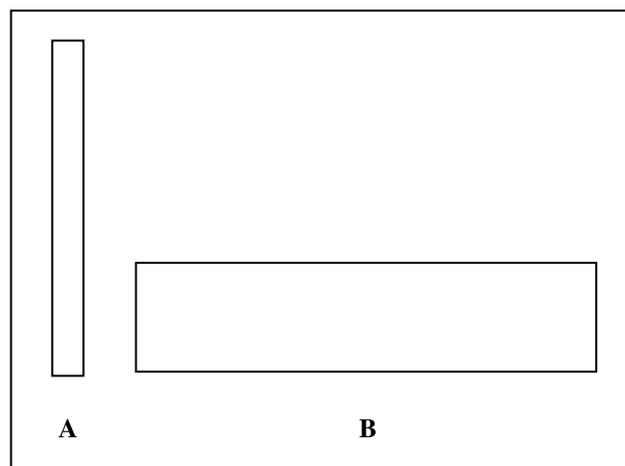


Figure 1. Average and total principles

Now, the basic question is: which outcome would be the better or worse than the other? If other things are equal, according to the average principle, **A** would be better than **B** as people lead better lives on an average in **A**. According to the total principle, **B** is better than **A** as there has been a greater total sum of resources or whatever makes life worth living in **B** (hedonistic version: contain more happiness). In the real-world situation (in 2004 according HDR 2006), if we consider income as a measure of well-being, average level is the highest in Luxembourg with per capita GDP \$PPP of 69961. On the

contrary, according to total principle, the situation is the best in the United States with GDP \$PPP of 11651 billions³.

On the above background, one may ignore the total principle to chronicle the condition and progress of the nations, especially by evaluating well-being at individual level. Ignorance of the total principle means ignorance of the extra amount of resources or like, which mostly comes from the existence of extra groups of people in a larger country relative to a smaller one. Now, can we accept this from moral point of view? According to Parfit (1986, p. 145-164), ignoring total principle also, one may state that outcome like **B** is not worse than **A**, as the existence of extra group of people is not bad for humanity⁴. So, ... what to conclude ... (i) should there be any measure of well-being beyond standard of living, (ii) can we incorporate both the average and total principles in one?

1.2. Parfit's and Nozick's Utility Monsters

Following Parfit (1986, p. 145-164) we may also comprehend a movement from **A** to **B** and so on (as shown in figure 2) as redistribution of resources from the richer countries to the poorer ones with the assumption that when the former sacrifice a small fraction of resources at their command, a large number of people in the latter are benefited. If such a redistribution process goes on, eventually we will reach **Z**, an outcome or country with a very large population. Parfit has imagined such an outcome as one Utility Monster in which there would be the greatest quantity of whatever makes life worth living. From this illustration can we comprehend that higher quality of life (as reflected from ability to have access to the resources needed for a decent standard of living) is associated with another quality: *ability to sacrifice* (which is the main driving force behind redistribution of resources)?

The standard theoretical Capability literature assumes that human development enlarges freedom, ... expands choices (Kuklys, 2005, p. 5, 10; Robeyns, 2005, p. 93-114).

Now, what are the elements that a choice-set may consist? Does it accommodate anything like ‘ability to sacrifice’? In empirical Capability literature we find that per capita income not only measures prosperity in the income-dimension but also other qualities, which are not captured by the other the two indices of longevity and education (Anand and Sen, 1994, p. 1-19). Can we assume that ‘ability to sacrifice’ is such a quality, which is captured by the excess income? However, the idea of ‘ability to sacrifice’ appears to be very important, as the Human Development Reports pay adequate attention to ‘overseas development assistance’, ‘rich countries responsibilities’, ‘flows of aid’, etc.

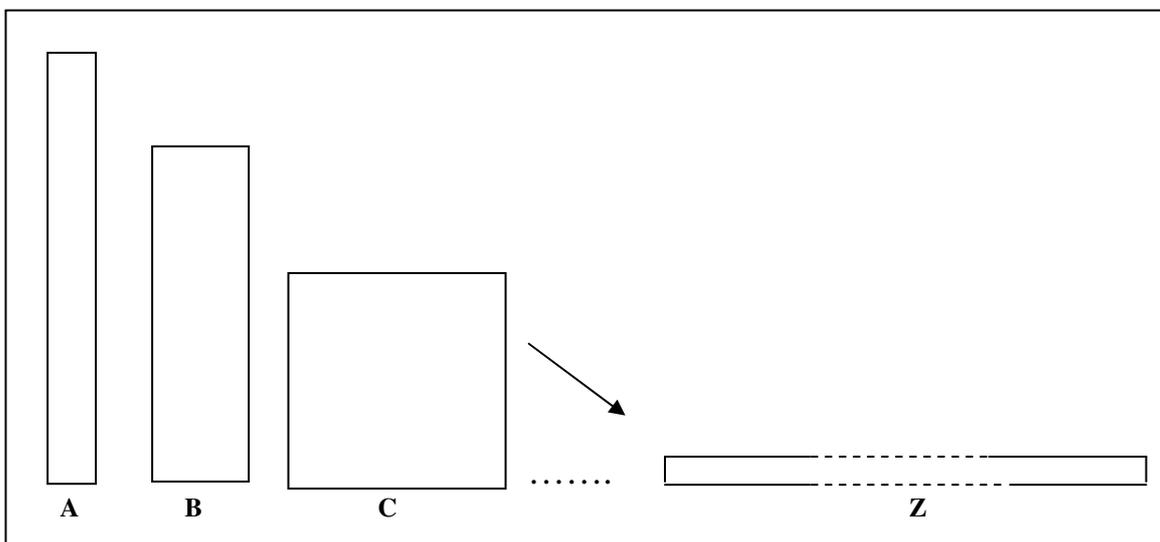


Figure 2. Redistribution of resources and Utility Monster

If we carefully review Parfit’s Utility Monster, we can see that after each process of redistribution or reorganisation of resources, the donor country loses some height (height of the bar = quality of life), and at the same time width (width = size of population) of the receiving country increases. In other words, increase in the total sum of good comes from the increased size of population only⁵. Robert Nozick (1988, p. 41) also imagined a similar Utility Monster⁶ that gets enormously greater gains in utility from any sacrifice of others than these others lose⁷. The difference between Parfit’s Utility Monster

and the Nozick's one is that in the former quantity (size of population) increases only, and in the latter qualitative improvement is possible⁸.

From the above discussion can we assume that when people of Luxembourg sacrifice a small fraction of resources at their command for people of a developing country, the latter would benefit to a great extent? This may be possible in two ways: either through increase in quantity of life (as in Parfit's Utility Monster)⁹ or through increase in quality of life (as in Nozick's Utility Monster). If we can do this, we can postulate that quality of life generates other qualities, such as ability to sacrifice and which is good or at least is not bad for humanity. Up to this stage, we may realise that average measures of well-being are good to reflect condition and progress of a nation, but any average measure based on the idea of ability to sacrifice may not reflect the power to sacrifice of a country.

1.3. From average measure to a total one

CA deals with individual, not with community or society. However, it allows country level comparisons utilising aggregate data (Robeyns, 2000, p. 18). While doing that, (as discussed above) one may often realise that average measures are necessary but not sufficient for a complete evaluation of condition and progress of a nation. For example, on an average people of Luxembourg may have very high ability to sacrifice, but what Luxembourg has to offer may vanish (absorb!) all of a sudden in the black wholes¹⁰ of China and India. So, while doing country level comparisons, one may go for total measures to evaluate relative global positions of the countries incorporating population size with average level of well-being or whatever makes life worth living from macro point of view.

1.4. CA and interpersonal comparisons of well-being

Let us assume that **C** and **D** are the only two persons in a society, and we are comparing standard of living between them. Now, if it is possible to increase the standard of living of

one without decreasing the same of the other, the situation is not Pareto-optimal. And when such situations are not Pareto-optimal, we can go for interpersonal comparisons of standard of living. Let us further assume that all resources of that society are distributed unevenly between **C** and **D** as shown in figure 3, where height represents how well off the persons are (for the sake of simplicity we may assume that heights measure income). In such a situation, only when the better-off person sacrifices some resources at his or her command, it will be possible to increase the level of well-being of the other. In the real-world situation, there will always be some unutilised or under-utilised resources, where redistribution of resources may take place either through sacrifice or through other economic activities. However, from such redistribution or reorganisation, will it be plausible to assume that the better-off person will lose something from his or her level of well-being? If the answer is: ‘Yes’, the situation was Pareto-optimal – and we cannot go for interpersonal comparisons of level of well-being. In practice we see that CA allows interpersonal comparisons of well-being. It confirms that while indexing with level of well-being CA deals with situation, which are not Pareto-optimal.

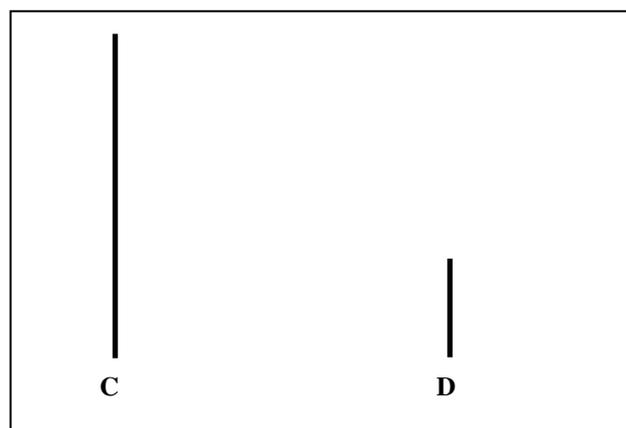


Figure 3. Interpersonal comparisons of well-being

The practical mirror of CA, the Human Development Report (among other) takes into account ‘overseas development assistance’, ‘rich countries responsibilities’, ‘flows of aid’, etc. Such information are compiled in table 1 in the appendix. From table 1 we see that the

United States sacrificed per capita US\$ 65 in 2004 for the betterment of developing countries. Luxembourg has sacrificed per capita US\$ 524 for the same purpose¹¹. From table 18 of HDR 2006 we may confirm that (in 2004) China and India received per capita US\$ 1.3 and per capita US\$ 0.6 respectively (from one or more donor countries). According to the principles of CA (as it allows interpersonal comparisons), we may postulate that by sacrificing the above-mentioned amount of resources, people of Luxembourg and the United States have not lost anything in terms of quality of life or standard of living¹². At the same time, by receiving or absorbing the above-mentioned amount of resources, people of China and India are supposed to raise level of well-being to some extent.

Interpersonal comparison of level of well-being is not possible theoretically when the concept is reduced to that of agency, where such a process of redistribution may not be beneficial to the agent himself or herself. By definition, when it is not possible to increase the well-being of a person without decreasing the same of the other, the allocation is Pareto-optimal. It stops interpersonal comparisons of level of well-being (Handerson and Quandt, 1980, p. 286).

1.5. Ability to sacrifice and propensity to absorb

In table 1 we have seen that there are 22 countries, which regularly disburse (sacrifice!) resources for the betterment of more than 150 countries. Now, one can obviously raise question why these 22 countries are able to sacrifice resources and others are not? We may realise that on an average citizens of these countries have excess resources at their command beyond certain threshold level – a level that seems to be sufficient to achieve a desired standard of living. As income of different individuals varies, excess income beyond that certain threshold level also varies and so also ability or power to sacrifice. On the other hand, citizens of the countries, which receive official development assistance

from the donor countries, have average income less than that threshold level. On an average, these people have some sort of negative command to sacrifice, which is something like propensity to receive or absorb¹³.

1.6. Inequality in income and ability to sacrifice / propensity to absorb

Inequalities in income will always affect power to sacrifice as well as propensity to absorb. But it may affect individual (or average) ability to sacrifice and that of country in different ways. If inequality is high within a country, it may urge the better-off people of that country to sacrifice more for the weaker sections. In such a situation one country may attach more importance to reduce internal poverty rather than paying adequate attention to international poverty. It may reduce ability to sacrifice of country even if people in it possess a high average quality of life (particularly in income dimension). High income-inequality may increase the propensity to absorb of the worse-off groups in a country or the country as whole, which regularly receives development assistance from donor countries.

These are some of the ideas and issues, which need to be incorporated while doing welfare evaluation according to the spirit of the present paper. So, the paper introduces two new concepts. Excess income (over and above certain threshold level) may not have any impact on standard of living of one person. But, excess income may empower one person with some command (or quality), which is something like ability to sacrifice. When excess income is negative, instead of 'ability to sacrifice' we may have something like 'propensity to absorb'. The paper examines the above two concepts according to average as well as total principles. As CA deals with individual, not with community or society, we can go for average principle obviously. Can we go for the total principle? Theoretically, the development of CA itself confirms its far stand from the utilitarian concept of welfare, and the Rawlsian concept of primary goods (Rawls, 1971, p. 62;

Choen, 1993, p. 9-29). However, in practice we see that though CA deals with individual achievements, it allows country level comparisons utilising aggregate data. While doing that also, one may often realise that average measures are necessary but not sufficient for a complete evaluation of condition and progress of a nation. The debate between the two principles may be averted and we may test the total principle in Capability framework. As the total principle incorporates size (population) of a country, following Parfit one may accept that the extra good from the existence of extra group of people is not bad for humanity. One country as a whole may also be considered as one single (political and social) entity, otherwise.

2. The construction of the indices

2.1. Step I

In order to compute ability to sacrifice, we assume that the world-average per capita income of \$ 8833 (GDP PPP) in 2004 (see UNDP, 2006, p. 286) is the threshold level of income (y^*) beyond which income has no significant impact on quality of life. Any income above this level can be discounted using Atkinson's formula (UNDP, 1998, p. 107) for the utility of income:

$$\begin{aligned}
 W(y) &= y^* \text{ for } 0 < y < y^* \\
 &= y^* + (y - y^*)^{1/2} \text{ for } y^* < y < 2y^* \\
 &= y^* + 2(y^*)^{1/2} + 3[(y - 2y^*)^{1/3}] \text{ for } 2y^* < y < 3y^*.
 \end{aligned}$$

We also assume (as in HDI) that the highest level of per capita income is \$ 40000 (PPP). To calculate the discounted value of the income \$ 40000 (PPP) the following formula is used.

$$W(y) = y^* + 2(y^*)^{1/2} + 3(y^*)^{1/3} + 4(y^*)^{1/4} + 5[(40000 - 4y^*)^{1/5}].$$

As $y^* = 8833$ (PPP\$), $W(y) = 9149$ (PPP\$).

After discounting, the maximum limit of income of \$40000 (PPP) is reduced to \$ 9149 (PPP) with the assumption that any individual-income beyond \$9149 (PPP) has no significant impact on the standard of living of that person. The minimum limit is: \$ 100 (PPP). Now, discounted levels of income are computed for the countries so long as actual income is greater than the threshold level of income of \$ 8833 (PPP) [i.e., so long as $y > y^*$].

2.2. Step II

Following the standard procedure (UNDP, 1998, p. 107) an index of GDP (PPP\$) is computed after discounting income as above (using Atkinson's formula). The index of GDP (PPP\$) taking natural logarithm of income levels is available in the HDR 2006, which is also used in the present exercise.

2.3. Step III

Ability to sacrifice (and / or propensity to absorb) is computed taking the difference between the actual per capita GDP (PPP\$) and the discounted levels of income (and / or difference between the World average level of per capita income in 2004: \$8833 PPP and actual GDP PPP\$) and standardised by dividing 8833:

$$\text{Ability to sacrifice (unadjusted)} = \frac{[\text{Actual GDP (PPP\$)} - \text{Discounted GDP (PPP\$)}]}{8833},$$

for $y > y^*$,

$$\text{Propensity to absorb (unadjusted)} = \frac{[\text{Actual GDP (PPP\$)} - 8833]}{8833}, \text{ for } y < y^*.$$

It is to be remembered that the positive values indicate ability to sacrifice, and negative values imply propensity to absorb.

2.4. Step IV

In order to adjust the above measures for income-inequality the following weighting systems are used (Gini index is used without multiplier 100):

$$\begin{aligned} \text{Weight} &= (1 - \text{Gini Index}), \text{ for } y > y^*, \\ &= 1 / (1 - \text{Gini Index}), y < y^*. \end{aligned}$$

The above expressions beautifully reflect the facts that high inequality in income reduces ability to sacrifice and increases propensity to absorb. So, Gini-adjusted measures are:

$$\text{Ability to sacrifice (adjusted)} = \text{Ability to sacrifice (unadjusted)} * (1 - \text{Gini Index}), \dots \quad (\text{i})$$

$$\text{Propensity to absorb (adjusted)} = \frac{\text{Propensity to absorb (unadjusted)}}{(1 - \text{Gini Index})}. \dots \quad (\text{ii})$$

2.5. Step V

2.5.1. Measures according to average principle: Equations (i) and (ii) are according to the average principle, i.e., they reflect average or individual ability to sacrifice and / or propensity to absorb.

2.5.2. Measures according to total principle: Equations (i) and (ii) are multiplied by relative size of population (with respect to total global population) of the countries to find out relative positions of the countries with respect to the question of absolute power to sacrifice and / or command to absorb.

Results are displayed in table 2 in the appendix after some simple manipulation – expressing the values of all the countries relative to that of the United States, making the latter 100 under each principle.

3. Results and discussions

3.1. Average measures

Figures 4 and 5 shows relationship between per capita GDP (PPP\$) and index of GDP. The figures are self-explanatory and well known to us. These are all what we can do while working with income in the Capability framework. Probably this is one reason, why readers of CA are putting too much importance on other non-income dimensions of well-being. Though the present paper works with income, it adds a new dimension in it to wipe out the deposition of our mind resulting from the boring exercises with income.

Table 2 in the appendix displays scores and rankings of 125 countries¹⁴ according to average principle. Norway comes at the top of the list with a score of 120.33, and Sierra Leone at the bottom with a score of -123.37. All these score reflect distinctive country positions with respect to the United States the score of which is set to 100.

Information in table 1 (in the appendix) is compiled from table 17 of HDR 2006. The table shows that there are 22 rich countries, which disburse overseas development assistance regularly. We find all these 22 countries in the beginning of table 2 with some other countries, such as Hong Kong and Israel. However, ranks of these countries in table 1 (according to per capita disbursement) strictly do not follow the same of table 2. We know that Luxembourg has highest ability to sacrifice (as reflected from the highest level of income per capita)¹⁵, and it sacrifices highest amount per capita (\$524, as shown in table 1 in the appendix). Among the countries in table 2, Norway has the highest ability to sacrifice, and among those countries it sacrifices the highest amount also (per capita \$477).

The relationship between ability to sacrifice and per capita sacrifice in some selected countries (as appear in table 1 of the present paper in the appendix, and table 17 of HDR

2006) is shown in figure 6. A more appropriate form of the relationship is shown by the dotted line, which follows a logistic pattern. However, average measures are not sufficient to explain why the powerful nations like the United States, Japan, Germany, United Kingdom, France, Italy etc. lie lower in the picture.

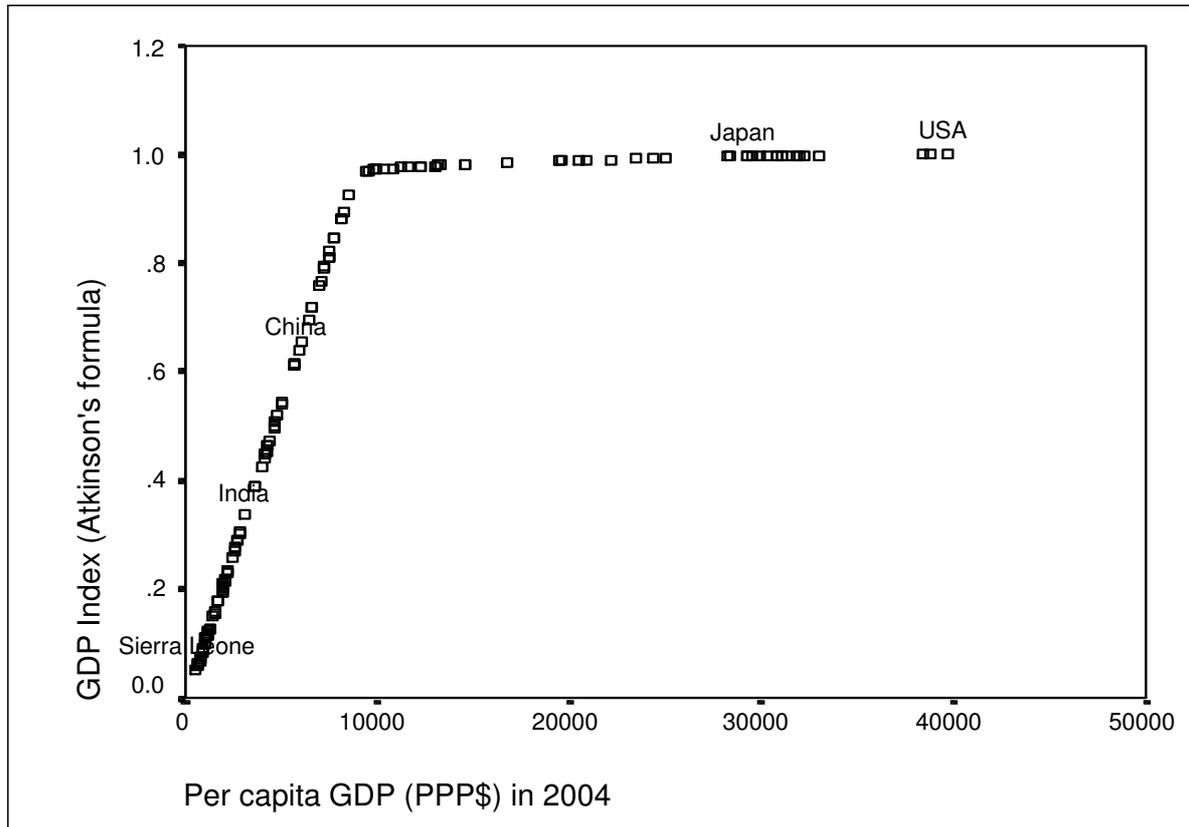


Figure 4. GDP Index (Atkinson's formula) and per capita GDP (PPP\$)

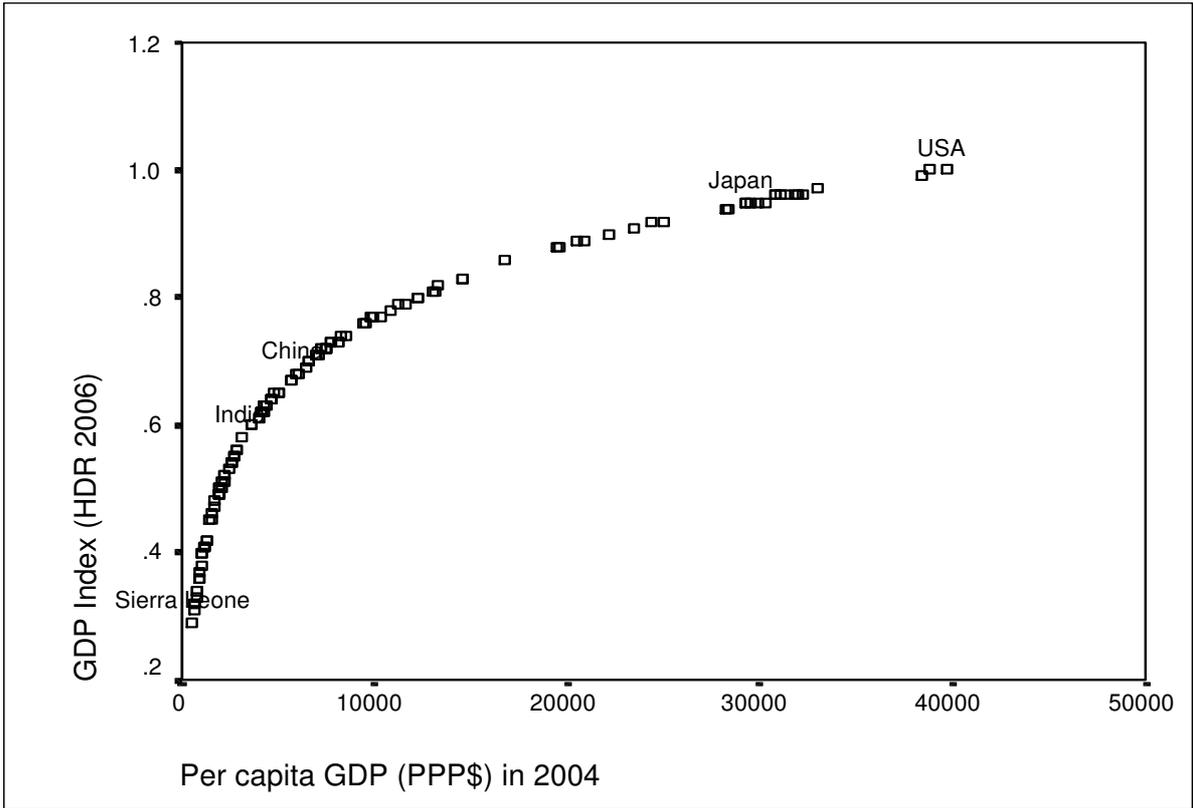


Figure 5. GDP Index (HDR 2006) and per capita GDP (PPP\$)

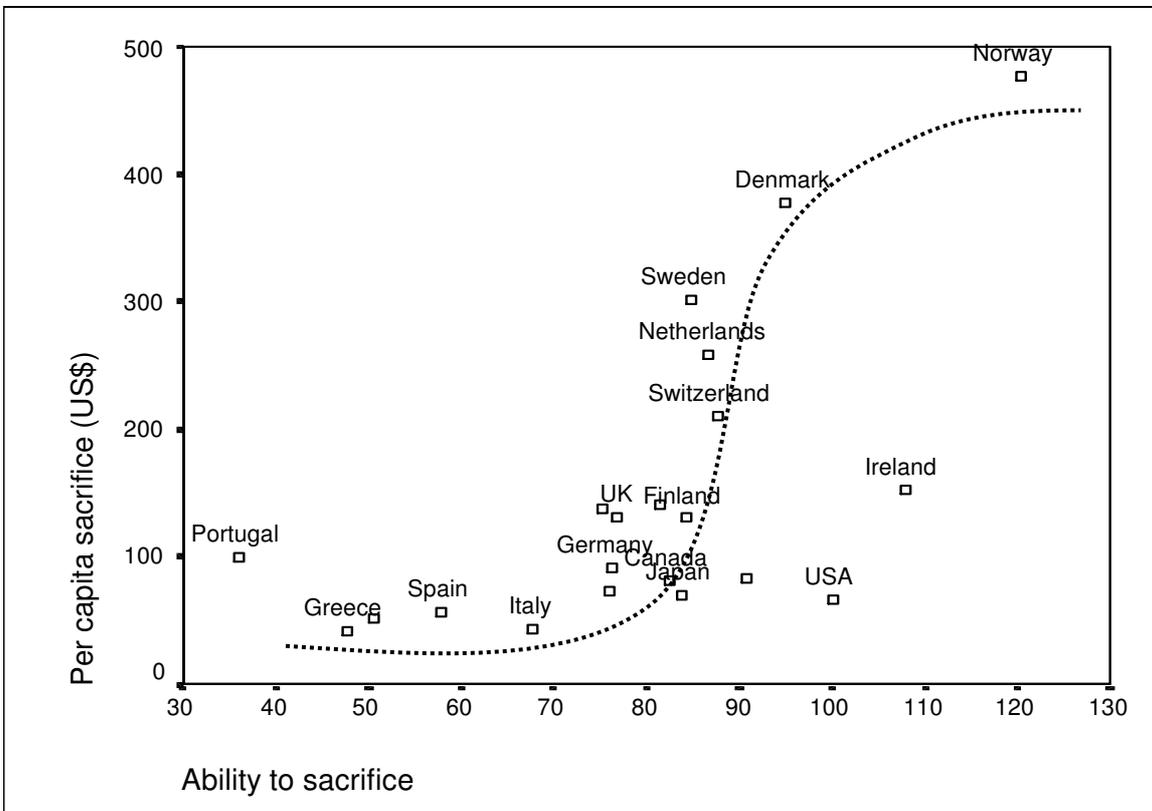


Figure 6. Ability to sacrifice and per capita sacrifice

Figures 7 (GDP index: according to Atkinson's formula) and 8 (GDP index: as in HDR 2006) show distinctive country positions (taking 125 countries) according to the average principle. From the figures we can read that, on an average, each person in Norway enjoys the highest ability to sacrifice. On the contrary, on an average, each person in Sierra Leone demands most to receive or absorb. There are 43 countries with positive scores (i.e., with ability to sacrifice). The score of Romania is zero. It means that the Country (Romania) is neither in a position to sacrifice nor demands anything to receive or absorb. There are 81 countries, which may demand funds in order to have decent standard of living.

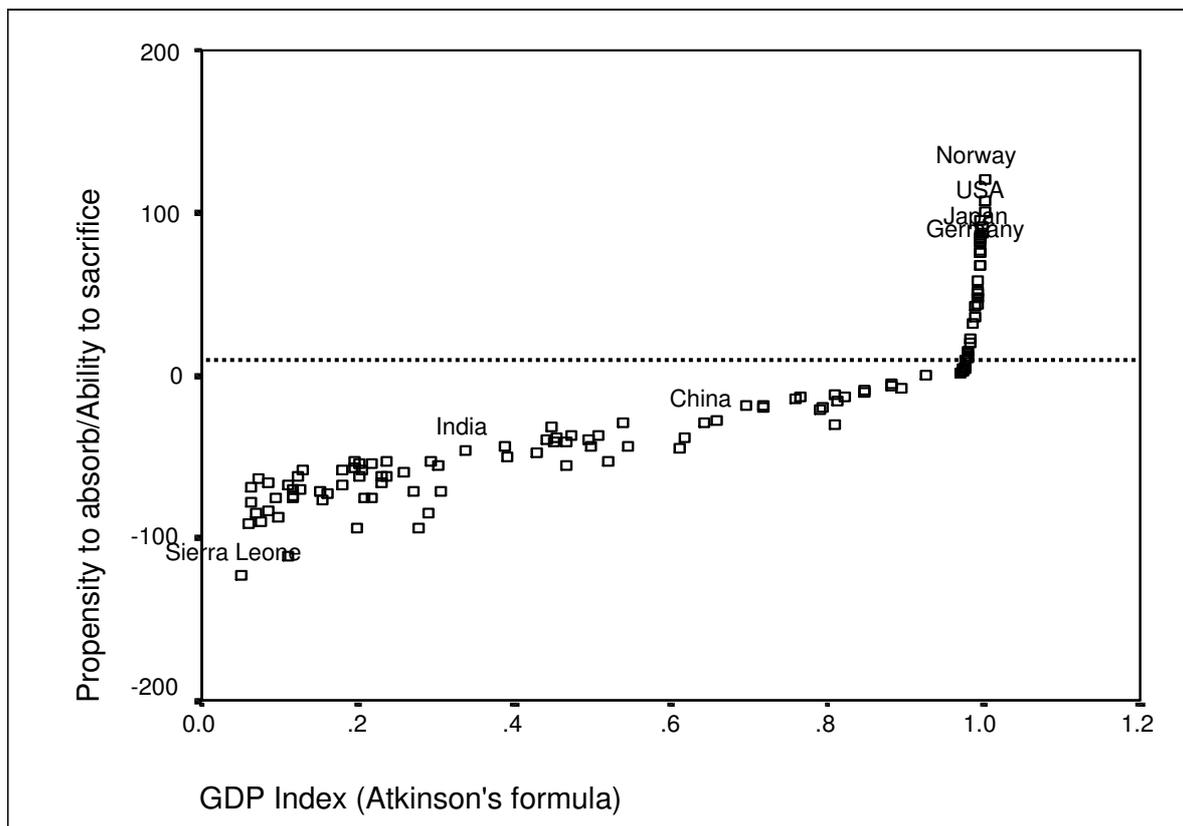


Figure 7. Distinctive country positions according to average principle (Atkinson's formula)

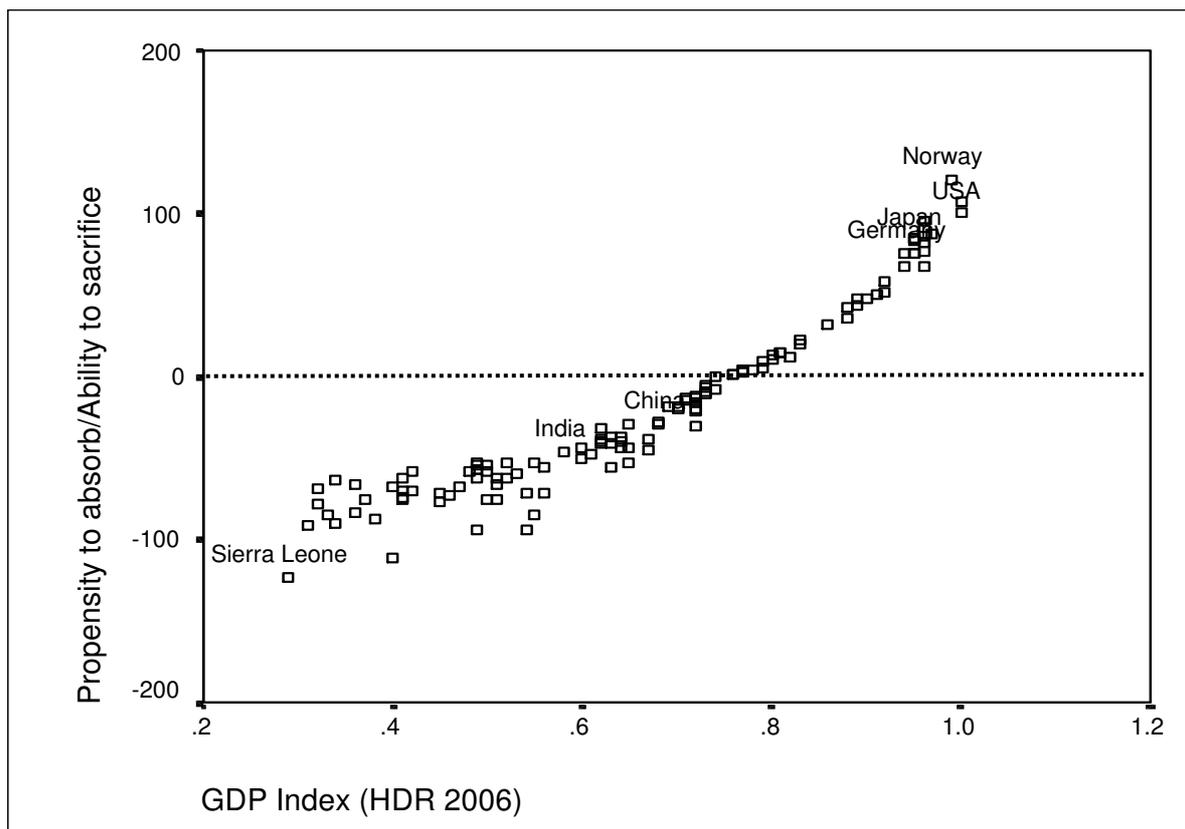


Figure 8. Distinctive country positions according to average principle (HDR 2006)

3.2. Total measures

Table 2 (in the appendix) shows scores and ranking of the countries according to total principle. We see that the United States is the most authoritative nation on this Earth in terms of power to sacrifice. It is the only nation, which is flying very high with distant followers like Japan, Germany, United Kingdom, France, Italy and so on.

Figure 9 shows relationship between power to sacrifice and total amount of sacrifice in some selected countries (as in table 1 of the present paper, and table 17 of HDR 2006). The relationship is almost linear with a diminishing trend (as shown by the dotted line).

Figures 10 and 11 show relative global positions of the countries in terms of power to sacrifice (and / or command to absorb). Each rectangle in these figures may be considered as world. One may be too imaginative to consider that the world is divided into two equal halves. One may also imagine the dotted line as the surface of a sea ... or one may go further and become little bit unrealistic to consider it as the world poverty line or the line

of prosperity... or may become extravagant to consider it as the most desired, calm, quite and the beautiful line – truth of all economic principles – the line of perfect competition¹⁶. All living creatures – individually or in an organised way – try to float above that line. However (coming to the reality), we see that there are 44 countries, which are on and above the dotted line. Probably, they are in the better half of the world. There are 81 countries which remain below the dotted line. Probably, they are in the part of the world, which is worse off than the other. If we add the scores of all the countries in the two halves, we have +270 in one hand, and -638 on the other. These figures are important to have idea about the overall situation in the worlds.

After sketching the relative global positions of the countries in two parts of the world, let us do some simulation regarding those. The position of the United States is almost similar to that of the North Star. Relative size of population in this country will not change suddenly, and per capita GDP too will not increase sharply. So, its relative global position will remain almost unchanged (the same is true for Japan and other Western European countries). If, however, inequality in income falls sharply (thanks to internal redistribution of resources), its power to sacrifice will increase significantly and so also the relative global position in the positive direction.

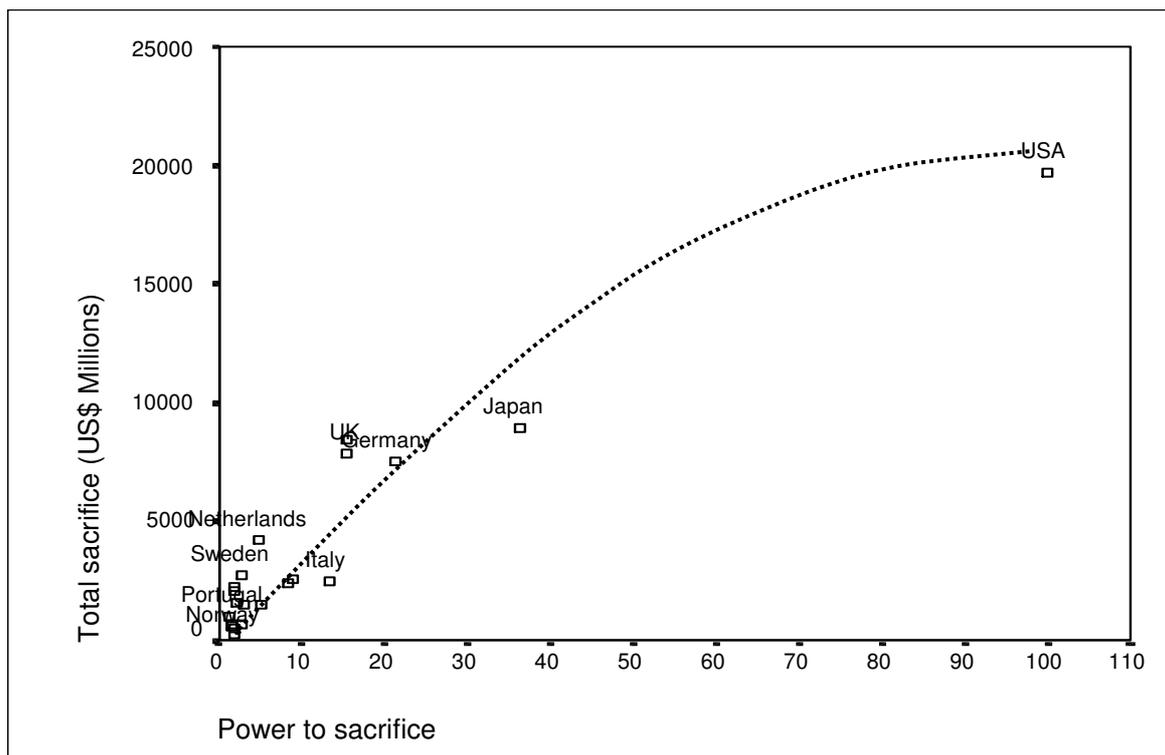


Figure 9. Power to sacrifice and total amount of sacrifice

If we look at India, its position may change in three ways: (i) relative size of population will increase up to the middle of this century (according to various population projections); (ii) per capita GDP is increasing faster; and (iii) inequality in income may come down to some extent. Other things remaining unchanged, the growth of population will pull down India's position. As per capita GDP of India is far below the world average level, and as it is growing faster, it may gradually raise India's position and take towards right faster. If inequality in income is reduced to some extent, it may push up India's position to some extent. Considering possible impacts of all these, we may roughly comprehend that the position of India will change following an exponential path towards the United States from its current location. Chinese population will be stabilised earlier than the Indian one, its per capita GDP also is growing faster than that of the latter. However, inequality in income is quite high in China. So, there is enough scope for the Country to bring it (inequality) down to a reasonable level. Taking into account all these

aspects, if things go well in favour of Chinese population, China will also move faster towards the United States probably following a straight line from its current location. The dynamics will continue so long as light touches everybody without refraction. Till all these happenings indeed the world will be ruled by little else. Similar other dynamism may become prominent after that fuelled by knowledge and education. Hopefully, we look forward to such an era when the world will be looked after by all together.

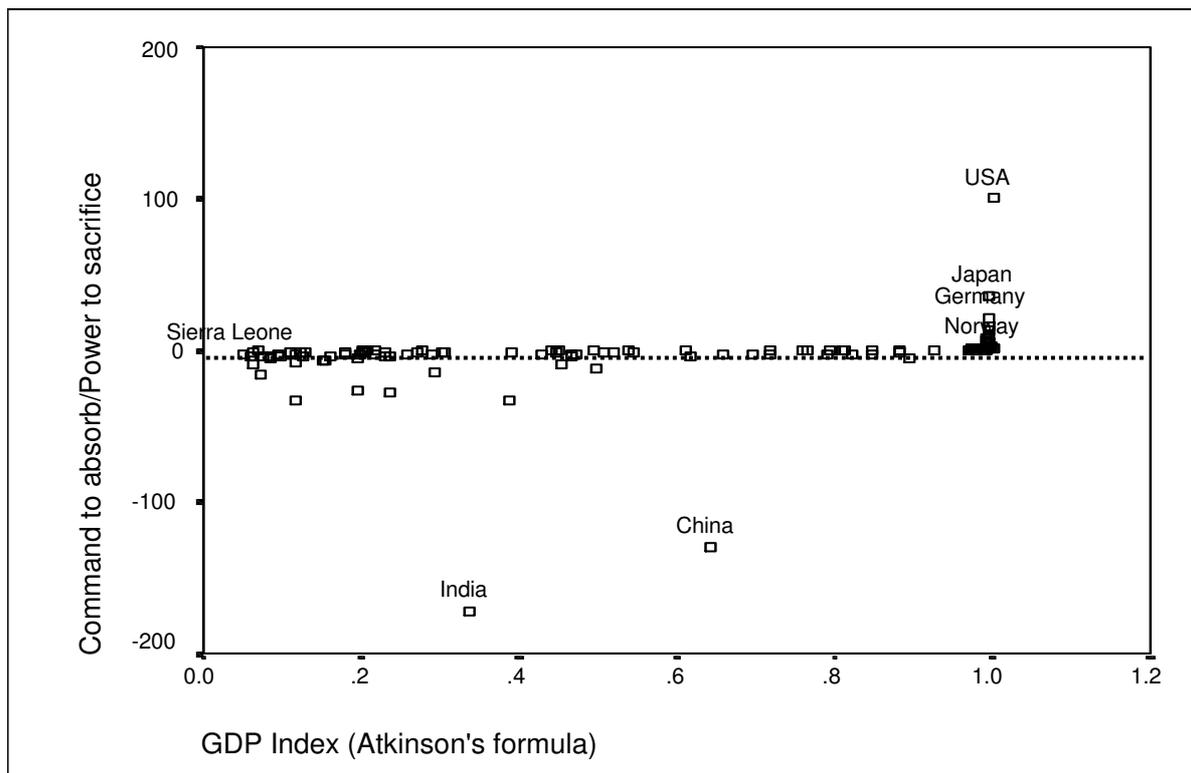


Figure 10. Relative global positions according to total principle (Atkinson's formula)

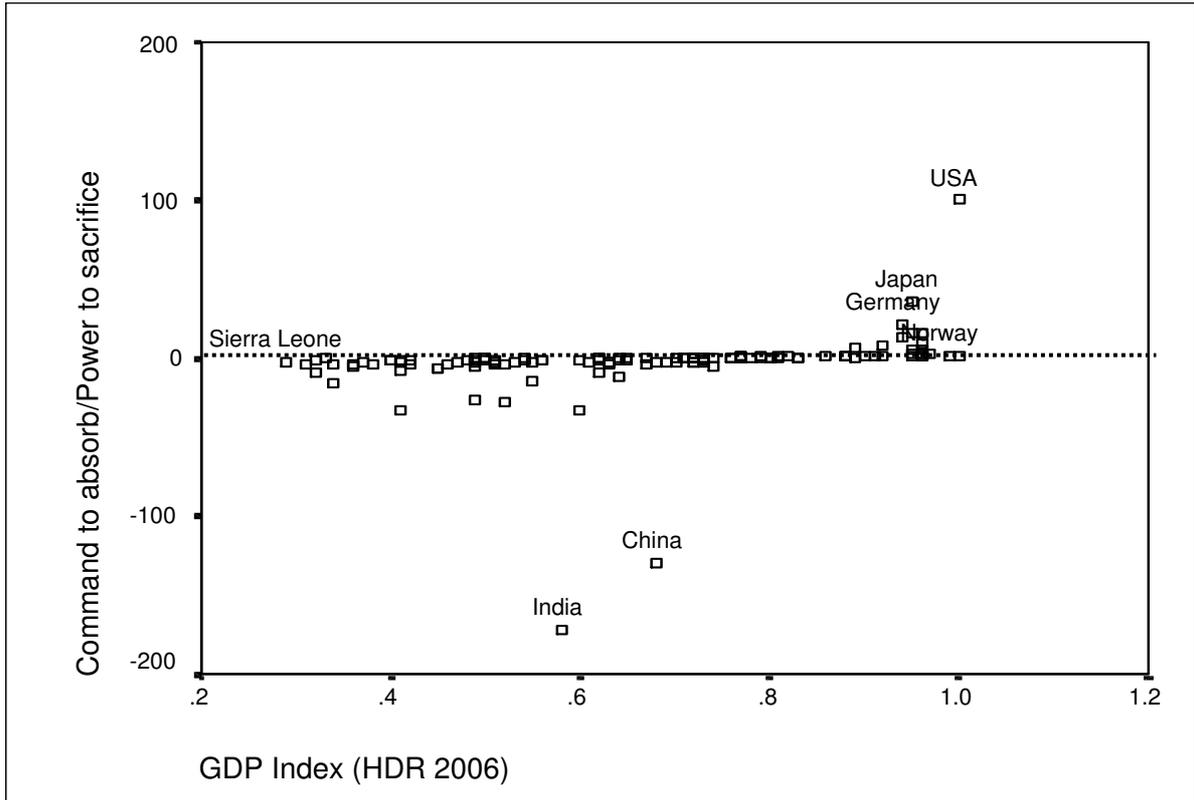


Figure 11. Relative global positions according to total principle (HDR 2006)

4. Conclusion

The paper is written in response to one famous quote of Keynes¹⁷, which reflects that breakthrough ideas in economics and political philosophy can change history. By following the spirit of the first part of the Keynesian quote, we reached to the second part of that, which asserts that the world is ruled by little else. Figures 12 & 13 appear to be the most appropriate visualisation of the second part of the Keynesian quotation. The paper adds some accent to make those paradoxical. Probably the refraction, in whatever is there between the elites and poor, is historically constructed. Realisation of this irony of perception calls for a change. However, to be slightly more descriptive, we may find the root of the paradoxes in figure 11. In that figure the paper envisages two different parts of the world, where one is surely perceived better than the other. In one, there are too many countries or people, little else on the other. The ruling-rod is imagined to have in the hands of the most powerful nations in one part, where light touches everybody without

refraction. Does such a demarcation of the world exist? Had the light or sight not refracted while reaching from one part of the world to another, the demarcation would disappear (figure 12)¹⁸.

In figure 13, the United States is seen at the top like the North-Star in the sky with some other elites. Too many people in other part of the world (in India, China, and others) may realise that they are being ruled by these little else. Ignoring the fact of refraction, we may imagine an exercise of power within the world. We see one horizontal bar, which stretches from the poorest individuals (in Sierra Leone) to the richest ones (in Norway). They participate in the game either by putting the bar on their shoulder or by holding it somehow from above of that. The ruling-rod, which looks like a dumb-bell (size depends on sum of TEP in each part of the world), is set with the horizontal bar as lever. The dynamics and the gravity of action in figure 13 may be understood from the direction of forces as shown in figure 12. And, with all these, quite flows the system, where everybody is interconnected in some way or other. All elites and poor are to perform their duties with altruism to maintain that order. Elites are not to stir the ruling-rod incorrectly ignoring the underlying forces, as the monsters are holding it and moving with the flow at the bottom. Can we say that in time of crisis and pother ... brother, rule not thy brother?

*“In time of strife and pother
Brother, judge not thy brother.”
(Quite Flows the Don, Mikhail Sholokhov)*

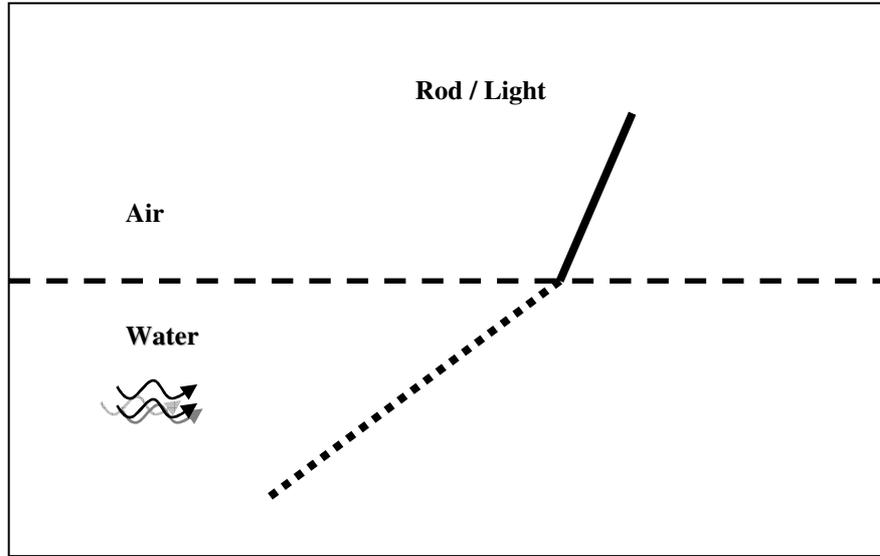


Figure 12. The Refraction Paradox (irony of perception!)

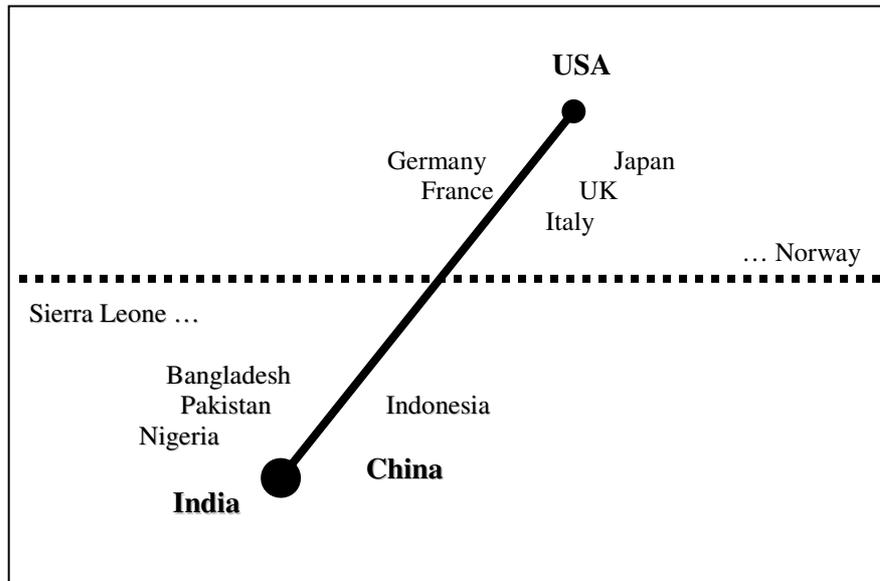


Figure 13. The Global Ruling Paradox (gravity of action!)

Notes

¹ An earlier version of the paper was presented at the International Conference of the Human Development and Capability Association on "Ideas Changing History" at the New School, New York, The United States from 17-20 September 2007 with a competitive IDRC (Canada) Scholarship.

² The term does not confront with other economic glossaries such as, saving, investment, aid, etc. In crude sense, one may also interchange the meaning of sacrifice with the same of the above-mentioned terms at same level or may interpret it as some super-special power or quality at higher level beyond any economic requirement.

³ According to total principle China comes in the second position followed by Japan and India. The cases of the United States and Japan are exceptional, and are the only two cases, which do not fit with the above specification of the countries in figure 1.

⁴ Such an evaluation / judgment is done without attaching any value to individual life.

⁵ Students of Ethics may argue that Parfit did not make empirical claims about what would happen if resources were redistributed. His different worlds are purely hypothetical; they are postulates, to test our judgments about what makes one world better than another. It is not really important how they have come about. However, in the present paper, we are extending those ideas to empirical reality.

⁶ Nozick claims that (of course unacceptably!) it would be the best if all of our resources were taken away and given to this Monster's maw, since this would produce the greatest total sum of happiness.

⁷ One may go against of such distributive justice considering the highest concentration of resources (or whatever makes life worth living) in one individual entity. However, one utility monster may not necessarily be an individual entity. It may be a social or political entity or like. For example, we may consider one learned society as one utility monster. From any small individual sacrifice (in the form of knowledge, intellect, dexterity or else) it would produce greater amount of good, and somehow the individual member has access to it. [Additional note: We have many examples of

sacrifice in front of us, where the Monster (or what the Monster does) is not prominent. For example, before becoming Lord Buddha, Siddhartha sacrificed all sorts of material comfort and all properties, which he could inherit. We all know that Siddhartha's sacrifice resulted enormous amount of good for the humanity. But, who produced the good – the Monster or Siddhartha? Such cases of sacrifice strictly do not convey similar meaning as the Parfit's one or the Nozick's one does.]

⁸ Without diverting from the main argument of the paper, one should keep in mind that the latter would fit the best with the concept of sustainable development as viewed in eccentric studies on nature, development, and existence.

⁹ Such an idea contradicts with empirical reality. In the real-world situation, development assistance helps to reduce fertility through proximate determinants of it (Pathak and Ram, 1998, p. 150-153). On this point, it seems that such a propagator is similar to Malthus in idea but Rawlsian in action. Malthusian view in this regard was that any incentive to the poor would actually contribute to a rapid population growth (Griffith, 1967, p. 129). Rawlsian view in this regard was that poor people should be benefited from the loss of well-being of the better off groups (Rawls, 1971, p. 302-303). [Additional note: We do not establish any link between Parfit and Malthus in this regard, as the former did not put forward any theory of population.]

¹⁰ Please use the concept of astro-physics in rough sense of the term.

¹¹ Please note that (average) ability to sacrifice is higher in Luxembourg than in the United States. The power to sacrifice, as mentioned in section 1.2, is the highest in USA as the country sacrifices a total sum of US\$ 19705 millions (Luxembourg sacrifices a total sum of US\$ 236 millions).

¹² In the real-world situation rich countries sacrifice a very small fraction of resources (less than 1 per cent of GNI) as shown in table 1.

¹³ In the real-world situation there is no reason to stick to the point that ability or power to sacrifice depends only on income, and so also propensity or command to absorb.

¹⁴ For many other countries information on Gini Index are not available. Such countries are not included in the analysis.

¹⁵ Not shown in table 2, as Gini coefficient is not available.

¹⁶ These figures may be interpreted / imagined in numerous ways. Investors or entrepreneurs may imagine that if they invest or produce or add anything in the economies of China and India, those will be absorbed fast because of very high command to absorb. They won't face any depression (lack of demand) in near future. Is this one of the many reasons for which China and India became the ultimate destinations for investors or entrepreneurs around the world?

¹⁷ “The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else.”
(http://thinkexist.com/quotes/john_maynard_keynes/)

¹⁸ Please remember that the nature of refraction is opposite to that of a real world situation. In the real world, when light passes from air to water, it refracts downwards. It seems that, in our case, light passes from a dense medium (air!) to a more transparent medium (water!). Does it support the fact that concentration of wealth is higher in the airy part of the world than the other?

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ANNEXURES

Table 1. Net official development assistance (ODA) disbursed in some selected countries

Donor Country	GDP per capita PPP US\$	HDI	ODA (% of GNI)			ODA (Total US\$ Millions)	ODA per capita of donor country (2004 US\$)	
	2004	2004	1990	2003	2004	2004	1990	2004
Australia	30331	0.957	0.34	0.25	0.25	1460	70	73
Austria	32276	0.944	0.11	0.20	0.23	678	28	83
Belgium	31096	0.945	0.46	0.60	0.41	1463	120	141
Canada	31263	0.950	0.44	0.24	0.27	2599	103	81
Denmark	31914	0.943	0.94	0.84	0.85	2037	305	377
Finland	29951	0.947	0.65	0.35	0.37	680	174	130
France	29300	0.942	0.60	0.41	0.41	8473	160	137
Germany	28303	0.932	0.42	0.28	0.28	7534	124	91
Greece	22205	0.921	-	0.21	0.23	465	-	42
Ireland	38827	0.956	0.16	0.39	0.39	607	26	152
Italy	28180	0.940	0.31	0.17	0.15	2462	75	43
Japan	29251	0.949	0.31	0.20	0.19	8922	94	70
Luxembourg	69961	0.945	0.21	0.81	0.83	236	101	524
Netherlands	31789	0.947	0.92	0.80	0.73	4204	244	258
New Zealand	23413	0.936	0.23	0.23	0.23	212	41	52
Norway	38454	0.965	1.17	0.92	0.87	2199	396	477
Portugal	19629	0.904	0.24	0.22	0.63	1031	25	100
Spain	25047	0.938	0.20	0.23	0.24	2437	33	56
Sweden	29541	0.951	0.91	0.79	0.78	2722	257	302
Switzerland	33040	0.947	0.32	0.39	0.41	1545	149	210
United Kingdom	30821	0.940	0.27	0.34	0.36	7883	70	131
United States	39676	0.948	0.21	0.15	0.17	19705	61	67

Source: HDR 2006

Table 2. Ranking of the countries according to average and total principles

Rank	Average principle		Total principle	
	Ability to sacrifice (+ve) / propensity to absorb (-ve)		Power to sacrifice (+ve) / command to absorb (-ve)	
	Country	Scores*	Country	Scores*
1	Norway	120.33	The United States	100.00
2	Ireland	107.90	Japan	36.23
3	United States	100.00	Germany	21.29
4	Denmark	94.98	United Kingdom	15.48
5	Austria	90.85	France	15.35
6	Switzerland	87.76	Italy	13.26
7	Netherlands	86.69	Canada	8.95
8	Sweden	84.78	Spain	8.32
9	Finland	84.28	Korea, Rep. of	6.97
10	Japan	83.69	Australia	5.12
11	Canada	82.59	Netherlands	4.75
12	Belgium	81.49	Belgium	2.87
13	United Kingdom	76.87	Sweden	2.58
14	Germany	76.15	Austria	2.52
15	Australia	76.07	Switzerland	2.14
16	France	75.18	Poland	1.90
17	Hong Kong, China (SAR)	67.98	Norway	1.87
18	Italy	67.54	Greece	1.79
19	Spain	57.69	Denmark	1.74
20	Israel	51.49	Russian Federation	1.63
21	New Zealand	50.62	Hong Kong, China (SAR)	1.61
22	Greece	47.75	Ireland	1.50
23	Slovenia	47.04	Finland	1.48
24	Korea, Rep. of	43.28	Czech Republic	1.48
25	Czech Republic	42.73	Argentina	1.47
26	Portugal	35.97	Portugal	1.27
27	Hungary	31.56	Israel	1.15
28	Slovakia	23.15	Hungary	1.08
29	Estonia	19.79	Mexico	0.91
30	Lithuania	14.67	South Africa	0.84
31	Poland	14.54	New Zealand	0.69
32	Croatia	12.74	Slovakia	0.42
33	Argentina	11.31	Malaysia	0.32
34	Trinidad and Tobago	10.68	Slovenia	0.32
35	Latvia	9.35	Chile	0.25
36	South Africa	5.28	Croatia	0.19
37	Chile	4.63	Lithuania	0.17
38	Malaysia	3.84	Estonia	0.09
39	Russian Federation	3.34	Latvia	0.07
40	Mexico	2.54	Trinidad and Tobago	0.05
41	Botswana	2.14	Costa Rica	0.02
42	Costa Rica	1.66	Uruguay	0.02
43	Uruguay	1.64	Botswana	0.01

44	Romania	0.00	Romania	0.00
45	Bulgaria	-5.90	Macedonia, TFYR	-0.14
46	Thailand	-7.09	Swaziland	-0.15
47	Brazil	-8.41	Bulgaria	-0.16
48	Tunisia	-9.79	Bosnia and Herzegovina	-0.18
49	Turkey	-10.60	Namibia	-0.21
50	Kazakhstan	-11.66	Panama	-0.21
51	Iran, Islamic Rep. of	-12.70	Albania	-0.31
52	Bosnia and Herzegovina	-13.50	Tunisia	-0.33
53	Belarus	-14.66	Jamaica	-0.37
54	Dominican Republic	-15.86	Gambia	-0.39
55	Ukraine	-18.77	Armenia	-0.40
56	Algeria	-19.07	Guinea-Bissau	-0.43
57	Panama	-19.73	Dominican Republic	-0.47
58	Macedonia, TFYR	-20.16	Mongolia	-0.47
59	Colombia	-21.08	Belarus	-0.49
60	Venezuela, RB	-27.62	Lesotho	-0.57
61	China	-29.39	Kazakhstan	-0.58
62	Albania	-29.71	Mauritania	-0.63
63	Namibia	-30.47	Turkmenistan	-0.65
64	Azerbaijan	-31.97	Jordan	-0.71
65	Sri Lanka	-36.80	Moldova, Rep. of	-0.84
66	Jordan	-37.48	Georgia	-0.85
67	Peru	-38.45	Azerbaijan	-0.91
68	Egypt	-38.99	Nicaragua	-0.92
69	Armenia	-39.55	Kyrgyzstan	-0.96
70	Turkmenistan	-39.71	El Salvador	-1.01
71	Morocco	-41.38	Paraguay	-1.07
72	Jamaica	-41.61	Lao People's Dem. Rep.	-1.14
73	Philippines	-43.31	Tajikistan	-1.36
74	Indonesia	-44.00	Papua New Guinea	-1.39
75	El Salvador	-44.08	Central African Republic	-1.50
76	Swaziland	-45.21	Thailand	-1.53
77	India	-46.68	Honduras	-1.69
78	Ecuador	-47.86	Rwanda	-1.77
79	Nicaragua	-50.56	Benin	-1.87
80	Uzbekistan	-52.64	Guinea	-1.92
81	Pakistan	-52.69	Burundi	-1.94
82	Paraguay	-52.71	Algeria	-2.09
83	Viet Nam	-53.47	Ecuador	-2.11
84	Mongolia	-53.80	Sierra Leone	-2.21
85	Kyrgyzstan	-54.76	Guatemala	-2.32
86	Georgia	-55.60	Venezuela, RB	-2.46
87	Guatemala	-55.70	Sri Lanka	-2.57
88	Bangladesh	-56.49	Bolivia	-2.58
89	Lao People's Dem. Rep.	-58.20	Turkey	-2.59
90	Moldova, Rep. of	-58.84	Senegal	-2.59
91	Rwanda	-58.91	Haiti	-2.68

92	Cambodia	-59.51	Cambodia	-2.78
93	Ghana	-61.62	Zambia	-2.94
94	Guinea	-61.66	Iran, Islamic Rep. of	-2.96
95	Mauritania	-62.53	Ukraine	-2.99
96	Tajikistan	-62.65	Burkina Faso	-3.04
97	Ethiopia	-63.85	Colombia	-3.20
98	Yemen	-66.08	Zimbabwe	-3.28
99	Cameroon	-66.51	Peru	-3.59
100	Senegal	-67.12	Cameroon	-3.60
101	Benin	-67.46	Mali	-3.88
102	Tanzania, U. Rep. of	-69.03	Malawi	-3.89
103	Mozambique	-69.59	Niger	-4.11
104	Burkina Faso	-70.09	Morocco	-4.34
105	Papua New Guinea	-70.88	Côte d'Ivoire	-4.41
106	Honduras	-71.35	Ghana	-4.53
107	Uganda	-71.40	Yemen	-4.54
108	Côte d'Ivoire	-72.73	Mozambique	-4.57
109	Kenya	-74.03	Uzbekistan	-4.67
110	Zimbabwe	-75.05	Madagascar	-5.15
111	Zambia	-75.40	Brazil	-5.23
112	Nigeria	-75.47	Uganda	-6.72
113	Gambia	-76.02	Nepal	-6.93
114	Nepal	-76.95	Kenya	-8.40
115	Burundi	-78.35	Tanzania, U. Rep. of	-8.79
116	Madagascar	-84.06	Egypt	-9.58
117	Guinea-Bissau	-84.68	Philippines	-11.96
118	Bolivia	-84.77	Viet Nam	-15.04
119	Mali	-87.58	Ethiopia	-16.34
120	Niger	-90.03	Bangladesh	-26.62
121	Malawi	-91.15	Pakistan	-27.61
122	Lesotho	-93.43	Indonesia	-32.78
123	Haiti	-94.13	Nigeria	-32.88
124	Central African Republic	-110.65	China	-130.12
125	Sierra Leone	-123.37	India	-171.77

* Relative values in contrast to that of the United States (making the value of the United States = 100)