Health Impact of Globalization

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Abstract

Globalization aggravates economic disparity within a nation as well as between nations. Such disparity poses serious implications to the social and health status of the economically underprivileged. Furthermore, political espousal of free-market capitalism enervates socialistic institutions. Thus, globalization or national efforts for adapting to this epochal change is suspect of having negative impact on national health. Using the under-5 mortality rate as the health index, and the ratio of the total sum of export and import over GDP by expenditure as the globalization index, this correlation has been investigated, using relevant statistical data compiled by international agencies. The analysis has provided some corroborating trends. It also helped identify some other economic and political situations that affect nations' health status. These situations are often engendered by globalization, thus further corroborating its negative impact on health.

1. Socio-Economic Impact of Globalization

Political-economy of globalization

Globalization has been a controversial issue for some time. The controversy centers around its long-term effect on the economic and social fabric of a nation state. It is widely suspected of aggravating the economic disparities within a nation, as well as between nations. Any society with a growing economic disparity inevitably suffers from various forms of social stress. How such social stress is dealt with largely depends on the polity of that society. In this regard, democratic polity, in which the populace has some effective means for political participation, has proven its merit over time. The history of the Industrial Revolution and subsequent development of socialism in England is exemplary. Likewise, in many industrialized nations, democratic polity has had measurable success in developing socialistic institutions that mitigate some negative impact of economic disparity.

However, such history is no proof for this kind of polity to be just as effective against today's globalization and its attendant trend. Indeed, if the growing controversy and spreading anti-globalization movement around the world are any indication, people have little optimism and much concern for the future.

This dismal prognosis begs some explanation, and three dominant reasons seem at work. Firstly, there are very few nations in the world where democratic polity has been well established. In many so-called "democratic nations" the political participation by the populace is largely limited to electoral voting, with hardly any meaningful choice between the candidates. This problem stems from the fact that the whole process of general election entails significant amounts of financial and organizational resources. If one kind of resource is short, then the other kind often becomes its substitute. For example, organization and maintenance of a political party alone is a costly affair. This provides the window of opportunity for the economically privileged to have a greater say in politics, or enables them to become in charge of national politics. The only viable alternative to this kind of money politics is organizational resource and its extensive use. Such a political process is once again well exemplified by the history of the Labour Party as the effective counterpart to the Conservative Party in the British polity. This political fabric was able to evolve because of widespread practice of trade unionism in that nation. Many developing nations with limited industrialization lack such unionism or organizational resource. In those nations, the only organization with politically meaningful size and strength is the military force. That explains why military coup d'etat is often the form of political regime change in the developing world.

Secondly, globalization has made the fate of national economy increasingly tied to the global economic system, and so is national politics, regardless of the nation's polity. This is inevitable as the global espousal of free-market capitalism is one of the defining features of today's globalization. Most importantly, this shift in politics means that socialism is on the wane. Again the United Kingdom offers the most dramatic example of such political change under the premiership of Margaret Thatcher in the 1980's. Her government aimed for the revival of British economy, by overhauling its obsolescent economic structure. The government made the privatization of state enterprises and the restriction on labour unions' power and practice as its two central issues for the revival with free-market capitalism. Thatcher government's reforms, which are often referred to collectively as "Thatcherism," were widely perceived as the harbinger of change that the global economic system needed, and many governments of advanced economies emulated similar eco-

nomic policies and practice. Thatcherism indicated the political turnaround from the advancement of "Welfare State," which had been the hallmark of British socialism. Likewise, many other governments have started to shift the provision of social and health services from the public sector to the private sector.

Thirdly, the above paradigm shift in economic management in the developed world has serious implications on the economic policies and management in the developing world, with serious consequences to the welfare of the populace. Whatever the stage of economy may be, nations have to compete with each other for financial and industrial resources that have become highly foot-loose, constantly seeking opportunities for capitalistic gains. Such opportunities are normally found in economic centers with access to sizable markets, unless attractive economic incentives are offered by governments. Such economic incentives or subsidies are in effect the transfer of government revenues from the general public to a few capitalists. If a nation is short of attractive investment opportunities, the government has to offer bigger economic incentives to prospective investors, in order to compensate for the nation's shortcomings. Some governments do offer economic incentives and justify such practice by the logic that investments bring employment opportunities. That is true in theory, but the theory does not prove that the total balance between the cost and benefit to the nation always ends on the plus side. In fact, many such government decisions for investment incentives are taken by the political elite and for political expediency, often ending up as corruption. That is the economic and political reality of globalization.

Social and health impact of globalization

The political economy of globalization, described above, does not augur well for social and health conditions of the underprivileged, regardless of their nationality. Widening of economic disparity cannot help but eventually develop social rifts. Furthermore, such social rifts are no longer confined within national borders, but are growing and spreading globally. As long as the rifts are confined within the national borders, the national government concerned can exercise its authority and endeavour to make some institutional adjustments for controlling such rifts. However, against the growth of such rifts beyond its borders, the national government can do little. In fact, nations and their governments vie with each other for competitive advantages in the global economic system. Thus the relationship between the haves and the have-nots is more likely governed by realpolitik, instead of socialism.

The implication of this change on the populace is serious, particularly in the developing world. In the developed world the populace can at least count on the existing institutions for social and health care services and their continuation. If they can enjoy democratic polity, they can even have some hope of enhancing such services. In contrast, the populace in the developing world is more likely to lack both. Therefore, if they are affected by globalization and subjected to the growing economic disparity, they have no effective recourse to improve their livelihood. This means further degradation in their social and health status.

One might think that globalization at least provides better opportunities for those developing nations endowed with mineral resources, to make good use of such an endowment and to accelerate economic development. That is true in theory, and some nations are indeed well endowed with energy or mineral resources. In reality, however, such an endowment is no guarantee for long-term economic viability. Putting the theory into practice is no easy task. It entails national governments to have political integrity and to practice prudent investment of the proceeds from such endowments into viable industrialization.

Even with such integrity and prudence, successful industrialization is far from assured. There are three impeding factors, the first of which is the non-renewable nature of these natural resources. They may very well be exhausted before developing viable industrial economy. The second factor is the global competition for market and technology, which makes industrialization effort by the latecomer very much an uphill battle, to say the least. [Yamamoto, S. and Tanahashi, T.K., 2000]　The third factor is the dependency on foreign direct investment（FDI）that often develops in order to overcome impediments caused by the second factor.

As is mentioned earlier, the governments and industries in the developing world often vie with each other to gain FDI. Successful negotiation for FDI often entails compromises by the investor, as well as the beneficiary of the investment at issue. The rightful beneficiary should be the owner of the natural resource at issue, and that usually means the nation as a whole. Unfortunately, more often than not, the two negotiating parties have little respect of the ownership, and they tend to make deals that are advantageous to both parties, while disregarding the rights and benefits of the owner. Deals that have led to destruction of natural environment or displacement of indigenous people, without adequate compensation are too common to account. As this situation suggests, globalization not only aggravates economic disparity between the haves and the have-nots, it often causes further

deprivation to the underprivileged.

2. Conceptual Framework for Analysis

The study needs a pertinent measure of globalization on the one hand and, on the other, an equally pertinent measure of health status of individual nations. These measures are, therefore, supposed to represent their current economic and health status. They may be called "globalization index" and "health index," respectively. Whatever measures may be adopted for these indices, the world community of nations will show significant variations in their levels. This is a useful piece of information, and the two indices are likely to show some correlation between them. However, the tenet of this study is to investigate the dynamics of their correlation. In particular, this study is based on the hypothesis that the rapid socio-economic changes caused by the nation's adaptation to globalization would have negative impact on the people's health. The theoretical background of this hypothesis is that, in the course of such adaptation, the nation's social fabric will be emaciated and that the national government is likely to give more emphasis to economic development than to the development of social or community services which could help promote health of the people at large. Therefore, it is as much, if not more, important to measure the changes in these indices over recent years.

Adaptation to globalization or, rather, integration to the global economic system has become a prerequisite for any nation to make its economy viable. Therefore, most nations are expected to demonstrate certain amount of increases in their globalization indexes over a period. If a certain nation fails to show some decent increase in her globalization index, her economy is suspected to be in decline. That will bode ill for the nation's health status. Likewise, extraordinary increase in the index over the period suggests significant structural change in the nation's economy. Although that by itself does not signify anything bad for the economy, it does suggest some upheavals in the nation's economic management. In other words, such a change is a portent for the government, or the political elite in power, to have espoused capitalism, while forsaking socialism. In the developing world, socialistic policies may be adopted and their implementation may provide social services, including health services. However, such services are often limited to urban areas, and in rural areas only the semblance of such services are practiced, often with the presence of service staff without essential means or material for their services. As such, the espousal of capitalism by the political elite is likely to have much negative impact on the nation's health status.

Design of the globalization index

Globalization has earlier been characterized by two factors: namely, the global espousal of free-market capitalism, and the unprecedented geographic expansion of human interaction. From the epidemiological point of view, the latter factor is of considerable importance for public health. For example, the global spread of HIV/AIDS is partly attributed to this factor. In Africa some nations have reached alarming levels of its prevalence among their populations. Social or epidemiological studies in those nations have found time and again that the expanding migration of people, for jobs or for transportation of goods, have contributed significantly to the spread of infection. Such findings suggest that any measure of geographic expansion of human interaction could be a pertinent globalization index for this study. However, no national statistics exist that directly measure or accurately reflect the volume of human interaction.

This leaves the first factor, i.e., global espousal of free-market capitalism, as the basis for measuring individual nations' degree of globalization. At the national level, this means the degree of integration with the global economic system that the nation's economy shows. This should be reflected in the volume of international trade (i.e. the total of imports and exports). This volume in absolute terms also reflects the size of national economy. Therefore, a more appropriate measure of the national economy's integration will be the relative size of international trade against the national economy, which is typically measured by "gross domestic production (GDP)."

It is worth noting that the national statistics for GDP, by definition, is the total sum of consumption, investment, government spending, and the balance of trade (i.e., the difference between export and import) in monetary value. This means that standard GDP measure may be influenced by the trade balance or its change. The measure that excludes this factor is called "GDP by expenditure," and this national statistic is widely available. Therefore, the globalization index is designed as follows :

$$\text{Globalization Index (GI)} = \frac{\text{Export} + \text{Import}}{\text{GDP by Expenditure}}$$

Design of the health index

One good and popular measure of health status for international comparison is the life-expectancy at birth. The advantage of this measure is its comprehensive nature, as it reflects the health status of people of all ages. However, this very nature puts itself rather

disadvantageous for adoption in this study. In short, this measure is rather insensitive to fast changing socio-economic conditions of a nation. Globalization is a rather recent phenomenon that has emerged since the demise of the Cold War regime, and the study is interested in the change in health status in the last decade or so. Accordingly, the under-5 mortality rate（U5MR）has been adopted as the health index. This measure is, strictly speaking, not a rate, as it represents the number of deaths divided by the number of population in this age cohort during the year at issue. In other words, it represents a probability of death before reaching 5, which is expressed as the rate per 1,000 children in the age cohort.

As a measure of health, the infant mortality rate（IMR）is perhaps better known than the under-5 mortality rate. The IMR represents the number of newborns dying under a year of age divided by the number of live births during the year. Again, it is reported as the number of live newborns dying under a year of age per 1,000 live births, for international comparison. Its popularity stems partly in the fact that it is relatively sensitive to improvements in basic health care, and it well reflects the health service level of a country. In short, it is regarded as a good social measure of the standard of living. However, this measure has some inhererent inaccuracy that stems from the reporting of "live births." In some cultures it is reported as one only after the baby has survived a certain length of time. In short, the statistics of live birth have the tendency of under-reporting, particularly in the developing world.

Although the U5MR cannot be totally free from this kind of cultural or statistical bias, it is more robust as it counts the death of children in their first 5 years. Also the U5MR is more robust than the IMR against the change in health practice, such as maternal and child health services, while relatively sensitive to the overall socioeconomic condition of the country; hence, its adoptation as the health index for this study.

Design for international comparison

The U5MR ranges widely, from less than 10 in some nations of advanced economy to over 200 in other nations of developing economy. For the former group of countries, it is harder to improve the existing level further, than for the latter group of countries. This realistic consideration is reflected in Figure 1, which illustrates the ranking scheme of nations according to their health status.

In this figure, the vertical span indicates the range of health indices as observed in the 1995 UN statistics. The horizontal span indicates the degree of change in the health index

Figure 1　Illustration of international ranking scheme by health index

Under-5 Mortality Rate (per 1000)

1995 Level — Change over the 1990-2000 period

Increase/Low Decline — High Decline

High

Low

Category VI:　very poor health status
Category V:　poor health status
Category IV:　mildly poor health status
Category III:　mildly good health status
Category II:　good health status
Category I:　very good health status
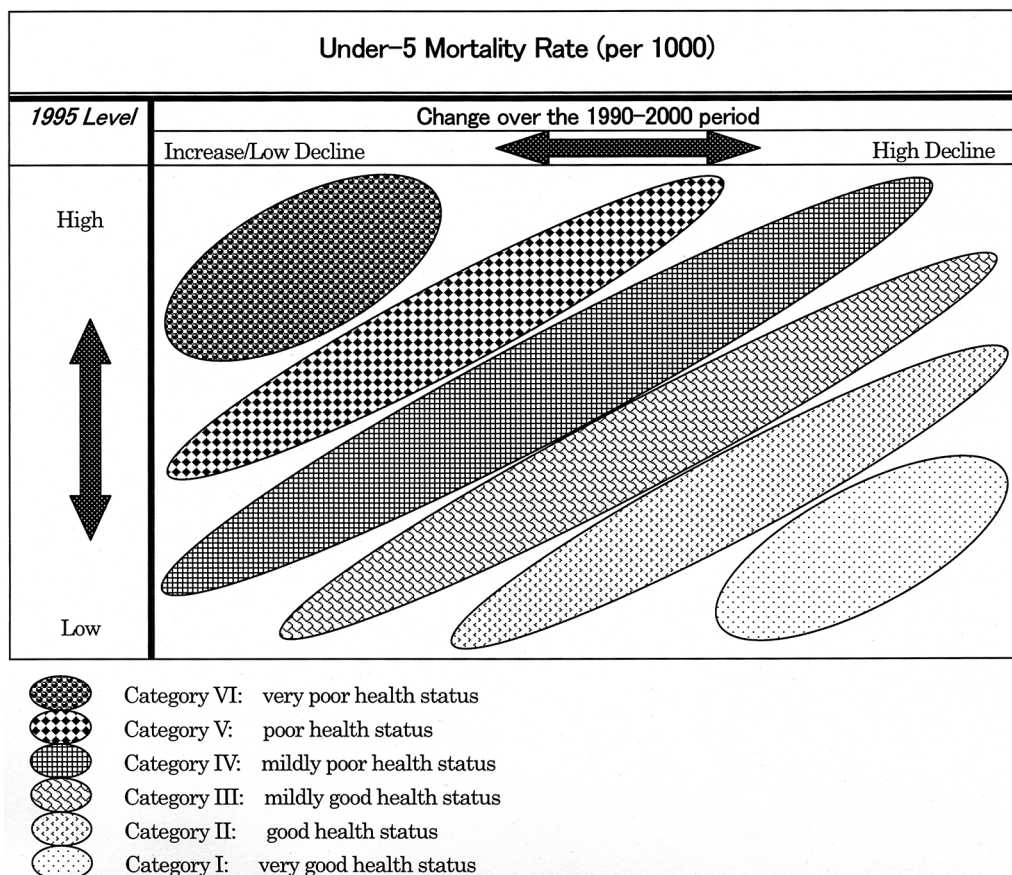
during the decade from 1990 to 2000.　Although the change expected over the period is improvement, or the decline in the health index, that is not guaranteed.　Indeed, the UN statistics do show that the health indices of some countries have increased.　One distinctive feature in the figure is the sloping down of all the ellipsoids that represent different categories.　This feature is a reflection of the above-mentioned theoretical consideration.

Most international comparisons encounter two common difficulties.　One is the availability of comparable data, and the other is the geographical diversity found in the world and its effect on the measure for comparison.　This study is no exception.　Although the data for construction of the two indices used in this study are available in the statistical reports compiled by international agencies, they tend to come out a few years out of date.　Also, sometimes the data on critical years may be missing in their statistical table, because their data compilation depends on the initiatives of the governments concerned.　This

study is fortunate to have found the U5MR statistics of 1990, 1995 and 2000 for most countries in the world, and it has used them to classify these countries by their health status and its change over a decade of globalization.

In this health measure the regional differences are considerable. For example, the African region shows the widest variation that spans from below 20 to over 200. In comparison, the European region shows the narrowest variation that does not exceed 50. Since, the tenet of this study is not international comparison, per se, but the examination of the impact of globalization on health status, it is not necessary to make global comparison. Instead, it is quite adequate to make regional comparisons and to evaluate the dynamics or correlation between the two factors. Therefore, the analysis is conducted separately for the four regions ; namely, Europe, Africa, Asia and (Central and South) America. Likewise, the ranking by the health measure into six categories is applied separately to each region. Accordingly, the countries in the same category of health status may not have a comparable health status, if they are from different regions.

Once the nations in a region are divided up to six different categories by their health status, they shall be placed in the graph which shows the range of economic and globalization situations that are observed in the region. The globalization index has been defined earlier, and this index is assumed to express each nation's state of globalization. It is worth noting, however, that this index does not have any theoretical correlation with the economic well-being of a nation. Consider, for example, a small nation, such as Kuwait or Luxembourg. Its domestic market or economy is small in scale and, for that very reason, the viability of its economy is highly dependent on the economies outside, or on the global economic system. In other words, its economy is dependent on international trade much more than one with a larger domestic market. Therefore, its economy has the structural characteristic to demonstrate a high level of the globalization index.

As the above argument implies, the level of globalization index of a nation does not indicate its economy's scale or status. The economic situation that is considered to affect the nation's health most is the living standard, and the most common indicator used for international comparison in this respect is the per capita income (PCI). Accordingly, the study adopts this measure as one of the two factors for the classification of nations by economic situation. The other factor is, of course, the change in its globalization index over a specified period of time, and not the level of the globalization index, per se. The study has adopted the period from 1990 to 2003, while using the 2000 statistics for the PCI factor. These choices are largely prompted by the availability of statistical data, but also by the

Figure 2   Illustration of classification scheme by economic& globalization indices
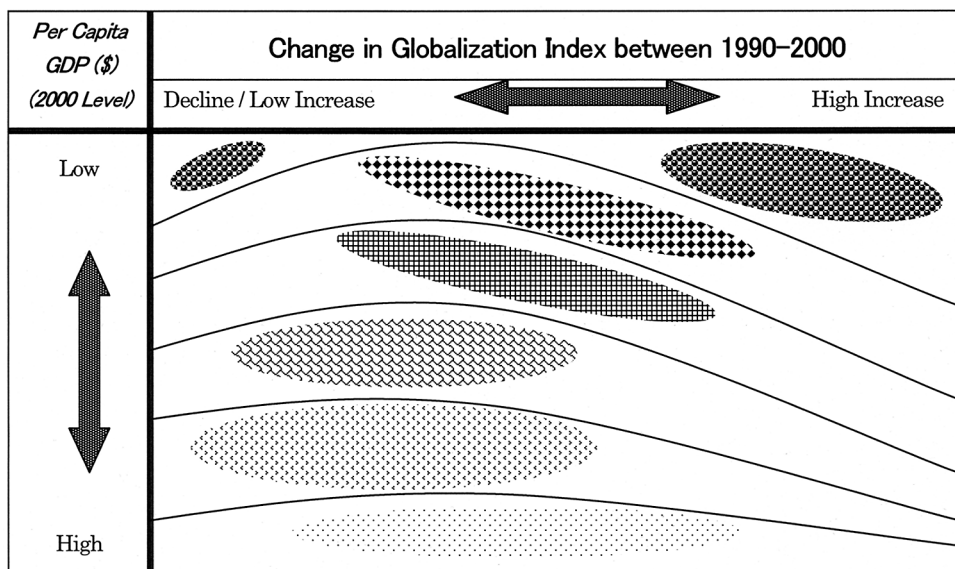
consideration of time lag between economic change and social change, such as the change in health status. The following figure illustrates the range, or space, in which individual nations are placed.

Some explanation is in order for the stratified space that is defined by the PCI level and the degree of change in the globalization index. The stratified areas with different shades indicate the positions that nations in different categories of health status are expected to assume. For example, Category I nations are expected to be placed near the bottom of the space, because of their assumed high standard of living. Nations in higher health categories (i.e., lower health status) are assumed to be placed above the lower stratum, successively.

The curved lines that separate these strata are not drawn arbitrarily, but according to some theoretical considerations. The common trend of these curves is the sloping down to the right. In other words, a faster increase in the globalization index is expected to have negative impact on the nation's health status. Another trend is that this sloping down to the right is more conspicuous when the PCI index is low. This pattern indicates that when the standard of living is lower, then this negative impact of globalization is greater. As globalization tends to aggravate economic disparity, rapid increase in the globalization index suggests the widening of such disparity. This certainly bodes ill for the health of economically under-privileged people; hence, these assumptions.

One notable departure from these general trends is the partial sloping down to the left. This trend is apparent particularly in the higher economic strata (i.e., lower economic status). It suggests that economically handicapped nations are more likely to fail in improving their globalization index. This may represent the situation that they are short of means or resources to take advantage of globalization. That in turn means that their prospect for economic development is severely limited, and so is their prospect for improving health status.

3. Analytical Results

European region

The first step of the analysis is to classify the nations in the region according to their health status. This step leads to the identification of the categories to which they belong, with regard to health status. The second step is to place these nations in the economic space. In this step each nation's category that is assigned at the first step must be correctly transferred, in order to test the original hypothesis. These steps, when applied to the European nations, have produced Table 1 and Table 2.

In these tables, the mark in front of each nation indicates the health status category that has been assigned. Six different marks ; ○, ◇, △, ▲, ◆, and ●, are used to represent the six categories, from Category I to Category VI, respectively. Table 1 shows two notable points. One is the presence of clear sub-regional difference between Eastern Europe and Western Europe. Approximately speaking, the U5MR of 10 divides these sub-regions, with all the Eastern European nations showing the higher mortality rate, with the exception of Slovenia, Croatia, and Czech Republic. The other notable point is the material improvement in U5MR over the 1990-2000 decade in the majority of Western European nations. Moldova and Ukraine are two nations which have suffered the increase in the mortality rate. This seeming anomaly may be suspected as one of the after-effects of Chernobyl nuclear explosion that took place in 1986. [United Nations Chernobyl Forum, 2005]

Table 2 demonstrates the general correlation pattern that has been expected in the theoretical design that is illustrated in Figure 2. There are some exceptions to the rule, of course. San Marino or its economy is an exemplary case of high externality. In other words, the nation's limited geographical size and domestic market make it inevitable to depend greatly on the economies outside, such as Italian economy in San Marino's case.

Table 1　Classification of European nations by their health status

Under− 5 Mortality Rate				
1995 Level	**Change in the 1990−2000 Period**			
	Decline of 10% or less	Decline of 10−25%	Decline of 25−45%	Decline of 45−70%
Over 20	● Moldova ● Ukraine	◆ Belarus ◆ Russia ◆ Lithuanaia	◆ Romania ◆ Latvia ◆ Selvia	▲ Macedonia
10〜20		◆ Bulgaria	▲ Slovakia ▲ Estonia ▲ Bosnia & Herz. ▲ Malta	△ Hungary △ Poland
7.0〜10		▲ Ireland	△ United Kingdom △ Croatia △ Greece △ Belgium △ Luxembourg △ Austria △ Lichtenstein	◇ Italy ◇ Portugal ◇ Czech Rep. ◇ San Marino
Below 7.0			◇ Denmark ◇ France ◇ Germany ◇ Monaco ◇ Netherland ◇ Switzerland	○ Finland ○ Ireland ○ Norway ○ Sweden ○ Slovenia ○ Spain

Table 2　Correlation between globalization and health in European region

Per Capita GDP (2000 Level in $)	Change in Globalization Index between 1990−2003				
	Decline of more than 15%	Small change bet. −15% and 5%	Increase of 2−25%	Increase of 25−75%	Increase of over 75%
Below 500					● Moldova
500−1000			● Ukraine		
1000−2500	◆ Belarus .▲ Bosnia & Herz.			◆ Selvia ▲ Macedonia	◆ Bulgaria ◆ Romania ◆ Russia
2500−6000	△ Croatia	◆ Lithuania	◆ Latvia		▲ Slovakia ▲ Estonia △ Hungary △ Poland ◇ Czech Rep.
6000−15000	▲ Malta	○ Slovenia		△ Greece ◇ Portugal	○ Spain
Above 15000	◇ San Marino		○ Norway	△ Austria △ Belgium △ United Kingdom △ Lichtenstein △ Luxembourg ◇ Italy ◇ Germany ◇ Denmark ◇ Monaco ◇ Netherland ◇ Switzerland ○Finland ○ Iceland	△ Ireland ◇ France ○ Sweden

Malta is very much in a similar position. Slovenia, Croatia, and Bosnia & Herzegovina are larger in size than Malta, but they have become separated and independent from Yugoslavia only in recent years. Accordingly, they are still in the process of transforming their economies from those of satellite states to those of independent states. Economies of satellite states tend to have strong economic ties with the suzerain state, and such economic structures show artificially high level in their globalization index.

In comparison, those Eastern European countries which have successfully transformed their economy for EU membership are fast narrowing their gaps with Western European nations. This is well demonstrated by notable improvements both in their health indices and globalization indices. Also notable from these tables is the fact that the globalization indices of the Western European nations have gone up more than 25% in the period of 1990-2003, and that their mortality rates have declined more than 25% during the decade, although a few exceptions exist. These facts indicate a considerable homogeneity of their economic and social characteristics, in comparison to the other regions' diversities.

African region

The same steps as described for European region produce Table 3 and Table 4.

Africa is often divided into two sub-regions, Mediterranean Africa and Sub-Saharan Africa. Perusal of Table 3 shows a good rationale for such division. The table clearly indicates the obvious difference in health status between the nations of Mediterranean Africa and those of Sub-Saharan Africa. The former clearly enjoy better health than the latter. A similar perusal of the tables suggests the practicality of differenciating the third category which may be called "Island Africa." In this category belong Cape Verde, Comoros, Mauritius and Seychelles. Table 3 indicates that these nations resemble those of Mediterranean Africa, as far as their health status is concerned. However, the interpretation of their positions in Table 4 is a little more complicated. Because of their geographic characteristics, their economies are all small in size and much dependent on outside economies. In other words, their economies have high "externality." Accordingly, their globalization indexes are relatively high and they are susceptible to changes in outside economies.

Unlike Table 2 for European region, Table 4 does not show very discernible trends as expected from Figure 2. There are two likely reasons for this situation. One is the significant impact that oil and other mineral resources have on the economy or trade pattern of a so-endowed country. Equatorial Guinea is a case in point. It used to be a poor country

Table 3   Classification of African nations by their health status

Under−5 Mortality Rate (per 1000)				
1995 Level	Change in the 1990−2000 Period			
	Increase of more than 10%	Small Change bet. −10% and +5%	Decline of 5%−15%	Decline of 15%−30%	Decline of over 30%
Over 200	● Rwanda*	● Brundi* ● Somalia ● Angola ● Dem. R. Congo ● Liberia*	◆ Burkina-Faso ◆ Nigeria* ◆ Sierra Leone*	▲ Guinea ▲ Guinea-Bissau** ▲ Niger ▲ Mozambique** ▲ Malawi**	
150−200	● Cent'l African R.** Equatorial Guinea ● Ivory Coast*	◆ Zambia** ◆ Cameroon* ◆ Chad	▲ Uganda ▲ Tanzania* ▲ Benin ▲ Mali	△ Madagascar	
100−150	◆ Kenya* ◆ Swaziland***	▲ Congo ▲ Sao Tome & P.	△ Gambia △ Ghana △ Mauritania △ Senegal △ Togo	△ Djibouti △ Sudan	◇ Comoros
50−100	▲ Zimbabwe*** ▲ Botswana***	△ Gabon* △ Lesotho*** △ South Africa***		◇ Cape Verde	○ Algeria ○ Egypt ○ Morocco
Below 50				○ Mauritius ○ Seychelles	○ Libya ○ Tunisia

Table 4   Correlation between globalization and health in African region

Per Capita GDP (2000 Level in $)	Change in Globalization Index between 1990−2003				
	Decline of more than 15%	Little change bet. −15% and 5%	Increase of 5%−25%	Increase of 25%−75%	Increase of more than 75%
Below 200	● Dem. R. Congo ◆ Burkina Faso	● Liberia* ● Guinea-Bissau** ◆ Niger		◆ Chad ◆ Sierra Leone* △ Malawi**	● Brundi*
200−400	● Ruwanda* ● Somalia ● Cent'l African R.** ◆ Zambia**	◆ Guinea ▲ Mauritania	▲ Mozambique** ▲ Benin △ Gambia △ Togo ◇ Comoros	◆ Kenya* ▲ Mali ▲ Uganda ▲ Tanzania* ▲ Sao Tome & P. △ Ghana△ △ Madagascar	△ Sudan
400−800			● Ivory Coast* ◆ Cameroon* ▲ Lesotho*** ▲ Djibouti ▲ Senegal	● Angola	▲ Zimbabwe*** ◆ Nigeria*
800−1600		▲ Congo	○ Morocco	◆ Swaziland*** ◇ Cape Verde ○ Egypt	
1600−3200	▲ Botswana***	○ Algeria ○ Tunisia		△ South Africa***	● Equatorial Guinea
Above 3200	△ Gabon* ○ Mauritius	○ Seychellees	○ Libya		

even among African countries, or as poor as its neighboring countries（i.e. Cameroon and Gabon）, until it found off-shore oil and sudden wealth. Its per capita income increased nearly 15 fold in the last 10 years, because of its small population of a little more than 500,000. This explains the odd position that Equatorial Guinea occupies in Table 4. Likewise, Cameroon and Gabon have achieved much higher PCI in recent years, for the same reason. Their differences in PCI can be largely explained by their differences in population size. Cameroon has a population of over 15 million, while Gabon has only 1.5 million. In the same token, Angola's odd position in Table 4 can be explained. It suffers from a relatively high mortality rate for a country with reasonable PCI level. This is once again due to the increase of off-shore oil production, which counts for nearly one half of its GDP. However, its population size is over 12 million and, therefore, this source of wealth is spread thin and so is the beneficial impact on health.

The other reason is the high prevalence of HIV/AIDS in a number of countries in Africa. Most African nations suffer the prevalence rate of over 1%. In some cases, this rate reaches beyond 20%, and those cases are indicated by three asterisks on the right-hand shoulder of individual county names. Two asterisks signify the prevalence rate between 10-20%, while one asterisk indicates 5-10%. The impact of HIV/AIDS is well exemplified by Botswana, Swaziland and South Africa. These nations show exceptionally high mortality rates for their PCI levels. Botswana and Swaziland are reported to suffer from the adult prevalence rates that approach 40%.

Asian region

The same analytical steps as before produce Table 5 and Table 6.

Asia is a region of diversity. According to the normal geographical definition, it stretches from Japan in the East to Turkey in the West. Despite the diversity, Table 6 shows the remarkably consistent distribution pattern with the theory or the hypothesis. It expects two distributional features. One is the correspondence of high mortality rate to low PCI, and the other is the slope downward with the increase in the globalization index, as illustrated in Figure 2.

Of course, there are a few exceptions to the rule. One such case is Quatar. The nation is well endowed with oil and natural gas. That makes the nation's PCI comparable to any industrialized nation, since the population size is less than one million. In Table 5 Cambodia and Iraq stand out as the only countries that failed to improve the U5 mortality rate. Iraq has been in serious social turmoil throughout the decade. Likewise, Cambodia

Table 5 Classification of Asian nations by health status

1995 Level	Under-5 Mortality Rate (per 1000)				
	Change in the 1990-2000 Period				
	Increase of over 10%	Decline of 10-20%	Decline of 20-30%	Decline of 30-40%	Decline of over 40%
Over 90	● Cambodia	◆ Pakistan ◆ Azerbaijan ◆ Myanmar ◆ Yemen	◆ India	▲ Bangladesh ▲ Bhutan ▲ Nepal ▲ Laos	
60~90	● Iraq			▲ Mongolia	△ Maldives △ Indonesia
40~60		▲ China		△ Armenia △ Iran △ Philippines	◇ Turkey
20~40		△ Jordan △ Quatar		◇ Sri Lanka ◇ Saudi Arabia	◇ Thailand ◇ Syria
10~20		◇ Lebanon		○ Malaysia ○ Bahrain ○ Kuwait ○ U.A. Emirates	○ Oman
Below 10		○ Brunei	○ Japan	○ S. Korea	○ Israel ○ Cyprus

Table 6 Correlation between globalization and health in Asian region

Per Capita GDP (1995 Level in $)	Change in Globalization Index between 1990-2003				
	Decline of over 10%	Small change bet. -10% and +5%	Increase of 5-25%	Increase of 25-75%	Increase of over 75%
Below 500	◆ Myanmar	△ Mongolia	◆ India ◆ Pakistan ▲ Bhutan	▲ Nepal ▲ Laos	● Cambodia ▲ Bangladesh
500-1000	● Iraq △ Armenia		◆ Azerbaijan	▲ China △ Indonesia △ Philippines △ Sri Lanka	◆ Yemen
1000-2500	△ Iran △ Jordan ◇ Syria	△ Maldive		◇ Thailand	
2500-6000	◇ Lebanon			○ Malaysia	◇ Turkey
6000-15000	◇ Saudi Arabia ○ Bahrain ○ Brunei	○ Cyprus	○ Oman		○ S. Korea
Above 15000		○ Kuwait	△ Quatar	○ Japan ○ Israel ○ U. A. Emirates	

experienced political infighting and civil violence throughout the decade（UN sponsored election took place only in 2003）. Otherwise, most countries have materially improved their mortality rates. This contrasting situation is illustrated in Table 5 by the presence of a column in which no country has been placed.

One notable point in Table 6 is that Asian region finds a good number of countries whose globalization indices have declined significantly. These countries may be categorized into two groups ; namely one whose economy has been dominated by oil production, and the other whose economy suffers from internal or external strife that inhibits economic growth. Saudi Arabia, Iran, Bahrain, and Brunei belong to the former group, while Myanmar, Iraq, and Armenia definitely belong to the latter group. Jordan, Syria and Lebanon are adjacent to Israel, and the resulting political instability seems to have kept these countries out of the economic mainstream of globalization.

There are countries that show rather abnormal increase in the globalization index. Yemen is one of them. Its anomaly is explained by the fact that South and North Yemen united in 1990, and the current data is based on 1990 statistics. If 1995 data were used, then the country would belong to the group which shows the index decline of more than 15%. Cambodia is another country that shows an unusual increase in the globalization index over the decade. This is once again explained by the fact that the country truly came out of the war economy after the 1991 Paris accord. If 1995 data were used for the country, it would show a similar decline as Yemen.

Central and South American region

Perhaps this regional designation needs some explanation. Under normal circumstance, American region as a whole should be chosen. This designation excludes Canada and the United States in North America, and the Caribbean nations which would have been included in Central America. The first group is excluded because their PCI is far above the rest of the nations in the region, and their inclusion might distort the correlation pattern of the region. The second group is excluded because their populations are all small, while their island economies vary considerably. Accordingly, it is feared that their inclusion in the study only compound its analysis, with little gain for the hypothesis testing. For the remaining countries the same analytical steps are taken, and Table 7 and Table 8 have been produced.

The analysis for this region, or the distribution pattern of Table 8 does not provide any good evidence to corroborate the hypothesis, despite the relative homogeneity of the

Table 7　Classification of Central & South American nations by health status

1995 Level	Under–5 Mortality Rate (per 1000)			
	Change in the 1990–2000 Period			
	Decline of 10–20%	Decline of 20–30%	Decline of 30–40%	Decline of over 40%
Over 60			▲ Bolivia ▲ Guatemala	△ Peru
40〜60	◆ Belize ◆ Suriname	▲ Honduras ▲ Panama	△ Nicaragua △ Brazil △ Paraguay	◇ El Salvador ◇ Ecuador
20〜40		△ Venezuela	◇ Mexico ◇ Argentina ◇ Colombia ◇ Uruguay	
Below 20		◇ Costa Rica		○ Chile

Table 8　Correlation between globalization and health in Central & South American region

Per Capita GDP (2000 Level in $)	Change in Globalization Index between 1990–2003				
	Decline of more than 15%	Little change bet. −15% and 5%	Increase of 5–25%	Increase of 25–75%	Increase of over 75%
Below 1200		▲ Honduras	▲ Bolivia	△ Nicaragua	
1200–2400		△ Paraguay		▲ Guatemala Peru Colombia El Salvador Equador	◆ Suriname
2400–4000	▲ Panama		◆ Belize		△ Brazil
4000–6000				△ Venezuela ◇ Mexico ◇ Costa Rica ○ Chile	
Over 6000				◇ Uruguay ◇ Argentina	

nations with regard to their economic and health situations. This may be due partly to the fact that the differences in the U5MR used for classification are too fine to be practical for this region.

As is observed from Table 7, none of the nations in this region have extremely good or bad health status. Nonetheless, Belize and Suriname stand out as the nations which have failed in improving their health status in the decade. This failure may be attributed to the high prevalence rate of HIV/AIDS virus in these nations. Their rates, which are estimated to be 2.5% and 1.8%, respectively, are the highest in the region. If the whole American region is considered, HIV/AIDS are significantly more prevalent in Caribbean islands, with Haiti reaching above 5%. The positions of Belize and Suriname in Table 8 also look odd. For example, Belize's PCI is unusually high for its health status. This is partly explained by the country's distinctive characteristic. Its geographic position with Mexico is similar to Monaco with France, and its economic mainstay is tourism. Such a situation tends to show the PCI level which is artificially higher than the real standard of living for the nation as a whole.

Chile has been enjoying the lowest mortality rate, although Argentina enjoys the highest PCI, in the region. Another country with low mortality rate is Costa Rica. Both countries are acknowledged to enjoy stability in their economy and government. For example, the financial crisis of 1997-98 did have significant negative impact on Argentina, but not on Chile. Suriname has the population of about half a million, and it is very active in mineral extraction（including oil）to boost its economy. This may explain the high globalization index. Panama's decline in the globalization index is largely due to the management transfer of Panama Canal from the United States to Panama. This essentially internalizes the operation and has had the reduction effect on globalization index.

4. Concluding Remarks

The empirical hypotheses that rapid adaptation to the global economic system runs the risk of increased economic and social disparities within a nation, and that such disparities negatively affect the health status of nations, have been tested against the statistical data. The data analysis has, on the main, corroborated these hypotheses. At the same time, the analysis has demonstrated some destabilizing factors of economy and of health status.

In the economic sphere, two factors appear particularly important. One factor is the

national economy's level of externality or its degree of dependence on the outside economies. If the externality is high, the globalization index, as defined and used in this study, is not only high in the absolute terms, but also highly susceptible to the changes in the outside economy. The other factor is the importance of mineral resources, particularly for developing economies. Although the extraction of such resources theoretically helps their economic development, such economic potential tends to disturb their economic and political fabrics. Such disturbance usually works toward further aggravation of already existing socio-economic disparities, thus negatively affecting the nation's health status as a whole.

In the health sphere, globalization as rapid geographic expansion of human interaction cannot help but have a significant impact. Increased migration of people, for employment or for trade and transportation of goods, increases the risk of spreading infectious diseases. The spread of HIV/AIDS is a very real and serious threat to the health and livelihood of people, particularly in the developing world. Also the espousal of free-market capitalism by their government, which is another feature of globalization, tends to reduce whatever limited social support or services that may have been provided for the poor. This tendency has been observed both in the developed world as well as in the developing world. However, its negative impact is much greater in the developing world, because of the sharper disparity between the privileged and the underprivileged.

The perusal of the tables that indicate the correlation between globalization and health, and the investigation of those nations in abnormal positions, has also indicated the importance of political and economic stability in promoting health status. If a nation experiences some upheaval or turmoil in its political or economic system, the nation's health seems to suffer. Unfortunately, globalization seems to increase the risk of engendering such upheavals and turmoil, as the current state of the world indicates. As such, the stated empirical hypotheses has not reduced, but rather increased their relevance in the coming years

Appendices

The numerical data that have produced the eight tables in the "Analytical Results" chapter are shown in the following four tables. Each table shows two sets of numerical data. One set indicates the numerical data of under-5 mortality rate. These data have been used to construct the table for classification of nations by health status. The other set indicates

the numerical data of the globalization and PCI. These data, together with the classification results, have been used to construct the table for correlation between globalization and health. These numerical data are adopted from the pertinent UN statistics, the sources of, which are found in the references.

Table A1　Statistical data of European nations

Subregion	Under−5 Mortality Rate (per 1000)				Globalization Index			PCI
country	1990	1995	2000	Change(%)	1990	2000	change(%)	2000
Eastern Europe								
Belarus	16.7	18.3	14.4	−13.8	89.61	58.34	−34.9	1,039
Bulgaria	18.7	19	15.8	−15.5	70.59	148.37	110.2	1,576
Czech Rep.	13	9.5	5	−61.5	82.81	213.94	158.4	5,425
Hungary	16.9	12.2	9.2	−45.6	66.59	225.74	239.1	4,565
Poland	17.9	14.6	9.2	−48.6	46.88	121.1	158.1	4,310
Moldova	40.3	43.9	37.3	−7.4	99.67	244.11	144.9	301
Romania	30.5	25.8	22.3	−26.9	42.89	112.69	162.7	1,674
Russia	29	30.4	25	−13.8	36.11	800.85	2118.4	1,772
Slovakia	14	12.3	10	−28.6	59.79	184.37	208.4	3,757
Ukraine	26	30	24	−7.7	58.82	68.39	16.3	636
Northern Europe								
Denmark	9	6	6	−83.3	66.58	95.67	43.7	29,632
Estonia	16.2	19	11.3	−30.2	87.17	175.57	101.4	3,997
Finland	7	5	4	−42.9	47.04	78.84	67.7	23,163
Iceland	6.5	5.5	3.2	−50.8	67.49	86.12	27.6	29,892
Ireland	9		6.6	−22.2	109.33	199.89	82.8	24,979
Latvia	17.5	21	12.9	−26.3	96.73	109.94	13.7	3,256
Lithuania	13.4	15.4	11	−17.9	112.67	118.55	5.2	3,252
Norway	8.6	5.1	4.8	−44.2	74.31	84.93	14.3	37,072
Sweden	7.1	4.7	3.9	−40.8	46.29	91.92	98.6	26,986
United Kingdom	9.5	7.2	6.5	−29.4	50.62	72.98	44.2	24,514
Southern Europe								
Bosnia & Herz.	22	19	17	−22.7	104.27	81.07	−22.2	1,158
Croatia	12.2	9.6	7.8	−36.1	158.81	108.29	−31.8	4,090
Greece	10.7	8.7	6.7	−37.4	45.92	65.02	41.6	10,341
Italy	9.4	7	5	−46.8	39.44	53.61	35.9	18,622
Malta	10.9	10.8	7	−35.8	167.13	144.21	−13.7	9,811
Portugal	14.3	9.6	7.7	−46.2	72.39	105.26	45.4	10,411
San Marino	14.1	8.3	6.1	−56.7	421.54	387.56	−8.1	28,708
Servia & Monten	28	20	16.3	−41.8	24.81	38.79	56.3	1,044
Slovenia	10	6.7	5.6	−44.0	169.27	170.36	0.6	9,710
Spain	9.4	6.8	5.5	−41.5	35.36	69.24	95.8	14,261
Macedonia	38	26	18	−52.6	61.83	96.45	55.9	1,785
Western Europe								
Austria	10	7	6	−40.0	71.75	104.52	46.1	23,942
Belgium	9.7	7.4	6	−38.1	139.71	180.87	29.5	22,168
France	9	6.2	5.5	−38.9	44.75	79.72	78.1	21,776
Germany	9	6.5	5	−33.3	49.39	79.72	61.4	23,076
Lichtenstein	10	8	6	−40.0	70.11	93.59	33.5	75,583
Luxembourg	9		5.7	−33.3	204.37	275.18	34.6	45,044
Monaco	8.9	6.2	5.5	−38.2	44.75	71.01	58.7	21,776
Netherland	8.8	6.7	6.2	−29.5	105.24	152.96	45.3	23,314
Switzerland	8.5	6.2	5.8	−31.7	70.11	93.59	33.5	34,328

The U5MR data with asterisk are of 2002

Data Source : UN statistics

Table A2　Statistical data of African nations

Subregion	Under-5 Mortality Rate				Globalization Index			PCI
country	1990	1995	2000	Change(%)	1990	2003	change(%)	2000
East Africa								
Burundi	190	190	190	0.0	34.19	124.35	263.7	110
Comoros	120	100	82	−31.7	48.99	58.48	19.4	264
Djibouti	163	149	136	−16.6	96.99[*1]	117.35	21	774
Kenya	97	111	117	20.6	57.57	78.45	36.3	341
Madagascar	168	156	137	−18.5	42.71	54.88	28.5	239
Malawi	241	216	188	−22.0	61.51	81.44	32.4	151
Mauritius	23.4	21.4	18.1	−22.6	141.01	115.26	−18.3	3,839
Mozambique	235	212	187	−20.4	44.38	51.01	14.9	214
Rwanda	173	209	203	17.3	19.77	11.09	−43.9	216
Seychellees	19	16	14.5	−23.7	129.23	141.13	9.2	7,764
Somalia	225	225	225	0.0	6.59	2.66	−59.6	293
Uganda	160	156	145	−9.4	24.53	31.59	28.8	236
Tanzania	161	159	141	−12.4	53.26	75.03	40.9	269
Zambia	180	182	180	0.0	68.04	55.35	−18.7	303
Zimbabwe	80	90	117	46.3	45.65	93.1	103.9	447
Middle Africa								
Angola	260	260	260	0.0	62.66	78.39	25.1	660
Cameroon	139	151	151	8.6	39.07	43.18	10.5	604
C. African Rep.	168	180	193	14.9	47.35	14.61	−69.2	242
Chad	203	200	200	−1.5	64.15	90.04	40.4	159
Congo	110	108	108	−1.8	82.48	85.89	4.1	937
Dem. R. Congo	205	205	205	0.0	114.18	92.05	−19.4	104
Eq. Guinea	170	187	200	17.6	119.36	402.66	237.3	2,708
Gabon	92	91	91	−1.1	76.89	66.01	−14.2	3,954
Sao Tome & P.	118	118	118	0.0	95.34	147.4	54.6	332
Northern Africa								
Algeria	69	53	44	−36.2	48.46	47.39	−2.2	1,788
Egypt	104	71	49	−52.9	43.38	59.01	36.1	1,535
Libya	41	28	22	−46.3	80.18	85.05	6.1	6,400
Morocco	89	69	54	−39.3	54.4	65.24	19.9	1,129
Sudan	120	106	97	−19.2	34.33	73.98	115.5	351
Tunisia	52	40	31	−40.4	94.16	87.06	−7.5	2,033
Southern Africa								
Botswana	58	66	101	74.1	105.5	70.18	−33.5	2,787
Lesotho	104	97	105	1.0	138.59	163.91	18.3	481
South Africa	60	59	63	5.0	43.39	59.06	36.1	2,913
Swaziland	110	110	142	29.1	162.26	204.16	25.8	1,358
Western Africa								
Benin	185	170	160	−13.5	48.57	53.43	10	313
Burkina Faso	210	204	196	−6.7	39.99	29.28	−26.8	194
Cape Verde	60	50	42	−30.0	85.63	118.16	37.9	1,197
Cote d'Ivoire	157	195	188	19.7	53.36	61.63	15.5	638
Gambia	154	137	128	−16.9	100.85	112.55	11.6	320
Ghana	122	110	112	−8.2	39.4	53.08	34.7	251
Guinea	240	208	175	−27.1	61.51	56.43	−8.3	369
Guinea-Bissau	253	235	215	−15.0	46.97	48.14	2.5	158
Liberia	235	235	235	0.0	62.05	59.68	−3.8	177
Mali	250	233	224	−10.4	51.03	70.08	37.3	222
Mauritania	133	127	125	−6.0	101.27	89.45	−11.7	351
Niger	320	295	270	−15.6	37.65	35.21	−6.5	141
Nigeria	230	230	207	−10.0	62.29	292.05	368.9	416
Senegal	148	143	139	−6.1	55.76	68.12	22.2	423
Sierra Leone	302	293	286	−5.3	46.21	63.4	37.2	141
Togo	152	146	142	−6.6	50.95	59.05	15.9	248

Data Source : UN statistics

<p style="text-align:center">Table A3　Statistical data of Asian nations</p>

Subregion	Under−5 Mortality Rate (per 1000)				Globalization Index			PCI
country	1990	1995	2000	change(%)	1990	2003	change(%)	2000
East Asia								
China	49	46	41	−16.3	29.94	42.26	41.1	864
Japan	6.4	5.9	4.5	−29.7	19.89	27.12	36.34	37,361
Mongolia	108	87	65	−39.8	58.74	58.74	0	379
S. Korea	9	6.4	5.4	−40.0	56.98	120.97	112.3	10,938
South−Central Asia								
Bangladesh	149	120	92	−38.3	18.97	37.13	95.7	377
Bhutan	166	133	100	−39.8	60.54	73.92	22.1	249
India	123	104	94	−23.6	15.77	18.68	18.5	455
Iran	72	55	44	−38.9	42.21	37.01	−12.3	1,551
Maldives	111	86	60	−45.9	168.42	173.31	1.1	2,151
Nepal	145	120	95	−34.5	31.62	44.01	39.2	218
Pakistan	130	118	108	−16.9	26.89	30.73	14.3	496
Sri Lanka	32.3	25.1	19.4	−39.9	68.6	92.74	35.2	820
South−East Asia								
Brunei	11	9	8.8	−20.0	144.26	130.44	−9.6	12,944
Cambodia	115	120	135	17.4	10.07	29.25	190.5	283
Indonesia	91	66	48	−47.3	49.06	54.52	11.2	718
Laos	163	131	101	−38.0	57.91	94.83	63.8	328
Malaysia	22	17	14	−36.4	146.88	212.08	44.38	3,927
Myanmar	130	117	110	−15.4	5.57	0.44	−92.1	148
Philippines	62	49	40	−35.5	60.79	87.46	43.9	1,002
Thailand	37	26	22	−40.5	75.73	110.71	46.2	1,998
Western Asia								
Armenia	60	49	37	−39.3	81.31	77.54	−4.6	620
Azerbaijan	105	98	93	−11.4	83.03	101.77	22.6	647
Bahrain	19	15.5	12	−36.8	182.21	153.36	−15.8	11,861
Cyprus	12.2	8.9	6.3	−48.4	113.05	114.56	1.3	11,603
Iraq	50	122			36.31	21.56	−40.4	645
Israel	12	8.5	6.8	−43.3	65.92	90.18	36.8	19,886
Jordan	40	35	30	−25.0	154.64	116.75	−24.5	1,699
Kuwait	16.3	13.7	11.3	−30.7	102.61	90.58	−11.7	16,602
Lebanon	37	34	32	−13.5	60.58[*1]	42.89	−29.2	4,845
Oman	31.5	19	14.5	−53.9	74.82	93.51	24.9	8,136
Qatar	26	24	22.5	−13.5	85.57	99.29	16.1	29,290
Saudi Arabia	44	34	29	−34.1	86.24	70.89	−17.8	8,783
Syria	44	31	22	−50.0	57.21	49.54	−13.4	1,169
Turkey	82	63	44	−46.3	30.84	68.16	121.1	2,920
U.A. Emirates	14	11	9	−35.7	106.23	141.07	32.8	21,719
Yemen	142	126	117	−17.6	33.43	75.25	125.1	531

Data Source : UN statistics

Table A4 Statistical data of Central & South American nations

Subregion	Under−5 Mortality Rate (per 1000)				Globalization Index			PCI
country	1990	1995	2000	change(%)	1990	2003	change(%)	2000
Central America								
Belize	49	44	41	−16.4	121.59	128.85	5.9	3,125
Costa Rica	18	16	14	−22.3	68.91	97.77	41.9	4,059
El Salvador	60	46	35	−41.7	71.81[*1]	100.82	40.4	2,090
Guatemala	82	64	53	−35.4	43.47	64.38	48.1	1,693
Honduras	59	49	43	−27.1	77.14	78.25	1.4	918
Mexico	46	36	30	−34.8	38.3	53.09	38.6	5,803
Nicaragua	68	53	43	−36.8	42.47	64.82	52.6	797
Panama	34	30	26	−23.5	148.35	104.47	−29.6	3,939
South America								
Argentina	28.7	23.5	19.4	−32.4	14.91	25.76	72.8	7,707
Bolivia	125	105	84	−32.8	46.71	58.32	24.9	1,009
Brazil	60	48	39	−35.0	13.96	34.01	143.6	3,461
Chile	21	14	10	−52.4	62.44	91.64	46.8	4,857
Colombia	36	29	24	−33.3	34.59	51.81	49.8	1,989
Equador	57	43	32	−43.9	60.11	78.95	31.3	1,295
Paraguay	41	33	27	−34.1	72.73	71.79	−1.3	1,412
Peru	80	60	42	−47.5	29.54	47.3	60.1	2,047
Suriname	48	44	41	−14.6	54.03	114.61	112.1	1,800
Uruguay	25.2	21.5	16.1	−36.1	46.26	62.84	35.8	6,011
Venezuela	27	26	20	−25.9	59.63	75.35	26.4	4,966

Data Source : UN statistics

References

CIA（2006）; *the world factbook*, http://www.cia.gov/cia/publications/factbook/

UNAIDS（2006）; *2006 Report on the global AIDS epidemic*, http://www.unaids.org/en/HIV_data

United Nations（2006）; "Special Table A : total imports and exports by regions and countries," *Statistical Yearbook 2006*, pp.467-485

United Nations Chernobyl Forum（2005）; *Chernobyl Legacy : Health, Environmental and Socio-Economic Impact and Recommendations to the Governments of Belarus, the Russian Federation and Ukraine*, http://www.iaea.org/Publications/Booklets/Chernobyl/chernobyl.pdf

World Bank ; *HNP Statistics*, http://devdata.worldbank.org/hnpstats/

Yamamoto, S. & Tanahashi, T.K.（2004）; Globalization and Changing Landscape of Industrial Development, *Tokyo Keizai University Journal*（management）, 238

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