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GLOBALIZING HEALTH BENEFITS FOR DEVELOPING COUNTRIES

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ABSTRACT

For the health community, globalization offers opportunities but also poses important challenges. Dramatic progress has been made in the area of health over the past forty years; however, improvements have been unequally distributed across regions. Developing countries share a disproportionate burden of avoidable mortality and disability, primarily attributable to preventable infectious diseases, malnutrition, and complications of childbirth.

Globalization affects global health, which in turn may improve or worsen the health of the poor in developing countries. This paper reviews the different meanings of globalization and indicators for some of its components. Using a simple framework, it examines the channels, which links globalization and health outcomes and identifies among them five main pathways. The first two pathways connect globalization with general outcomes on the economy and the government of developing countries, which affect the global health situation. The last three connect directly globalization with health, through its effect on institutions, nutrition, and the environment. In conclusion, this paper presents some policy and institutional responses that seek to reduce the negative and enhance the positive effects of globalization on health in developing countries.

TABLE OF CONTENTS

I. INTRODUCTION

Globalization has attracted enormous interest during the last decade, and continues to be at the center of a heated debate about its possible benefits and costs, particularly for the most vulnerable populations. Those differing views about globalization and its consequences are in part related to the complex and multidimensional nature of a more interrelated world economy and society.

For the health community, globalization offers opportunities but also poses important challenges. Dramatic progress has been made in the area of health over the past forty years, allowing world life expectancy to increase from about 50 to 64 years and infant and child mortality to fall by more than half during the same period. Developing countries health status also improved with life expectancy jumping from 45 to 62 years, and child mortality dropping from 216 to 95 per thousand between 1960 and 1998 (see Tables 1 and 2). However, improvements have been unequal across regions. Developing countries share a disproportionate burden of avoidable mortality and disability, primarily attributable to preventable infectious diseases, malnutrition, and complications of childbirth. Of the total global disease burden, 92 percent is concentrated in low and middle-income countries, and nearly 60 percent is in China, India, and Sub-Saharan Africa.

In addition to huge disparities that exist between developed and developing regions, there are also marked health inequalities within countries, with the burden of disease disproportionately afflicting populations that are the poorest. Compared to those who are not poor, those living in poverty are estimated to have a 4.3 times higher probability of death between birth and the age of 5 years, and 2.2 times higher probability of death between the ages of 15 and 39 years. Women who are poor have a 4.8 times higher probability of death between birth and the age of 5 years, and a 4.3 times higher probability of death between the ages of 15 and 59 years (WHO, 1999c). Poverty also accounts for differences in child mortality and indicators of malnutrition, such as stunting (low height-for-age), wasting (low weight-for-height), and being underweight (low weight-for-age) are higher among poor people in almost all countries (World Bank,

2001). Overall, the poor not only have shorter lives than the rich, but a bigger part of their lifetime is affected by disabilities.

The channels through which globalization may affect health outcomes are multiple.

- Socioeconomic factors, which affect the distribution of the global burden of diseases;
- Governments' resources and policy options to confront health problems;
- The distinction between national and international health, which affect the governments' ability to prevent and control diseases;
- The effects of expanded trade in health commodities and services, and the implementation of patents for medicines and other changes in Intellectual Property Rights as agreed in the WTO;
- The relationship between poverty, health, food security and nutrition;
- The transnational movements of health risks.

This paper does not cover the full range of issues linking globalization and health, but rather focus on selected topics.[1] In section II, the authors review the different meanings of globalization and indicators for some of its components. Using a simple framework, they identify five main pathways, which link globalization changes and health outcomes. In sections III and IV, the first two pathways link globalization with general outcomes on the economy and the government of developing countries. The last three pathways, health institutions, nutrition, and the environment, connect directly globalization with health outcomes at the global and domestic level. Section (V) covers the possible changes that globalization has on access, coverage and the quality of health services, infrastructure, and regulations, thereby affecting the ways poor individuals are assisted (or not) by those services. Section VI, recognizing the links between health and nutrition, considers possible ways in which globalization affect food security and nutrition. Section VII looks at some social and environmental forces related to globalization that may lead to health challenges and health risks. The authors conclude in Section VIII with some policy and institutional responses that seek to reduce the negative and enhance the positive effects of globalization on health.

[1] Several relevant aspects of that relationship are addressed in other studies commissioned by the Working Group 4 (WG4) of the Commission on Macroeconomic and Health (CMH), (WHO, 2001b). See also Hsiao (2000) for the various dimensions of health.

II. WHAT IS GLOBALIZATION AND HOW IT MAY AFFECT HEALTH? [2]

A. Meaning and indicators of globalization

Meaning of Globalization. In broad terms, globalization can be considered as coterminous with human experience. Since prehistoric times humans have been growing in number, expanding spatially, interacting with other groups, building larger economic, social, and political organizations, discovering and utilizing (and, at time destroying) the resources of the planet, while generating new knowledge and technologies. The level of world integration reached a high point during the powerful globalization wave of the second half of the 1800s and beginning of the 1900s. This process collapsed during the first part of the 20th century interrupted by two world wars and the great economic depression between them. The world emerged in the 1950s divided politically and militarily, but soon, another pervasive wave of economic, political, and social integration was rolling forward. During the last decade the debate about the causes and the consequences of globalization have become more polarized. One reason behind the sharply divided views is the disagreement on who are the main drivers behind those global trends: are they the result of government policies or are the results of more fundamental forces at work that governments do not control? Another reason is the different definitions of globalization, although, the economic aspects of globalization, and particularly the trade and financial integration of the world economy, have received more attention (Diaz-Bonilla, 2001).

At least three important drivers have fueled globalization. First, the changes in technology generation, adoption, and diffusion, including major advances in communications and transportation; second, the end of the Cold War, which eliminated some of the geopolitical barriers to world integration, and in general the process of economic deregulation and liberalization in many countries; third, the dramatic increase

[2] Based on Diaz-Bonilla (1999) and Diaz-Bonilla and Robinson (2001).

in world population, which alone and in addition to technology and policies, is causing the "densification" of world economic, social, and environmental interactions.

Three dimensions characterize globalization, each with economic and non-economic subcomponents: *interactions*, *homogenization*, and *spillovers*. *Interactions* refer to the multiplication and intensification of economic, political, social, and cultural linkages among people, organizations, and countries at the world level, including for example larger trade and financial flows; expanding cross-border communications, international contacts among political groups, NGOs, and other members of the civil society; and increased levels of tourism. *Homogenization* refers to the tendency toward universal application of economic, institutional, legal, political, and cultural practices. The codification of trade rules under the World Trade Organization (WTO) and its predecessor the General Agreement on Tariffs and Trade (GATT) is one economic example. Non-economic aspects include the spread of democracy, the increase in the number and coverage of environmental treaties, and even the controversial possibility of cultural homogenization in entertainment, food, and health habits. Finally, *spillovers* refer to the consequences that the behavior of individuals and societies have on the rest of the world. Examples include environmental issues such as cross-border pollution and global warming, financial crises and contagion, the global spread of HIV/AIDS and other diseases, and international crime.

These three manifestations combine in various degrees the common understanding of globalization (e.g. deeper world integration), separately and by influencing each other. Increased voluntary *interactions*, economic or not, across borders, is different from the expansion of global institutions and legal and regulatory frameworks (*homogenization*), as well as from involuntary and even unwanted global effects. Still, more interactions tend to generate the need for common institutions and rules to structure and facilitate (or control) the increased linkages. In addition, larger spillovers may occur because of more channels of interaction, and global norms and institutions are needed to provide a framework for coordinating responses to those common events.

Indicators of Globalization. Measurement of the dimensions of globalization usually focuses on economic trends, such as the expansion of international trade in goods (Feenstra, 1998) and increased international capital flows and the integration of financial markets (Obstfeld, 1998; Knight, 1998). Figure 1 shows that in both developed and developing countries, trade had expended between the periods 1987 to 1999, but industrial countries have expanded by more than developing countries, specially after 1994 (trade is measured by the ratio of the average of export and imports ((X+M)/2) over goods GDP.). Figures 2, 3 and 4 show trends in capital flows measured in percentages of GDP for developing regions. Contrary to trade, some developing countries appeared more integrated into capital markets during the 1970s than in the 1990s. Feldstein and Horioka (1980) also found that domestic investment and savings were highly correlated during the 1970s and 1980s in a sample of industrialized countries, which implied that those countries were not very integrated to world capital markets. Recent work by Obstfeld and Rogoff (2000) shows that the correlation between domestic investment and savings has decreased for OECD countries and that it is smaller in lower income countries than in industrialized ones, all suggesting a greater integration with world capital markets. In general, it would be necessary to extend the analysis to the convergence or not of price indicators, and to policy changes that may have filtered in different degrees what has been happening in world market.[3]

Other indicators of increased globalization include the expansion of foreign direct investment and multinational corporations (Riker, 1997), including the internationalization of small and medium enterprises (Acs, 1997); and international migrations with their impact on labor markets (Williamson, 1998). The level of communications also deepened with important increases in the number of television sets and telephone lines per capita, of Internet users, and of international travel (Foreign Policy, 2001). Finally, the number of intergovernmental organizations, international non-government organizations, and international treaties and regimes in force has increased consistently during the last decades (Held and McGrew, 2000).

[3] See for instance Knetter and Slaughter (1999) for different price indicators in industrialized countries.

These indicators suggest that the increase in globalization has been more pronounced for industrialized than for developing countries (Foreign Policy, 2001), and that clear differences exist across developing regions and over time. The failure of simple models of factor returns in open economies to capture the implications of globalization for income distribution and poverty testify to the great diversity across developing countries in terms of the degree and nature of their economic integration with the world economy. The effects of current globalization are more difficult to isolate, and they may vary even more across countries (Kohl and O'Rourke, 2000).

B. How does globalization affect health outcomes? [4]

The world health problem has been characterized as one of fighting the "double burden" of disease (WHO, 1999a): the increased life expectancy recorded in recent decades, together with changes in lifestyle stemming from socioeconomic development, have increased the importance of non-communicable diseases and injuries ("new burden" or emerging agenda). At the same time, as many as one billion people in the world still suffer from infectious diseases, undernutrition, and complications of childbirth, conditions not seen among the non-poor and that are largely avoidable because inexpensive and effective tools exist to deal with much of it ("old burden" or unfinished agenda) (WHO, 1999a).

Countries experience the "double burden" differently. Leaving aside industrialized countries, at least two broad health situations emerge in developing countries in relation to linkages between globalization and health. For poor and low-income countries the main health problem relate to the impact of communicable diseases, the "unfinished agenda" of preventable health problems. Given these countries' economic structure globalization make them more sensitive to shocks to the prices of the commodities they export and, in general, to the terms of trade, which affect government revenues, availability of foreign currency reserves, and economic activity in general. Also, the issue

[4] This is based on the longer paper by Diaz-Bonilla, Babinard, and Per Pinstrup-Andersen (2001). See also WHO (2001a).

of indebtedness and the HIPC Initiative are crucial for them. Another area of concern is how to approach negotiations and operations with international financial organizations and donors, which provide needed funds, but which may create problems of parallel organizations for the execution of specific projects, competition for resources, and divergent policy advice and conditionality (WHO, 2000a). Other issues, such as trade-related aspects of intellectual property rights (TRIPs), negotiation of services and government procurement within the WTO, may have less implications for these countries due to the exceptions they have under Special and Differential Treatment in trade negotiations. In addition, brain drain and competition between public and private services may be less important concerns compared to the next category of developing countries.

For the middle-income countries, globalization effects in the form of terms of trade shocks (real shocks) remain important, but more and more these countries must also face financial shocks in interest rates and capital flows. Globalization is helping them to grow faster, while at the same time not closing, or even increasing, the income gap within those countries. The health counterpart to the dynamics in incomes is the greater presence of the full "double burden of disease," with demands attention to both the emergence of non-communicable diseases and, to various degrees, the unfinished agenda of infectious diseases and malnutrition. Health services in those countries are pulled in two directions by the built-in tension between demands by social groups with higher incomes to address the health problems of the new agenda, and the requirements to attend the unfinished agenda of diseases mostly affecting the poor.

Chart 1 presents a simple framework, which links global changes and health outcomes. The different components of globalization (e.g. trade, capital flows, labor migration, and so on, at the top of the chart) affect the functioning of government, civil society, markets, and the environment in developing countries. In turn, changes in those four areas influence health outcomes through different channels. Those channels have been grouped in five main areas: (1) growth, income distribution, and poverty; (2) democracy and governance; (3) health services; (4) nutrition and food security; and (5) other risk or mitigating factors.

Globalization affects the various dimensions of the health system such as access, coverage, and quality of public and private health. It also affects health-related goods and services, and related infrastructure, including the policy, regulatory, and institutional aspects affecting the provision of those health services. The globalization of health means expanded trade and foreign direct investment in health products and services, internationalization of health insurance, migration of health workers, the implementation of patents for medicines and other changes in Intellectual Property Rights as agreed in the WTO, and other WTO related agreements such as the General Agreement on Trade in Services (GATS) and government procurement.[5]

III. GLOBALIZATION, GROWTH, AND POVERTY

A. Background

The relationship between globalization, and economic growth, income distribution and poverty, provides the general background for health outcomes. If growth leads to poverty reduction, health status should improve. Higher incomes at the individual level will facilitate access to health and health-related goods and services. Growth also provides societal resources to supply those goods and services, including government revenues. There is also a strong reverse link going from improved health conditions to higher economic growth (WHO, 1999). Repeated episodes of illness and long-term disabilities perpetuate underdevelopment. For instance, malaria may slow economic growth in Africa by up to 1.3 percent each year and Sub-Saharan Africa's GDP would be up to 32 percent greater now if malaria had been eliminated 35 years ago (WHO, 2000b). Other disease like HIV/AIDS are increasingly making individuals less productive: infected people are prone to series of opportunistic infections, of which tuberculosis is the most frequent (UNAIDS, 2000). But not only current human capital may be impaired by disease: children might be forced to discontinue their schooling as the household needs

[5] Those developments, which are transforming health care systems in developing countries, are addressed in greater detail in WHO (2001b).

their help and can no longer afford school expenses, therefore reducing future human capital and growth prospects.

In addition to average growth rates (and income levels), distributional patterns and the variability of the growth process must be considered (Pinstrup-Andersen, 1989, and 1990; Lipton and Ravallion, 1995; Addison and Demery, 1989). Growth patterns that are more equally distributed and stable over time will reduce poverty more than unequal growth punctuated by recurrent crises, even if average growth is higher for the latter than the former. The question then is whether world growth has been sufficiently high, socially broad-based, and stable to help alleviate poverty, and what is the relationship of that performance with globalization. These two issues are briefly discussed next.

B. Trends in growth, poverty and inequality

Growth rates are significantly higher in the second half of the 20th century than in any other previous period (Table 3). However, growth appears to have been higher in the 1960s and 1970s for Sub-Saharan Africa and Latin America, although it has been up in Asia since the 1980s (Table 4). Volatility in world per capita annual growth rates about tripled in the 1970s compared to the 1960s, and has remained at similar levels since for the world as a whole. But there are important differences across developing countries with the 1980s showing larger volatility in Africa and Latin America, while for Asia the 1960s and 1970s appear more unstable (Table 5).

The UNDP's Human Development Indices (HDI), which summarizes education, health, and income indicators, have been improving in developing countries, and are currently significantly higher than when now-developed countries had similar income levels in the 19th century (Crafts, 2000). However, life expectancy declined after the 1980s in SSA and some former republics of the Soviet Union (see Table 1).

The number and percentage of people in poverty in developing countries decreased drastically during the 1960s and 1970s. Household surveys available for these years showed that the incidence of poverty (i.e. the number of poor people over total population) had declined significantly from an (un-weighted) average of 46% to 24%,

and more importantly, the number of poor in the countries covered had declined by almost 60 million during that period (World Bank, 1990).[6] More recent data since the mid 1980s, shows further, but slower, declines: the share of population living on less than one US dollar a day fell from 28% in 1987 to 23% in 1998. The absolute number of poor diminished only slightly (by 9 million persons) over the same period. However, if China is excluded, poverty actually increased by about 80 million people worldwide, mostly in South Asia, SSA, and Eastern Europe and Central Asia (World Bank, 2000a). The percentage of underweight children under five in developing countries, another indicator of absolute poverty, also declined between 1980 and 2000, from 37% to 27%, as did the absolute number (from about 176 to 138 million). Again, in SSA the absolute number actually increased, and the incidence of undernutrition is still very high in South Asia and SSA (Smith and Haddad, 2000). Although child mortality has decreased in the last forty years, it is nearly 16 times higher in developing countries than in developed countries and still very high in Sub-Saharan Africa (Table 5)

World income levels have become significantly more divergent over time, largely because of increases in inequality between countries. Rich countries, which by most measures are more globalized than developing countries, maintained or increased the income gap with poor countries. Trends in inequality within countries, in contrast, are less clear. There is some evidence that income inequality, especially in transition countries and some large developing countries (India, Indonesia, and China), has worsened since the 1980s, even though in the case of China, both the number and percentage of poor fell (Sharma, Morley, and Diaz-Bonilla, 2001).

However, if instead of measuring inequality based on incomes, the Human Development Indicator is utilized, there appears to be some convergence in standards of living, with the gap declining both proportionately and absolutely between 1950 and 1995 (Crafts, 2000).[7]

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[6] They covered 11 countries (Brazil, Colombia, Costa Rica, India, Indonesia, Malaysia, Morocco, Pakistan, Singapore, Sri Lanka, and Thailand) representing 50 percent of the poor in developing countries. They used country-specific poverty lines as compared to the more recent studies mentioned below that utilized world-wide poverty lines, as well as country-specific ones.

[7] It should be noted that this convergence may result in part from the components of the HDI and the way it is calculated: there is a natural limit to the expected lifetime; there is a statistical limit to the percentage of

In summary, it seems that growth during the last wave of globalization raised incomes and standards of living (including health) in the developing world to levels not seen before, and poverty declined in relative terms. However, since the 1980s, growth has been slowing down in Sub-Saharan Africa (SSA) and Latin America & the Caribbean (LAC), collapsed in the former economies of the USSR, and has become more volatile for some developing countries and regions. In addition, inequality appears to have increased mainly across countries, and poverty, although declining in relative terms, has remained stable in the actual number of people affected.

C. The impact of globalization on growth, poverty, and inequality

Early works using case studies (Little et al., 1970); Balassa et al., 1971; and Krueger, 1978), and more recent empirical literature on growth using cross-section regressions (Sachs and Warner, 1995; Sala-i-Martin, 1997), suggest that a positive correlation exists between trade and economic openness, as well as between trade and growth (arguments against these findings can be found in Rodrik 1999, and 2001). Vice-versa, closed economies relying on the dynamics of smaller domestic markets (compared to larger opportunities in world markets) have tended to show slower and halting growth rates. In turn, high and stable growth rates have been commonly associated with reductions in poverty rates. Yet, higher growth rates are not enough if globalization is, at the same time, worsening income distribution.

Empirical analysis of the relationship between openness and income distribution show mixed results (Kohl and O'Rourke, 2000). Some find that openness worsens income distribution at least initially in a Kuznets fashion (Lundberg and Squire, 1999; Barro, 2000); some find little evidence of Kuznets' effects (Deininger and Squire, 1998); finally, others find that openness may improve income distribution (after controlling for

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literacy, and income per capita (which in principle is unbounded), it is in fact truncated in the HDI at some level considered "sufficient" for human development; income levels above that are not included in the index.

demographic factors) although the size of this effect is modest (Higgins and Williamson, 1999).

Other papers relates inequality in incomes not to openness, but to inequality of land distribution; lack of education and civil liberties (Li et al., 1998), demographic transitions (Higgins and Williamson, 1999), the nature of technological change, and the type of endowments, with primary exporters appearing more associated to rising inequality (Galbraith et al., 1998); or other domestic policies and institutions. Existing cross-country studies appear to leave many open questions regarding the links between openness and inequality, and the results vary with either equation specification or to the choice of openness indicator, although the finding that openness has at most a modest impact on inequality (in either direction) seems robust. The lack of precise results may be due to the diversity of country experience and the presence of other dimensions of openness besides trade, such as capital and labor flows (see a full summary of this literature see Kohl and O'Rourke, 2000).

In addition to their level of integration in international markets, developing countries must also be concerned about the nature of the world economy that they are increasingly joining (Diaz-Bonilla, 1999). A country's performance in terms of growth and poverty alleviation depends in good measure on the overall functioning of the international economy (Sharma, Morley, and Diaz-Bonilla, 2001). During the 1960s and 1970s, higher growth, negative real interest rates, and higher inflation, helped mostly the relatively resource-abundant, primary exporters of Africa and Latin America, which received much of the capital flows. The collapse in commodity prices, since the 1980s, affected less, and eventually benefited, the relatively more resource-constrained and increasingly primary importers of Asia, which were gradually specializing in manufacturing goods and over time became the main recipients of capital flows. African and Latin American countries, on the other hand, since the 1980s went through a painful process of fiscal adjustments to reduce the public sector imbalances and external debt accumulated during the previous decades.

Another element of international economic conditions for developing countries is the behavior of capital flows. These flows can accelerate growth and help finance additional

investments, but they also tend to overvalue the domestic currency and increase the price of non-tradables relative to tradables. Consequently, there may be a positive growth and investment effect on the first type of goods, but a negative one on the second type. In the case of developing countries, which reduced tariffs and other trade barriers protecting import-substitution products, the appreciation of the domestic currency due to capital flows added to the pressure of trade liberalization on the domestic producers. Additionally, expanded capital flows seem to have led lately to a more volatile world economic environment, with the sequence of financial crises in Mexico in 1995, Asia in 1997, Russia in 1998, and Brazil in 1999. The negative effects of those crises have been highlighted by the recent events in East Asia. Until 1997, developing countries in the region were benefiting from both reductions in poverty and improvement in the health and nutrition of their populations. The sudden emergence of financial crises and the subsequent disruption of the economies of many Asian and South American countries had both direct and indirect effects on health --impacts that may play out well beyond the upturn in GDP per capita. Evidence from Indonesia illustrates the health implications of the economic crisis. The large devaluation of the domestic currency caused by the crisis led to overall price increase, shortage of commodities, rise in unemployment, social unrest, and political turmoil, all of which affected the health of people. Poor and other vulnerable populations, but also middle-income groups, had difficulty paying for basic commodities as well as for the rising costs of medicines and health care. Nutritional and health indicators appear to have deteriorated. Surveys show that four-fold increases in anemia are likely, as well as increasing in wasting, night blindness, and diarrhea in children, adolescents, and women (ACC/ SCN, 2000). One of the significant shortages experienced also during the crisis was that of raw materials for drug production, leading to increases in the cost of drug and other medical supplies. Compressed public spending because of reduced tax revenues and higher cost of interest payments on external debt, also led to a reduction in health budget, with budget cuts affecting preventive programs, and increasing financial risks for the poor who tend to be more reliant on public health services and facilities. In many countries where local currencies collapsed, budgets set for vaccines priced in foreign currency could no longer be met, creating short-term shortages

and delays in getting enough vaccines to protect children from life-threatening infections (WHO, 1998).

Macroeconomic and regulatory policies in industrialized countries and their counterpart in developing countries, particularly policies linked to banking supervision, influence the ups and downs of international capital flows and their impact on developing countries.

D. Summing up

The relationship between globalization, growth, income distribution and poverty, is a complex one. It has to be analyzed in a specific setting: national, regional, or at the household and individual level. In general, higher incomes and poverty reduction are obviously associated with better health indicators. Globalization appears linked also to higher average growth rates, but more recently, world economic volatility seems to have increased, mostly linked to swings in world capital markets influenced by changes in macroeconomic policies in industrialized countries. Even though growth is higher, if, at the same time, the probability of economic financial crises increases with globalization, the poor will face additional risks.

As already mentioned, besides the level and variability of growth it is important to look at its distribution. How globalization affects incomes across different countries and groups in society is not that clear and much depends on the nature and components of developing countries' patterns of integration in the world economy. Two other aspects may affect outcomes even more than the degree of globalization. First, it is important to consider the behavior of the international economy in which developing countries are getting increasingly immersed; these conditions are mostly defined by the policies of industrialized countries. Second, the type of domestic complementary policies, institutions and conditions may ultimately determine the impact on the poor. An important source of discrepancies in the assessments regarding the links between globalization and poverty is the failure to distinguish between those three distinct focus of analysis: first, the degree of integration in the world system; second, the role of

domestic conditions, institutions and policies interacting with globalization; and, third, the functioning of the world economy functioning. To use an analogy, the impact of opening up the windows of a house on the well being of those living there, will depend on their own health conditions, but also on the weather outside (Diaz-Bonilla, 2001).

IV. DEMOCRACY AND GOVERNANCE

A. Should we worry about democracy and governance in a globalized world?

One manifestation of globalization is the rising importance of international trade and finance, combined with increasing supranational accords, rules, and regulations. These developments may reduce the economic and political autonomy of national governments, limiting their possibilities to address the issues that the electorate demands, and even weakening democracy itself. They may also affect negatively government revenues, both directly (for example if tax competition at the world level reduces the sources of revenues), and indirectly through the impact of the rate and variability of growth on general tax collection. The debate has clear implications for poverty and health. More obviously, the level of government revenues affects the possibility of implementing transfer policies (like food subsidies or other poverty-oriented programs) and to finance public services and investments in health, education, and related areas.

Globalization can affect the legal, political, and civil society institutions and practices and whether it is impairing democracy, and the ability for democratic governments to implement policies, is relevant for poverty and health. For the poor it matters whether they have access to political assets and capabilities leading to voice, participation, and empowerment.

Different studies show the positive relation between democracy and good governance, on one hand, and improved social welfare, on the other. Democracy and good governance, including notions of freedom of association and speech, effective voice and political participation, the rule of law, transparency, accountability, and control of

corruption, matter directly and indirectly for the welfare of the people in any country, and particularly for the poor. Bad governance not only affects growth overall, but also worsens income distribution and appear to have a special negative impact on the poor (Thomas et al., 2000). Budgets may be allocated to big investment projects (where there are more opportunities for graft), instead of the much needed operational and maintenance expenditures. For instance, modern and well-equipped hospitals may be built in urban centers, while in rural areas (where usually the poor are located) health facilities, salaries for health staff, and medicines, are neglected. In addition, access to public services are distorted by payment of bribes, and the distribution of these services mimic a market allocation based on capacity to pay. Another example is corruption in government procurement of medicines and equipment, which leads to inflated prices and/or low quality products, thus substantially diminishing the welfare impact of a given budget allocation. Regarding health outcomes, Kaufman, Kraay and Zoido-Lobaton (1999) show evidence of the negative impact of bad governance on infant mortality, and Smith and Haddad (2000) documented the positive impact of democracy, among other variables, on child nutrition.

The debate about the policy and resource limits that globalization may or may not impose on governments has a concrete manifestation in the design and operation of the health system (WHO, 2001b).

B. National dimensions

Since the end of the 1980s, there has been a clear advance of democratic rule in the world (Gurr et al., 2000). What role did the many dimensions of globalization play in this trend? Some have argued that the globalization of communications has strongly influenced the spread of democracy (Giddens, 1999). An open framework of global communications has eroded the information monopoly, on which those political systems are based. Authoritarian governments do not have the flexibility and dynamism necessary to operate in the global electronic economy (Giddens, 1999). According to this line of argument, the same advances in the technology of communications, which allowed

corporations to operate more effectively at the world level, are also increasing the links across societies, as well as changing the dynamics of the interaction between markets, the state and civil societies, within each country and internationally. Different political and social alliances are formed across countries to confront global concerns, from violation of human rights, to environmental problems, to access to affordable drugs, and similar causes (see Diamond, 2000; Boli and Thomas, 2000).

Improved communications and information sharing have also begun to expose abuses of power and cases of corruption that may have gone unnoticed before. While this may have led to some cynicism because of the perception that corruption has increased (even though the change may reflect increased exposure in ways that did not happen before), at the same time the communications revolution offers the means to better control corruption. The Internet is utilized to increase the flow of communication between public institutions and the general public, as much as among different groups in civil society.

While globalization of communications may be fostering democracy and the rule of law, some have argued that economic globalization could be working in the opposite direction. Usually, this view combines several ideas. First, economic globalization may leave countries more vulnerable to international economic factors, including fluctuations in world prices and capital flows. Second, globalization may also increase exposure to international competition, posing the risk of leaving the poor and malnourished as well as countries that are less developed behind. Third, because of amplified external competition, domestic economic change may be faster, which increases the need for government resources to help affected populations. But, this may not be possible if, as some suggest, governments are losing resources because of the mobility of capital and high-income individuals, while at the same time are forced to cut welfare expenditures to reduce costs and maintain a competitive economy.

The debate over whether open are more vulnerable than closed economies has a long tradition. After experiencing the vagaries of world markets for commodities during the first decades of the 20th century, many developing countries turned to inward-oriented policies, with the objective, among others, of reducing external vulnerability. Different studies during the 1970s and 1980s that looked at the performance of the closed

economies of several developing countries concluded, paradoxically, that they ended being more prone to drastic balance of payment crises, while those following outward-orientation policies shown better results not only in terms of efficiency but also flexibility and adaptability to external events (Balassa, 1986). Still, since growth in developing countries appears to be more volatile lately, this issue requires a careful consideration: as mentioned before, macroeconomic shocks from industrialized countries may play a larger role in this volatility than policy changes in developing countries.

Another strand of this debate looked at the relationship between the degree of openness and democracy and the rule of law. It was argued that closed countries, where the state holds substantial power over the fate of firms, fortunes, and people tended to be captured by elites and vested interests, undermining political institutions and the rule of law and leading to corruption and waste of resources (Krueger, 1974; Baghwati, 1982; Hirschman, 1982). On the other hand, opponents of globalization argue that opening the economies increase the power of multinational corporations. In any case, the process of liberalization and privatization also created opportunities for the capture of rents by well-positioned private actors, mostly of local origin (see Schamis, 1999; and Hellman, Jones, and Kaufmann, 2000). The expectation, however, is that the trends towards the expansion of democracy may increasingly put limits to cronyism and corruption.

The other issue already mentioned is whether a country's openness would lead to tax erosion and loss of public resources. A study of OECD countries (Tanzi, 2001) shows that tax collection did not decline with more openness: total tax burden of the member countries of the Organization for Economic Cooperation and Development (OECD) has increased substantially over the past three decades, from 26 percent of GDP on average in 1965 to 37 percent of GDP in 1997. However, the study lists different issues that can lead to future erosion of the tax base: electronic commerce; electronic money; more trade within multinational corporations increasing the problem of "transfer prices."[8] The study also cites offshore financial centers and tax havens; derivatives and hedge funds; and the growing inability or, often, unwillingness of countries to tax financial capital and the

[8] This issue refers to the possibility of declaring prices for transactions within the company, but across national borders, in a way that hides profits and/or allocates them to the lowest tax jurisdiction.

incomes of persons with highly tradable skills. On the other hand, advances in computers and telecommunications may provide the means for better cooperation and coordination among tax authorities in different countries, even leading to the more distant, and probably utopian, alternative of a world tax organization to develop and coordinate solutions (Tanzi, 2001).

For developing countries, trade liberalization may reduce government tax revenues from trade, although it depends on the form it takes: if trade liberalization represents a move from quantitative barriers to tariffs (or from prohibitive tariffs with no trade to lower tariffs that allow some trade), revenues may increase. Opening of capital accounts also may limit the range of applicable macroeconomic policies. On the positive side, it may reduce the ability of governments to undertake unsustainable expenditure programs that inevitably lead to macroeconomic crises, which usually have more negative and irreversible effects on the poor. On the negative side, it has been argued that the discipline imposed by the bond market, or the policies advocated by international organizations as part of financial rescue packages, may lead to overly restrictive fiscal policies in developing countries, creating deflationary pressures in their economies and curtailing needed investments in human capital and infrastructure. Others have raised the point that changes in financial markets have led governments to follow pro-cyclical fiscal policies, exacerbating the phases of boom and bust. Those are empirical points that need further analysis.

In summary, it seems that globalization has been associated to more open and democratic societies, but at the same time, it may be increasing the challenge of answering the demands of the electorate within a purely national setting. This suggests the need to look at global governance issues.

C. International perspectives [9]

Some have argued that to cope with global challenges, the world needs to deepen the process of integration with better institutions of global governance. The limits of the

[9] This is based on Diaz-Bonilla and Robinson, 2001

nation state were pointed out to in the 1970s (see Keohane and Nye, 1977; Cooper, 1980) regarding both the military and economic autonomy of governments. What was then called interdependence seemed to require more coordinated efforts of collective action among nations to achieve the desired goals.

Others, however, have resisted the evolution of international legal frameworks and institutions, which they see as limiting the autonomy of the nation-state. The debate is whether these international regimes help improve public policies by facilitating cooperation among countries, or do they impinge upon sovereignty and the functioning of democracies in ways that harm the attainment of those societal objectives.

The current discussion echoes much of the same arguments at the end of WWII. Having experienced the horror of two global wars in less than half a century, the United States, its allies and, in fact, the whole world, had to face the pressing task of establishing an international political, military and economic architecture to prevent similar tragedies, and to facilitate global economic prosperity. [10] The vision was that of a peaceful and prosperous world built upon a set of politico-military alliances and an increasingly integrated world economy in which freer trade and capital flows would expand, supported by multilateral cooperation among nations conducted through international organizations.

This vision was not without opposition in the US and the UK (the main architects of the post-war international system), and elsewhere as well. Just looking at economic issues, there were different criticisms. Strong laissez-faire advocates opposed those organizations as interferences in the operation of free markets. On the other side of the spectrum, economic nationalists wanted protectionist policies. The left did not like the vision of an increasingly integrated world economy either. In the Leninist tradition, the expansion of capitalism worldwide could only lead to crises and war among the imperialist powers. In this view, to believe that world economic integration could proceed simply by establishing some multilateral institutions to alleviate the problems markets

[10] The political and military components were based on different alliances and organizations, like NATO in Europe. The economic element was to be anchored on three main institutions: the International Bank for Reconstruction and Development (better known later as the World Bank), the International Monetary Fund (IMF) and the International Trade Organization (ITO). The most complete discussion of the political, diplomatic and technical developments of this process is Richard Gardner, 1980.

create or to manage the conflicts among competing economic powers was considered, at best, naïve. In addition, a world of capital mobility and freer trade flows conflicted with the then more prevalent notion of a centrally planned economy as the only way to achieve equity and efficiency.

On the political side of the objections, nationalists considered that rather than furthering international integration and then setting up global institutions to manage the expanded interaction, it was better to cut or at least reduce foreign ties. These groups, with a stronger tradition in the US but also present in other industrialized countries, would advocate isolationism as the general rule, and unilateralism (i.e. the right to intervene alone in foreign affairs), when deemed appropriate. They were opposed to using taxpayers' money for international organizations and foreign aid, and were always fretting about possible losses of sovereignty. Outside the US, there were also different voices criticizing an international system that was perceived as an instrument of political and economic domination by the United States, the only superpower emerging from the rubbles of WWII (Diaz-Bonilla, 2000).

Most of the arguments discussed about half a century ago, have reappeared in the current debates on globalization. At the same time, societies are changing around the world, increasing demands for more democratic forms of government, and greater devolution of the management of public resources to local governments and organizations. The nature of many public goods is changing, as are the options for supplying them. To meet the changing needs of rural people, particularly the poor, the roles of the public and private sectors and of civil society in providing many public goods and services must be made more cost-effective and efficient. Global problems also require global approaches and institutions. Isolationism and unilateralism will not solve them.

V. GLOBALIZATION AND HEALTH SYSTEMS

A. Conceptual framework and differentiated conditions

The previous section focused on the impact of globalization on growth and poverty, on one hand, and on governance and democracy, on the other, to provide the general context for the analysis of health issues. This section moves to the relationship between globalization and health systems. WHO (2000a) defines health systems as "comprising all the organizations, institutions and resources that are devoted to health related actions. A health action is defined as any effort, whether in personal health care, public health services or through intersectoral initiatives, whose primary purpose is to improve health." The objectives of the health system (WHO, 2000a; Hsiao, 2000) should include:

(a) An optimal level of health status distributed equitably among the population; indicators should go beyond averages and consider the distribution of health outcomes that differ significantly between rich and poor (Gwatkin and Guillot, 1999);

(b) An adequate degree of risk-protection for all, acknowledging that spending on health care strains household and government budgets and that the costs of serious illness are an important cause of poverty in many developing countries;

(c) The highest attainable level of user satisfaction; and

(d) Efficiency in the use of the resources.

Table 6 shows the different organization of health services depending on four income categories (poor, low income, middle income, and high income), and the percentage of population in each segment (Hsiao, 2000). As mentioned before, there are clear differences among different types of countries in terms of the health problems, how the health systems are organized, and the main globalization issues.

Within the general framework (Chart 1), Chart 2 focuses on the various health systems. At a general level, globalization may influence policy, regulatory, and institutional issues that affect the health inputs, services, and outputs. It is important to also consider the impact of globalization on the quantity and quality of human endowments, health-related capital, infrastructure and equipment, medicines, and other

inputs that may be available by the health services. Another crucial aspect is the link between globalization and the financing and organization of the public and private health services, and related infrastructure, which together define the quantity, quality, and coverage (distribution) of their outputs. Health-related infrastructure, including sanitation, potable water, quality of housing, roads and communications, are important contributors to the overall health status of a population, both directly (as in the case of sanitation) or indirectly (by facilitating access to health services such as roads and telephones).

Countries differ significantly in the way they balance public and private sector participation in the financing, insuring, and delivering of health services and the funding and construction of health-related infrastructure. This balance may change with the level of per capita incomes, but even at the same levels of economic development traditions and social values may influence this balance. The internationalization of economies may also alter the balance of public and private sector functions:

- The international migration of health workers and brain drain of health practitioners;
- The expansion of trade in health equipment and inputs, as a result of the trade liberalization, such as reduction in tariffs;
- The internationalization of health insurance and services related to the negotiations on services under the WTO;
- The implementation of patents for medicines and other changes in Intellectual Property Rights as agreed in the TRIPs agreement of the WTO;
- In addition, other WTO issues such as government procurement (WHO, 2001b).

B. Globalization and changes in the nature of the health burden and health markets

Countries differ significantly in the health problems they face and in the nature of their health markets and globalization may affect both aspects. As mentioned before, the world health problem has been characterized as one of fighting the "double burden" of disease (WHO, 1999a): the "old burden" or unfinished agenda of infectious diseases,

undernutrition, and complications of childbirth, along with the "new burden" or emerging agenda of non-communicable diseases and injuries.

The higher, but also uneven, economic growth that the world has experienced during the last wave of globalization, has contributed to the emergence of those differentiated cluster of health problems. Developed countries contend mostly with the new burden because higher incomes have allowed them to transcend the more basic health problems. Many middle-income developing countries confront both burdens, in different proportions, depending on their average income levels and internal distribution. While for the poorest countries the old burden of nutrition and communicable diseases will continue to matter most in the next years, it now also includes HIV/AIDS, which is shaping as the deadliest menace.[11]

Different income growth and levels not only define distinct health problems, they also lead to the formation of different markets for health services. The varied ways in which the double burden may appear in a society force difficult decisions about the allocation of scarce resources, and are a source of distributive conflict across rich and poor households in those countries.

With increases in incomes in developing countries, the demand for private health services, including health insurance, goes up. This demand interacts with constraints on the supply of public health services in those countries, where governments face higher demands on limited resources, due to population increases. The public sector has to attend public health issues such as immunizations, controls of infectious diseases and vectors, health education, water and food safety, and basic health services with those limited funds, leaving mostly unattended the demand for higher-level individual medical care. This unmet private demand, backed by higher incomes, eventually creates a market for private health services leading to the development of a dual market structure and to escalating costs, all of which may affect negatively the poor (Sbarbaro, 2000). This tension between public and private health services may exist irrespective of whether the

[11] The 10 main diseases identified by WHO as having the greatest impact on the poor include malaria, HIV/AIDS, tuberculosis, acute respiratory infections, diarrheal diseases, vaccine-preventable illness, mother and infant care, tropical parasites and helminthic infections, nutritional deficiencies, and tobacco-related illnesses.

system is closed to, or allows the presence of, foreign providers of health services. This tension mostly depends on the nature of the "double burden" created by the epidemiological transition and on the profile of income growth and distribution in those countries. The best human, financial, and technological resources may end up absorbed by the high-end segment catering to a healthier and most affluent clientele, while the poor and the greater health risks may be excluded. The public sector may get burdened with the most difficult cases, in terms of health and incomes, straining further public budgets that still have to attend nation-wide health problems and reinforcing the image of low-quality public services, eroding support for the public health system (Sbarbaro, 2000).

The dynamics of differentiated income growth has an international dimension as well, with richer countries competing for health care resources, including personnel, in what it is increasingly becoming a global market for health services. Consequently, health discussions have focused, for example, on how to finance research for the diseases of poverty. Whether to segment international markets for differential pricing of drugs and if so how; and how to prevent the brain drain of health professionals and staff, such as qualified nurses, who migrate from poorer to richer countries where the aging of the population and the availability of resources are expanding the demand for health services.

VI. GLOBALIZATION, FOOD SECURITY, AND NUTRITION [12]

A. Background

We now focus on nutrition and food security, a factor, which links directly globalization changes and health outcomes.

Globally, nutrition has improved in recent decades, but malnutrition –including deficiencies in micronutrients- is still widespread. Of the world's six billion people, about 800 million do not have enough to eat. Poorer populations usually consume few animal products, so their intakes of vitamin A, iron, zinc, riboflavin, vitamin B-12, vitamin B-6,

[12] For a general discussion of nutrition and globalization issues see Pinstrup-Andersen and Babinard (2000, 2001).

and calcium are inadequate (Flores and Gillespie, 2001). Poor diets may also contain few fruits and a limited variety of vegetables and, therefore, low amounts of B-carotene, folic acid, and vitamin C. While the global extent of these micronutrient deficiencies remains unknown, it has been estimated that about two billion people suffer from anemia, mainly due to iron deficiency, and nine out of ten anemia sufferers live in developing countries. For pregnant women, anemia contributes to 20% of all maternal deaths. In many developing countries, iron deficiency anemia is aggravated by worm infections and malaria. For children, health consequences include premature birth, low birth weight, infections and elevated risk of death. Poor nutrition during foetal life impairs growth, and physical and cognitive developments, resulting in lowered school performance. Low birth weight at term affects 21 percent of the newborns in South Central Asia, and is also common in Middle and Western Africa, where 15 percent and 11 percent of infants are born undernourished. Research shows that about 33 percent of preschool children in the developing world, or 182 million children under the age of five, are stunted (Pinstrup-Andersen, Pandya-Lorch, and Rosegrant 1999). The highest levels of stunting are estimated for Eastern Africa, where on average 48 percent of preschool children are affected, up from 47 percent ten years ago. This trend is further amplified by the high population growth rates in the region, leading to an increasing number of stunted children each year (ACC/SCN, 2000). Stunting is widespread in South Central Asia where the estimated prevalence for the region as a whole is 44 percent.

Under-nutrition and related deficiencies are important components of health problems in developing countries, and particularly among the poor. Nutritional deficiencies and diarrheal diseases represent above 15% of the DALYs (Disability-adjusted life year)[13] for the poorest 20% of the world population, while maternal and perinatal conditions add another 13%. This compares with 2.1% and 3.3%, respectively for the 20% richest percent of the world population (Gwatkin and Guillot, 1999).

Reducing hunger and malnutrition will continue to remain a challenge. Results from IFPRI's global food model, the International Model for Policy Analysis of Commodities

[13] Gillespie and Haddad (2001) defines DALY as "A measure of the consequence of a particular condition of ill health or malnutrition, which combines years of life lost to premature death with years lived with a disability of specified severity and duration. One DALY is thus one lost year of healthy life."

and Trade (IMPACT) projects that food and malnutrition will persist in 2020 and beyond. Under the most likely scenario IMPACT projects that 135 million children under five years of age will be malnourished in 2020 (Pinstrup-Andersen, Rosegrant, and Pandya-Lorch 1999). This represents a decline of only 15 percent from 160 million in 1995. Hence, one out of every four children in developing countries will still be malnourished in 2020 compared with every third child in 1995. Child malnutrition is expected to decline in all major developing regions except Sub-Saharan Africa, where the number of malnourished children is forecast to increase by about 30 percent to reach 40 million by 2020. In South Asia, despite a reduction in the number of malnourished children by 18 million, as many as two out of five children will still be malnourished in 2020. With more than 77 percent of the developing world's malnourished children in 2020, up from 70 percent in 1995, Sub-Saharan Africa and South Asia will remain "hot spots" of child malnutrition and food insecurity. Many of the countries in these two regions are among the least-developed countries in the world; they will require special assistance to avert widespread hunger and malnutrition in the years to come.

The nutritional and health status of a person are interdependent. Poor health reduces appetite and inhibits the absorption of nutrients in food, even if the available quantity would have been enough otherwise. Malnutrition weakens the body and makes it more susceptible to a variety of diseases. In turn, both, the nutritional and health status, are influenced by three underlying determinants, which operate mostly at the household level: the degree of food security, the level and quality of care-providing activities (which usually depend on women's status), and the nature of the health environment, including access to health services (Smith and Haddad, 2000).

Food security and nutrition issues can be analyzed at different levels: global, national, regional, household, and individual. Since the World Food Conference of 1974, the focus has moved from the global and national perspectives to the household and individual levels, where food deficiencies emerge in a concrete way. At the same time it was recognized that the main problem of food security is lack of access due to poverty rather than any aggregate shortage of food supplies (Sen, 1981). The 1996 World Food Summit summarized current views when stated that "food security exists when all people, at all

times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life". Yet, availability and access are only preconditions for adequate utilization of food—necessary but not sufficient. The substantive issue of "nutrition insecurity" at the individual level requires "deeper" measures of malnutrition, such as the percentage of child malnutrition based on anthropometrical measures (Smith, 1998). In addition to household food access, nutrition insecurity at the individual level requires, consideration of other determinants. Among them, the role of women (e.g., education, household gender roles, and their status in society) appears crucial (see for instance, Smith and Haddad, 2000), along with the general public health environment, democracy and good governance, and peace.

Globalization can interact with food security and nutrition at any of those different levels and can play either a positive or a negative role in reducing malnutrition and hunger. For developing countries and the poor, their food intake hinges increasingly on the ebb and flow of the world economy and on the response of their own local economies to it (Timmer, Falcon, and Pearson, 1983).

B. Food security and globalization

Food security, on average, appears to have improved over the past four decades. Total food availability for all developing countries, measured in daily calories and grams of proteins per capita, was more than 30 percent higher in the second half of the 1990s compared to the 1960s, even though the population in the developing countries more than doubled from 2.6 billion to 5.7 billion persons during that time (Diaz-Bonilla and Thomas, 2001). The number of malnourished children under five (a better indicator of food problems than average food availability, because it captures directly income distribution effects) declined between 1970 and 1997 by about 37 million, and the incidence of malnutrition dropped from 46 percent to 31 percent in the same period (Smith and Haddad, 2000). However, although food security has improved in general, some regions and countries are at risk, and some have become more food insecure. Average food availability is still low for regions such as sub-Saharan Africa (SSA) and

for the least-developed countries (LDCs). More distressing, the number of malnourished children under the age of five has actually increased in Sub-Saharan Africa (SSA) from 1970 to 1997 by 14 million, and the incidence of malnutrition is still very high there and in South Asia (Smith and Haddad, 2000).

The links between globalization (and in particular trade liberalization, one of the most visible components), and food security, continue to be hotly debated, and the discussion covers a whole range of opinions, from those who argue that trade causes hunger (Madeley, 2000) to others who believe a complete liberalization of world agricultural trade is the best possible approach (Griswold, 1999). In the context of the Word Trade Organization (WTO), the debate centers on whether the Agreement on Agriculture (AoA) has helped or hindered important policy objectives such as elimination of poverty and hunger (as cause and consequence of food insecurity). Furthermore, will further negotiations improve upon the existing text of the AoA or further compromise the attainment of those objectives in poor countries?

The combination of domestic support, market protection, and export subsidies in industrialized countries has reduced agricultural market opportunities for developing countries, including through unfair competition of subsidized production from rich countries in the domestic markets of developing countries. This is specially important for poor developing countries where 2/3 of the population live in rural areas, agriculture generates about 1/4 of the GDP, and a substantial percentage of employment and exports depend on agriculture (World Bank, 2001). Different studies have shown that an agricultural-led growth strategy may have larger dynamic multipliers for the rest of the economy than other alternatives in poor developing countries (Delgado et al., 1998). A key concern for developing countries, therefore, is the elimination of subsidies and protectionism in industrialized countries, particularly the practice of export subsidies.

Another issue is agricultural trade liberalization in developing countries. During the current WTO agricultural negotiations (which began in March 2000), several developing countries indicated concerns that further trade liberalization could create problems for their large agricultural populations, where poverty is concentrated. Poor countries have argued for a slower pace in reducing tariffs (or maintaining their current levels) on the

understandable premise that industrialized countries should first eliminate their higher levels of protection and subsidization. The aim is also to avoid any sudden negative impact on poor producers, whose vulnerable livelihoods may be irreparably damaged by drastic shocks (for instance, by forcing poor families to sell productive assets or to take children from school). This policy debate reflects a permanent tension between maintaining high prices for producers versus assuring low prices for consumers. Out of concern for small farmers, some have argued that developing countries should move even further towards protection of the agricultural sector. However, considering that poor households may spend as much as 50 percent of their income on food, these recommendations could have a negative impact on the poverty and food security of not only the increasing number of poor urban households and landless rural workers, but also poor small farmers, who tend to be net buyers of food. Trade protection for food products is equivalent to a very regressive implicit tax on food consumption, mostly captured by large agricultural producers, with a greater impact on poor consumers. Trade protection for any sector usually implies also negative employment and production effects in other sectors, and the general effect of widespread trade protection is a reduction in exports. The best approach for developing countries should be to eliminate biases against the agricultural sector in the general policy framework, and to increase investments in human capital, property rights, management of land and water, technology, infrastructure, nonagricultural rural enterprises, organizations of small farmers, and other forms of expansion of social capital and political participation for the poor and vulnerable. At the same time, developing countries may legitimately insist that industrialized countries reduce their higher levels of subsidization and protection, and ask for policy instruments that allow the development of their rural sector and to protect the livelihoods of the rural poor from import shocks that could cause irreparable damage. Increased food and nutrition security for developing countries requires both, tackling agricultural subsidies and protectionism in developed countries, and increasing international funding to support rural development, food security, and rural poverty alleviation programs in developing countries. Agricultural trade negotiations can be linked to increased funding by

international and bilateral organizations for agricultural and rural development, food security and rural poverty alleviation (Diaz-Bonilla and Thomas, 2001).

C. New challenges in food safety

Compared to the broader concepts of food security and nutrition, food safety refers to a more focused concern about the avoidance of food-borne diseases, related to problems such as microbial pathogens, zoonotic diseases, parasites, adulterants, mycotoxins, antibiotic and pesticide residues, and heavy metals. Food safety has always been a problem in developing countries, where almost 2 million children die every year from diarrhea, most of this caused by microbiologically contaminated food and water. In industrialized countries, on the other hand, the ratio of population dying from food-borne disease every year is very low, reaching about 20 per million people (WHO, 2000a). Yet food safety is growing as a concern in industrialized countries, particularly in Europe, where episodes of food poisoning associated with important changes in the distribution and use of farm products have already triggered health fears. Animal foods are seen as a particular problem, with for example, *bovine spongiform encephalopathy* (BSE), Salmonella, and listeria becoming increasing threats to the food systems in many countries.

With globalization, food products are moving more rapidly than ever before and are now produced, handled, processed, and packaged in a number of complex ways, using a variety of techniques. A single source of food from a developed or developing country may be used in over 100 different products, which in turn are sold thousands of kilometers away (ACC/SCN 2000a; ACC/SCN 2000b). As consumers become more aware of the international nature of trade in food and farm products, a reaction is to close the links with the rest of the world and "relocalize" production, in some cases calling for a return to primitive agrarian communities that consume only what they can locally grow (Hines, 2000).

However, a stronger trend is that as globalization proceeds, food safety standards become uniform across countries. Otherwise, different standards of food safety between importers and exporters may lead to concerns about the safety of imported food,

influencing public perceptions and policies regarding the production, processing, transportation, storage, international trade, and preparation of food products (Pinstrup-Andersen, 1999). These trends may have important consequences for developing countries and the poor. Safety concerns and efforts to combat these epidemics may further restrict market access for products from developing countries. Exports of food commodities from developing countries will be exposed to new and more demanding food safety standards partly through multilateral changes in the Codex Alimentarius, which is designed to ensure the quality and safety of the world's food supply, and partly through unilateral demands by importers (Pinstrup-Andersen, 1999). As a result, positive effects of globalization on increasing exports by developing countries may be hindered, either because reasonable standards cannot be met, or because food safety will be used as nontariff barriers by importing countries.

It is likely also that changing attitudes and new legislation for food safety in developed countries will spill over into developing countries. In developing countries, safety concerns are not as prominent and farmers may not be able to meet the standards because they lack the adequate institutions and infrastructure. In addition, imposing these standards on developing countries could result in higher food prices for food consumers. For groups already at risk nutritionally, elevating these standards would mean a trade-off between food safety and food security.

More than the impact on developing countries and the poor of new food safety regulations, the more vocal debate about globalization in this context has centered on whether the rules agreed by member countries in the WTO may compromise the desired food safety standards in industrialized countries. A commonly heard argument is that WTO rules force a "race to the bottom" also in the case of food safety standards. In fact, however, WTO member countries, and before GATT contracting parties, have ample room to pursue their desired levels of food safety standards. The general principle is defined in GATT Article XX that allows the imposition of measures that may limit free trade for several reasons, including those "necessary to protect human, animal or plant life or health". This exemption is further elaborated in the Sanitary and Phytosanitary Agreement (SPS) of the WTO. The application of those measures requires compliance

with the usual GATT/WTO obligations regarding the non-discrimination between domestic and foreign producers, or between different countries. The SPS also calls for the use of scientific evidence in the definition and assessment of risks, and the application of international standards when they exist and are consistent with the desired level of sanitary and phytosanitary protection. The consequences of the present WTO obligations can be illustrated with the following examples. A country may want stricter limits for residues of chemical product "X" than those established by the Codex Alimentarius (the main body for international food standards) . because of its impact on infants. Nothing under the present WTO regime restricts the use of such higher levels of protection. The country only requires a study showing that the residue levels applied are in fact based on the level of protection desired, i.e. based on the tolerance of infants and children under a certain age.

Another key issue regarding food safety is the precautionary principle. Contrary to common interpretations Article 5, paragraph 7, allows taking provisory measures in cases where "relevant scientific evidence is insufficient". In the case "Measures Affecting Agricultural Products" presented by the US against Japan, the article, and further interpretation by the panels require four cumulative elements to be present for a provisional measure to be consistent with Article 5.7: 1) that the relevant scientific evidence is insufficient; 2) that the provisory measure is adopted "on the basis of available pertinent information;" 3) that the WTO member invoking Art. 5. 7 is seeking to obtain the additional information necessary for a more objective assessment of risk; and 4) that the WTO member reviews the sanitary or phytosanitary measure accordingly, within a reasonable period of time.[14]

In conclusion, the analysis of the WTO legal texts shows that the problem for food safety at the world level is not trade or trade-rules. Rather the global food system need to develop adequate standards that apply across countries, and that does not discriminate against low-income developing countries and the poor in general. In May 2000, the World Health Assembly passed a food safety resolution to develop sustainable, integrated food safety systems for the reduction of health risk along the entire food chain.

[14] See Erik Wijkström (2000).

Most developing countries will need technical and financial assistance to develop their own food safety systems. In particular, compliance with the SPS Agreement in the WTO should be approached as part of the improvements needed to protect the local population from food-borne diseases and not mainly as a way to comply with trade regulations. Similarly, tackling animal and plant health problems must be seen as part of SPS requirements to increase production and productivity in developing countries. Also, a strong SPS framework is important for developing countries because a competitive export position requires establishing and maintaining the sanitary and quality requirements for their products. Consequently, developing countries should insist on receiving the technical and financial assistance considered in the SPS Agreement (Articles 29 and 30) to build and improve their own systems of quality control and health and safety standards. These systems should be centered on their own needs to improve health and sanitary domestic conditions, and the regulatory burdens of compliance should to the very least not represent shares of the GDP larger than those of industrialized countries (Diaz-Bonilla, Robinson, Thomas, and Yanoma, 2002).

D. Globalization and shifts in diets

Despite the opportunities created for nutrition and food security by globalization, several aspects of this phenomenon may also worsen human nutrition and further aggravate health in developing countries. Increasing trade could result in the acceleration of a major shift in the structure of diets, resulting in a growing epidemic of the so-called "diseases of affluence." Once restricted to the rich industrialized nations, high fat diets and Western eating habits are now increasingly entering the diet of low-income countries and fostering new nutrition problems. Traditional low-cost diets, rich in fiber and grain, are likely to be replaced by high-cost diets that include greater consumption of sugars, oils, and animal fats, giving rise to increasing rates of overweight, obesity, and associated chronic diseases that affect children and adults alike (Drewnowski and Popkin, 1997). Undernutrition and overnutrition already coexist in many countries, creating a double nutritional burden, parallel to the similar double burden of disease already mentioned: patterns of disease are now shifting away from infectious and nutrient deficiency diseases

toward higher rates of coronary heart disease and some types of cancer. Apparently, the incidence of obesity is increasing in many developing regions, even in countries where hunger persists (Gardner and Halweil, 2000).

The nutrition and health communities must respond to problems of unhealthy diets and overnutrition. While the stigma against obesity is absent in most developing countries, people affected by these trends will be hurt in the long-run if measures to address these problems are not taken. Regulations must assure truth-in-advertising particularly regarding processed foods with high sugar and fat content. Other interventions should foster -through cost-effective nutrition, education programs, and dissemination strategies- a balanced and low cost diet that will limit the risks of obesity and coronary diseases.

The globalization of information technology provides several opportunities for accelerating the reduction in malnutrition. A vast amount of food and nutrition information and data is already available to anyone via access to the Internet. Such information can be fairly easily accessed to find out about new nutrition initiatives, determine the latest thinking on existing nutrition problems, obtain best practices, and map food production and undernutrition by country and region within country. The Internet also provides a forum for debate on issues that require discussion (ACC/SCN 2000a). Despite its numerous benefits, improved access to information can likewise have negative effects on efforts to eliminate malnutrition. Misleading information from advertising or poor training about breastfeeding or HIV prevention, for example, could prove fatal. The information would be imbalanced if the only people generating it are removed from direct experience with poverty and malnutrition.

VII. GLOBALIZATION AND OTHER HEALTH-RELATED DEVELOPMENTS

The topics addressed in this section cannot easily be classified elsewhere in this paper. Yet, they have important implications for health outcomes, and clear links to the globalization process.

A. Globalization, gender and health

Gender issues are at the core of health problems, particularly among the poor. Maternal and perinatal conditions represent about 13 percent of total DALY losses for the poorest 20 percent of the world population and only about 3 percent for the 20 percent richest of the world population (Gwatkin and Guillot, 1999). The good health of women is key to the health status of families, as women are generally the main care providers for children and the elderly. Health problems may occur at different stages of the life cycle of individuals but they usually begin at the mother/child level and then persist throughout life. Inadequate care for mothers and children -which is usually linked to the role and status of women- insufficient health services, and an unhealthy environment are usually the immediate reasons for health and nutritional problems (see for instance Smith and Haddad, 2000).

Considering gender issues is more than addressing the current problems of a vulnerable group. At a general level, world poverty has a women face (UNDP 1995; ILO 1995). Indeed, it has been shown that restricted opportunities and discrimination against women can reduce economic growth for the whole society and have long term impact for future development -to the extent that the task of rearing children, which determines human capital in the next generation, falls largely on women (World Bank, 2001).

Globalization can have an impact on women's current status and future opportunities through different channels, economic and non-economic. One of the most obvious is trade liberalization. Using two country case studies, Fontana et al. (1998) concluded that trade liberalization had different effects on women and men as well as across different groups of women, depending on several factors and preconditions. Some of these factors included gendered patterns of rights over resources, female labor force participation rates, education levels and gaps by gender, patterns of labor market discrimination and segregation, and in general, the socio-cultural environments. They found differentiated results in industry, agriculture, and services.

For instance, in some parts of the developing world (particularly Asia but also in Latin America and the Caribbean), the expansion of export production has been associated with the feminization of the industrial labor force, at least in its initial stages. Women have been drawn into paid work for the first time in export industries, with positive implications for their well-being and autonomy, although controversy remains about the current terms and conditions of female employment and the future of these employment opportunities. The impact of trade expansion on women's economic activity has wider human resource development as well as gender benefits. It gives women greater control of income, and as women tend to have more family oriented expenditure patterns than men, child nutritional status and other human resource development indicators may be expected to rise. In particular, improvement in women's demonstrated income-earning capability strengthens the incentive for investment in the human capital of girls, with all the wider benefits that the education of girls brings. On the other hand women may incur increase health hazard from their job and have less time to care for their children.

The implications of trade liberalization in agriculture and services are less clear. Surveying Sub-Saharan Africa, Fontana et al. (1998) found that women do not often benefit directly from increased export production of traditional crops since their property rights in land are limited and smallholder export production is based on unpaid family labor. They argue that the situation may be more favorable to women in non-traditional agricultural exports (such as fruits, vegetables, and floriculture), where, in some countries, they appear to be participating both as workers and as small producers. Paolisso, Hallman, Haddad, and Regmi (2001) looked at the issue of women's time for care, in the case of increased production and exports of fruits and vegetables in rural Nepal. They find that for households with more than one preschooler (more than 60% of the sample), participation in the production of F&V did not seem to affect women's time for the care of children under 5 years. For the rest of the households with one preschooler, the trade-offs seem more important, although leisure time increased in men and did not decrease in women, which would show some scope for protecting childcare time by reducing time to leisure. They conclude that in the medium run, benefits may

accrue to unborn preschoolers if participation in production of F&V empowers women and offers them opportunities to earn and retain income without leaving the community. This may have far-reaching impacts on the ability of women to exert their own preferences in a wide range of activities, including an increased allocation of resources to children. But they also indicate that the current data set does not permit a longer-run analysis of those impacts.

Finally, the lack of information within the highly heterogeneous service sectors, both formal and informal, does not allow many conclusions about how globalization may be affecting women (Fontana et al., 1998).

In general, it seems that, as is the case with other components and dimensions of globalization, much depends on the interaction between external factors and domestic conditions. In this respect, it may be more important to ensure that all discriminations against women in property rights, family law, employment opportunities, access to education and health services, political participation, and, in general societal status, are eliminated.

B. War and violence

After a steady increase in war and violence since the 1950s, the aggregate level of conflict began to decline in the 1990s following the end of the Cold War. These trends differ by regions, with Sub-Saharan Africa maintaining high levels of conflict during the 1990s (Gurr, Marshall, and Khosla, 2000). While fostering a trend towards greater democratization and decentralization in most former Soviet Republics, the end of the Cold War led to the continuation of old social and ethnic divisions in much of Africa; little international efforts were made to promote a peaceful transition after the demise of communism (Gurr, Marshall, Khosla, 2000).

Conflicts not only cause deaths but have also other painful results.

(a) Increases in orphans, people incapacitated to work, refugees and displaced population;

(b) Destruction of infrastructure;

(c) Increases in food insecurity and malnutrition in the medium term because agricultural land was rendered useless due to land mines; and

(d) Exacerbation of health problems, such as the spread of HIV/AIDS and different infectious problems.

Direct DALY losses from war and violence amount to about 2.6 percent of all total causes among the poorest 20 percent of the world population, but the indirect losses are far greater (Gwatkin and Guillot, 1999).

The contemporary conditions in many of the countries suffering war and violence cannot be separated from the ebb and flow of the empire-building activities of European countries during the previous globalization wave and, more recently, from the expansion and sudden end of the Cold War during the current phase of globalization. Although the world will never know how regions would have developed in the absence of the colonial experience and the Cold War, it is clear that the international community should share in the responsibility and resolution of violence and war occurring in many countries.

C. International spread of disease

Increases in international travel, tourism, and food trade mean that toxic products, both legal and illegal, reach wider markets and that new and resurgent disease-producing organisms can be transported rapidly from one continent to another. During the 1990s, emerging and re-emerging infectious diseases have become a major public health concern. Some 30 new and highly infectious diseases have been recorded in the last 20 years (WHO, 1997). Through contact in airports and air travel, which has skyrocketed in the last forty years, from two million a year in 1950 to over 1.4 billion today, airborne diseases such as pneumonic plague, influenza and TB can easily be spread (Heyman, 2001). HIV/AIDS has also spread by sexual tourism and, in Sub-Saharan Africa, by migrant workers and truck drivers. Due to important migration flows caused by wars and civil strife, the number of refugees and displaced people has increased nine-fold over the past two decades. In 1996 as many as 50 million people worldwide, or 1 percent of the world's population, had been uprooted from their homes. Refugees and displaced persons living in overcrowded, unsanitary conditions are at risk of outbreaks of cholera and other

waterborne diseases (Heyman, 2001). Insects and other animal vectors can also move globally carried by trade in goods (as the Asian tiger mosquito appears to enter the US in 1985 through a shipment of used tires from Asia), by the wind, by birds, or by ocean currents (Silbergeld, 2001).

The growing resistance of microbes to drugs once highly effective against infections undermines today's efforts to control the spread of infectious diseases. At the same time, new drugs are being developed at a slower pace partly because of increased cost and a decline in the resources available to fund the surveillance, diagnosis, and control systems of communicable diseases thought to have been eradicated (WHO, 1997 and 2000a).

Although antimicrobial resistance affects industrialized and developing countries alike, its impact is far greater in developing countries (WHO, 1999b). However, effective, low-cost interventions are available (WHO, 1999b): DOTS (Directly Observed Treatment, Short-course) for TB; insecticide impregnated bed nets for malaria; prevention strategies for HIV/AIDS; Integrated Management of Childhood Illnesses (IMCI) which can help in the fight against pneumonia, diarrhea, malaria, measles, malnutrition and other infectious diseases; and childhood vaccination for diphtheria, whooping cough, tetanus, polio, measles, and BCG. WHO and other international organizations have estimated the additional cost of effective implementation at about US$15 billion over five years (Heymann, 2001).

In response to the risks associated with the international spread of diseases two common, but inadequate, defensive reactions seem to be gaining ground in developed countries (Silbergeld, 2001). In a world perceived as swarming with pathogens, the first approach seeks to kill all germs with the widespread use of antibiotics and antimicrobials in almost everything. The problem, of course, is the clear increase in antibiotic resistance in those pathogens. The second approach consists in cutting any links with affected regions. However, both humanitarian and economic reasons call for the world community to invest the needed funds to solve the "old burden" of the unfinished agenda where it is still present, rather than try to fence it off. The needed interventions to do so require a concerted effort by public, private, and non-governmental organizations, at the national and international levels, possibly linked to other actions such as debt reduction under the

Highly Indebted Poor Countries Initiative and peace efforts in countries affected by war and civil conflict. An integrated effort at the international level should be as important for industrialized countries, which could take advantage of the window of opportunity offered by the fact that the agents of those infectious diseases have not yet developed sufficient resistance to the available medicines. The costs seem modest compared to the benefits and waiting more time may mean that the curative impact of currently available medicines may be eroded or eliminated through increasing drug resistance (Heymann, 2001). Controlling infectious diseases is a global challenge that requires a global response.

D. Global Environment

Environmental threats to human health are numerous. Some of them are more localized, such as lack of access to safe drinking water, inadequate basic sanitation in the household and the community, and indoor air pollution from cooking and heating using inadequate fuels and inadequate solid waste disposal. Others have intermediate reach, including water pollution from populated areas, industry and intensive agriculture; and urban air pollution from motorcars, coal power stations, and industry. Most environmental threats have global implications ("spillover") and can create climate change, stratospheric ozone depletion and transboundary pollution air and water pollution, acid rain, loss of biodiversity, desertification, and deforestation. Poor environmental quality has been calculated to be directly responsible for around 25% of all preventable ill-health in the world today, mostly in the form of diarrhea diseases, acute respiratory infections, malaria, other vector-borne diseases, chronic respiratory diseases and childhood infections.

The development pattern with the extension and intensification of agricultural production systems, the process of industrialization, and the increased utilization of energy sources has important implications for air, water and soil pollution, hazardous wastes and noise, and exposure of agricultural and industrial workers to different health risks, and global warming.

Although uncertainties exist about the magnitudes, rates, and regional patterns of climate change, studies suggest that much of the world will be affected by climate change linked to the greenhouse effect. The mean temperature is likely to rise as well as the incidence of extreme events such as heat spells, droughts, and floods (Rosenzweig and Hillel, 1998). Already El Niño/Southern Oscillation (ENSO), the most important ocean-atmosphere phenomenon to cause global climate variability on inter-annual time scales, is occurring at shorter intervals: the average difference in years between those events between the mid 1950s and the beginning of the 1980s was more than 8 years; since the 1980s the average interval dropped to 5 years.

The number of people killed, injured or made homeless by natural disasters, in part associated to El Niño events, has also increasing. Recently, there has been a growing recognition of the relationship between El Niño and some diseases transmitted by mosquitoes, such as malaria, dengue, and Rift Valley fever (WHO, 2000a). Also in 1997, heavy rain and floods in the Horn of Africa were followed by outbreaks of cholera. In 1998 in Central America, unusual weather patterns, including hurricane Mitch were followed by a resurgence of cholera (WHO, 2001a).

In the future, projected climate change is not expected to affect all countries equally (IPCC, 1996). Global agricultural production appears to be sustainable in aggregate but crop yields and productivity changes will vary considerably across regions, with consequences for food security and nutrition. A majority of countries in Sub-Saharan Africa (already a hot region with large tracts of arid or semi-arid land) appears to be the most vulnerable to temperature increases. Countries in South and Southeast Asia will also be affected by increasing irregularity and intensity in tropical storms, as well as Pacific Island Nations, which will suffer potential losses of costal land due to sea-level increases, saltwater intrusion into water supplies, and increased damages from tropical storms (Rosenzweig and Hillel, 1998). As a consequence of the expected climate changes, the number of people at risk of hunger is also projected to rise in 2060 by between 38 to 300 million under the intermediate projections compared to a baseline without climate change (Rosenzweig and Hillel, 1998).

VIII. SHAPING GLOBALIZATION TO IMPROVE HEALTH

Every 3 seconds, a child dies in the developing world, mostly from diseases that can be prevented. In these countries poverty is the precondition for high child mortality from communicable diseases such as HIV/AIDS, TB, malaria, and other illnesses, which are themselves major causes of poverty. The cost of controlling or reducing the incidence of the most prevalent diseases is far less than the economic toll they take (WHO, 1999a and 2000a).

Concerted international effort to improve health in poor countries, including additional funding, can help poor countries stabilize their economies and reduce poverty. Apart from the humanitarian imperative to share the benefits of modern medicine, there are many practical reasons for industrialized countries to care about health in the developing world. Globalization and international travel make it impossible to insulate people in industrialized from the many diseases affecting the majority of the population on the planet. The health, environmental, and humanitarian problems of developing countries affect rich countries through multiple channels, with potential negative consequences for the economic and physical security of developed nations. For instance, failure to confront looming HIV/AIDS epidemics in China, India, many former Soviet Republics, and Eastern Europe will result in a global health disaster on a scale far beyond the current epidemic that plagues Africa. Tuberculosis and other diseases that thrive in people with immune systems compromised by malnutrition and AIDS are becoming drug resistant to drug making treatment more difficult and more expensive (Heymann, 2001).

Helping developing countries control communicable diseases will add to their economic vitality and political stability, making them better partners for the industrial democracies. It is increasingly clear that investments to improve health can lead to accelerated and more equitable economic development. Recent studies suggest that in countries where 10 to 15 percent of the population is HIV positive, the growth rate of GDP per capita can decline by up to 1 percent per year for decades.

Industrialized countries, which define the global economic, political, and environmental agenda, cannot evade their responsibility to make this world a better place,

especially for the poor. A number of broad policy issues require attention (Diaz-Bonilla, 2001).

Peace, democracy, and good governance. Without diplomatic and political engagement and financial support to peace and reconciliation in developing countries weakened by conflict, fragile transitions towards democracy will founder. Regional security problems and humanitarian crises will recur. Improved codes of conduct and controls governing arms trade are essential, as well as equitable international frameworks to reduce the flow of diamonds, drugs, and other products that generate resources for war. The home countries of multinational corporations must enforce standards that abide by anti-bribery and strongly support anticorruption efforts in developing countries. There must be no safe havens for money laundering.

Trade liberalization in products of interest to developing countries. Low-income countries have faced high trade barriers in industrialized countries against agriculture and textile, which are what developing countries have to sell. The Uruguay Round began to address some of the imbalances that developing countries suffer in international trade, but did not solve them. Efforts to rectify those imbalances should continue. In particular, current negotiations must eliminate the combination of agricultural protectionism and high subsidies in industrialized countries that has limited agricultural growth in the developing world and has weakened food security in vulnerable countries by making it impossible for domestic products to compete.

International capital and aid flows. The last 20 years have witnessed serious international financial crises, several of which arose from policy changes in industrialized countries that affected exchange rates, interest rates, and capital flows, with destabilizing effects on weaker countries. Although developing countries must reduce their vulnerability through better macroeconomic and financial policies, these may not be enough if the macroeconomic policies of main industrialized countries do not foster world financial stability. The poorest countries lack access to international capital markets and need the

resources only available through aid flows. For example, developing countries would benefit from the acceleration and expansion of the Heavily Indebted Poor Country Initiative (HIPC).

Technology and public goods. Expanded research to adapt agricultural technology and biotechnology focused on the needs of poor farmers and consumers in developing countries can contribute to enhanced food security, nutrition, and health. Yet, during the 1990s, growth in investment in agricultural research in and for developing countries stalled, and for some regions even decreased. Industrialized countries can help by fostering a serious debate over environmental, health, ethical, and equity concerns with respect to agricultural biotechnology and agricultural research in general. Most importantly, they can provide scientific and financial support for technology development in poor countries and facilitate creative public-private partnerships. Similar arguments apply to research on health issues that overwhelmingly affect the world's poor. Finally, the proper balance between public and private-sector concerns about intellectual property rights continues to be debated, indicating the need to explore that relationship further.

Environment. Global environmental concerns, from climate change to stressed ecosystems, are complex and addressing them will involve tangible costs. But costs and uncertainties should not obscure their important implications for the food security, health, and nutrition of the world's poor. Deteriorating environmental conditions may fuel the vicious cycles of conflict over resources followed by humanitarian crises,

International health issues. Global surveillance and prevention of infectious diseases must also continue, which requires strengthening the global outbreak alert and response network established by WHO in April 2000 to build national capacity. To track and map food-related diseases industrialized and developing countries must join efforts to help improve data collection efforts and improve the collaboration between ministries of agriculture and ministries of health. They must; establish a comprehensive preventive approach to making the food system safe.

However, better international conditions will not be enough without a framework of solid policies and institutions in developing countries. On the contrary, to fully benefit from trade liberalization, new technology, and other potential benefits of globalization, it is of paramount importance that developing countries have appropriate national policies (WHO, 2000a). These should include stable macroeconomic policies; open, efficient, and competitive markets; good governance and the rule of law; a vibrant civil society; and programs and investments that eliminate discrimination and expand opportunities for women and disadvantaged groups. Pro-poor policies become even more important as the at-risk groups are exposed to the competitive forces, risks, and opportunities brought about by globalization. Internal peace and reconciliation are a prerequisite in conflict-torn countries. With these conditions in place, countries will be able to develop efficient and equitable health systems (WHO, 2001b)

The latest wave of globalization has helped create enormous wealth for the rich countries. The persistence of poverty, hunger and disease amidst affluence is an avoidable moral tragedy and a drag on the world economy. These problems can be addressed, but only if wealthy nations can summon the political will to do so.

References

ACC/SCN (Administrative Committee on Coordination/ Subcommittee on Nutrition of the United Nations). 2000. *Fourth report on the world's nutrition situation*. Geneva: ACC/SCN in collaboration with IFPRI.

Acs, Z. 1997. The Internationalization of Small and Medium-Sized Enterprises: A Policy Perspective. *Small Business Economics* 9 (1) pp. 7-20

Addison, T, and L. Demery. (1989). The Economics of Rural Poverty Alleviation. In *Structural Adjustment & Agriculture: Theory and Practice in Africa and Latin America,* Simon Commander (Ed.). pp. 71 – 89. London: Overseas Development Institute.

Balassa and Associates. 1971. *The structure of protection in developing countries*. Baltimore, Md: The Johns Hopkins University Press.

Balassa B. 1986. Policy Responses to External Shocks in Developing Countries. *American Economic Review*, May.

Barro, R.J. 2000. Inequality and growth in a panel of countries. *Journal of Economic Growth*, March.

Bhagwati, J. 1982. Directly Unproductive Profit Seeking (DUP) Activities. *Journal of Political Economy,* vol. 90.

Boli, John and G. M. Thomas. 2000. World culture in the world polity: a century of international non-governmental organization. In Political Globalization II: Reorganizing the world, *The Globalization Reader*, ed. F. J. Lechner and J. Boli.. Malden, Massachusetts: Blackwell Publishers.

Chen, S. and M. Ravallion. 2000. *How did the world's poorest fare in the 1990s*. World Bank Policy Research Working Paper No. 2409. Washington, D.C.: The World Bank**.**

Cooper, R. 1980. *The Economics of Interdependence.* Council on Foreign Relations Series. Columbia: Columbia University Press.

Crafts, N.. 2000. *Globalization and growth in the twentieth century*. International Monetary Fund (IMF) Working Paper No. WP/00/44. Washington, D.C.: The World Bank

Deininger, K. and L. Squire. 1998. New Ways of Looking at Old Issues. *Journal of Development Economics*, 57: 259-87.

Diamond, L.. 2000. The Globalization of democracy. In Political Globalization II: Reorganizing the world, *The Globalization Reader*, ed. F. J. Lechner and J. Boli.. Malden, Massachusetts: Blackwell Publishers.

Delgado, C.L., J. Hopkins, V.A. Kelly. 1998. *Agricultural growth linkages in Sub-Saharan Africa*. IFPRI Research Report 107. Washington, D.C.: International Food Policy Research Institute.

Díaz-Bonilla, E. 1999. *Southamerican Wheat Markets and MERCOSUR* in J.M.Antle and V.H. Smith (Ed) The Economics of World Wheat Markets. CABI.

_____. 2000. Developing country perspectives on trade negotiating round. In *A Program to End Hunger: Hunger 2000*. Tenth Annual Report on the State of World Hunger. Maryland, USA: Bread for the World Institute.

_____. 2001. Globalization and agriculture: Some facts, interpretations and policy issues. In Globalization and the Rural Environment, ed. O. Solbrig, R. Paarlberg, and F. di Castri. The David Rockefeller Center for Latin American Studies. Cambridge, Massachusetts: Harvard University Press.

Diaz Bonilla, E., and S. Robinson. 2001. Introduction. *In shaping globalization for poverty alleviation and food security*, ed. E. Diaz-Bonilla and S. Robinson. IFPRI 2020 focus 8. Washington, D.C.: International Food Policy Research Institute.

Diaz-Bonilla, E., and M. Thomas. 2001. Trade and food security. *In shaping globalization for poverty alleviation and food security*, ed. E. Diaz-Bonilla and S. Robinson. IFPRI 2020 focus 8. Washington, D.C.: International Food Policy Research Institute.

Diaz-Bonilla, E., Babinard, and P. Pinstrup-Andersen. 2002. Globalization and Health: A survey of opportunities and risks for the poor in developing countries. CMH Working Paper Series. Paper No. WG4 :11. http://www.cmhealth.org/docs/wg4_paper11.pdf

Díaz-Bonilla, E., S. Robinson, M. Thomas, and Y. Yanoma. 2002. WTO, agriculture, and developing countries: a survey of issues. Trade and Macroeconomics Division Paper No. 81. Washington, D.C.: International Food Policy Research Institute.

Drewnowski, A. and B.A.Popkin. 1997. The nutrition transition: New trends in the global diet. *Nutrition Review* 55:31-43.

Feenstra, R. 1998. Integration of trade and disintegration of production in the global economy. *Journal of Economic Perspectives*. Volume 12, Number 4 (Fall).

Flores R., and S. Gillespie, eds. 2001. *Health and nutrition: Emerging and reemerging issues in developing countries*. IFPRI 2020 focus 5. Washington, D.C.: International Food Policy Research Institute.

Fontana, M., S. Joekes, and R. Masika. 1998. Global trade expansion and liberalisation: gender issues and impacts, BRIDGE Report No. 42. Sussex, England: Institute of Development Studies.

Feldstein, M. and C. Horioka. 1980. Domestic saving and international capital flows. *The Economic Journal*, Vol. 90 (June): 314-329.

Foreign Policy. 2001. *Measuring Globalization*. http://www.foreignpolicy.com/issue_janfeb_2001/atkearney.html

Galbraith, J.K., W.A.Darity, Jr., and L. Jiaqing. 1998. Measuring the evolution of inequality in the global economu. Working Paper Series III, No. 4. Center for Economic Policy. New York: New School for Social Research.

Gardner, R. 1980. *Sterling-Dollar Diplomacy in Current Perspective. The Origins and the Prospects of Our International Economic Order.* New York: Columbia University Press.

Gardner, G., and B. Halweil. 2000. *Underfed and overfed: the global epidemic of malnutrition*. Worldwatch Paper 150. Washington, D.C.: The Worldwatch Institute

Giddens, A. 1999. *Runaway world: how globalization is reshaping our lives*. London: Profile Book.

Gillespie S., and L. Haddad. 2001. Attacking the double burden of malnutrition in Asia and the Pacific. ADB Nutrition and Development Series No.4. Manila, Philippines: Asian Development Bank, Washington, D.C.: IFPRI

Griswold, D. T. 1999. *Bringing economic sanity to agricultural trade*. Center for Trade Policy Studies (CATO), Washington DC <http://www.freetrade.org/pubs/articles/dg-12-02-99.html>.

Gurr,T., M. .Marshall, and D. Khosla. 2000. *Peace and Conflict 2001: A Global Survey of Armed Conflicts, Self Determination Movements and Democracy*. College Park, Md: Center for International Development and Conflict Management, University of Maryland

Gwatkin, D.R., and M. Guillot. 1999. The Burden of Disease among the Global Poor: Current Situation, Future Trends, and Implications for Strategy. Washington, D.C.: The International Bank for Reconstruction and Development.

Held, D., and A. McGrew. 2000. The Great Globalization Debate: An Introduction. In *The Global Transformations Reader* ed. Cambridge, UK: Polity Press.

Hellman, J., G. Jones, and D. Kaufman. 2000. *Seize the State, seize the day: state capture, corruption, and influence in transition*. World Bank Policy Research Working Paper No. 2444. Washington, D.C.: The World Bank.

Heyman, D. 2001. Introduction. In *Emerging Infectious Diseases from the Global to the Local Perspective: A summary of a Workshop of the Forum on Emerging Infections*, ed. Jonathan R. Davis and Joshua Lederberg. Washington, D.C.: National Academy Press.

Higgins, M., and J.G. Williamson. 1999. *Explaining inequality the world round: cohort size, Kuznets curves, and openness*. NBER Working Paper No. 7224. Cambridge, Mass.: National Bureau of Economic Research.

Hirschman, A. 1982. The Rise and Decline of Development Economics. In *The Theory and Experience of Economic Development,* ed. M.Gersowitz, C.F Diaz-Alejandro, G. Ranis, and M. Rosenzweig. <<city and publisher>>.

Hines, C. 2000. *Localization: A global manifesto*. London: Earthcan.

Hsiao, W. C. 2000. *What should macroeconomists know about health care policy? A primer*. IMF Working Paper 136. Washington, D.C.: The International Monetary Fund.

International Labor Organization (ILO). 1995. *Gender, poverty and employment: turning capabilities into entitlements*. Geneva: ILO.

Intergovernmental Panel on Global Change (IPCC). 1996. *The Regional Impacts of Climate Change: An Assessment of Vulnerability*. Cambridge, U.K.: Cambridge University Press.

Kaufman, D., A. Kraay, and P. Zoido-Lobaton. 1999. *Governance matters*. World Bank Policy Research Paper No.2196. Washington, D.C.: The World Bank.

Kehoane R. and J. Nye. 1977. Power and Interdependence: World Politics in Transition. Scott, Foresman and Company. USA. 1977

Knetter M. and M. J. Slaughter. 1999. *Measuring Market-Product Integration*. NBER Working Paper 6969. Cambridge, Mass.: National Bureau of Economic Research.

Knight, M. 1998. *Developing countries and the globalization of financial markets.* International Monetary Fund Working Paper 98/105, Washington, D.C.: The World Bank.

Kohl R., and K. O'Rourke. 2000. What's new about globalization: Implications for income inequality in developing countries. Paper presented at the conference on Poverty and Income inequality: A policy dialogue on the effects of globalization, 30 November-1 December 2000. OECD. Paris: Organization for Economic Cooperation and Development.

Krueger, A. 1974. The political economy of the rent-seeking society. *American Economic Review*, 291-303 Vol. 64 (3) pp. 291-303.

Krueger, A. 1978. *Liberalization Attempts and Consequences*. National Bureau of Economic Research.

Li, H., L.Squire, et H. Zoul. 1998. Explaining international and intertemporal variations in income inequality. Economic journal Vol. 108: 26-43.

Lipton, Michael and Martin Ravallion, 1995, 'Poverty and Policy', in Jere Behrman and T.N. Srinivasan (eds) Handbook of Development Economics Volume 3, Amsterdam: North-Holland.

Little, I., Scitovsky, T. and Scott, M. 1970. *Industry and trade in some developing countries.* Organization for Economic Co-operation and Development. Paris: Oxford University Press.

Lundberg, M., and L. Squire. 1999. *The simultaneous evolution of growth and inequality.* mimeo. Washington, D.C.: The World Bank .

Madeley, J. 2000. Trade and hunger – An overview of case studies on the impact of trade liberalization on food security. *Globala Studier* 4.

Obstfeld, M. 1998. The Global Capital Market: Benefactor or Menace? *Journal of Economic Perspectives*. Volume 12, Number 4.

Obstfeld M., and k. Rogoff 2000. Perspectives on OECD Economic Integration: Implications for US Current Account Adjustment. *Center for International and Development Economics Research.* Working Paper C00-116. http://repositories.cdlib.org/iber/cider/C00-116

Paolisso, M. J., K. Hallman, L. Haddad, and S. Regmi. 2001. *Does Cash Crop Adoption Detract from Childcare Provision? Evidence from Rural Nepal*. Food Consumption and Nutrition division paper 109. Washington, D.C.: International Food Policy Research Institute.

Pinstrup-Anderson, Per. 1989. The Impact of Macroeconomic Adjustment: Food Security & Nutrition. In *Structural Adjustment & Agriculture: Theory and Practice in Africa and Latin America. ,* Ed. Simon Commander: pp. 90-104. Overseas Development Institute. London.

_____ ed. 1990. The Impact of Macroeconomic Policy Reforms on Poverty and Nutrition: An Overview of Analytical Approaches. In *Macroeconomic Policy Reforms, Poverty, and Nutrition: Analytical Methodologies.* Cornell Food and Nutrition Policy Program. Monograph 3: pp. 1-13

_____. 1999. Agricultural biotechnology, trade, and the developing countries. AgBioForum Vol. 2, No. 3 & 4: pp 215-217.

Pinstrup-Anderson, P., and J. Babinard. 2000. The Global Food Situation: The EU Agricultural Policy and Developing Countries. *Farm Management* 10 (9, April 2000): 551-571.

Pinstrup-Anderson, P., Babinard. 2001. Nutrition. *In shaping globalization for poverty alleviation and food security*, ed. E. Diaz-Bonilla and S. Robinson. IFPRI 2020 focus 8. Washington, D.C.: International Food Policy Research Institute.

Pinstrup-Anderson, P., R. Pandya-Lorch, and M. Rosegrant. 1999. World Food Prospects: Critical Issues for the Early Twenty-First Century. 2020 Food Policy Report. Washington, D.C.: International Food Policy Research Institute.

Riker, D. 1997. *U.S. multinationals and competition from low-wage countries*. National Bureau of Economic Research Working Paper 5959.

Rodrik, D. 1999. *The new global economy and developing countries: making openness work*. Washington, D.C.: Overseas Development Council.

Rodrik, D. 2001. Trading in illusions. *Foreign Policy*, No. 123, March/April 2001, pp. 55-62.

Rosenzweig, C. and D. Hillel. 1998. *Climate Change and the Global Harvest; Potential impacts of the greenhouse effect on agriculture*. New York, Oxford: Oxford University Press

Sachs J. and A. Warner 1995. Economic Reform and the Process of Global Integration. Brookings Papers in *Economic Activity* Vol. 1, August, pp. 1-118

Sala-I-Martin. 1997. I just ran two million regressions. *American Economic Review*. Vol 87, 2: pp 178-83.

Sbarbaro, J. A. 2000. *Trade liberalization in health insurance: Opportunities and challenges: The potential Impact of introducing or expanding the availability of private health insurance within low and middle income countries*. WG4 Paper 6 Commission on Macroecomics and Health. Geneva: WHO.

Schamis, H. 1999. Distributional Coalitions and the Politics of Economic Reform in Latin America. *World Politics* vol. 51 (January).

Sen, A. 1981. *Poverty and famines: An essay on entitlement and deprivation*. Oxford: Clarendon Press.

Sharma, M., S. Morley, and E. Diaz-Bonilla. 2001. Growth and poverty. *In shaping globalization for poverty alleviation and food security*, ed. E. Diaz-Bonilla and S. Robinson. IFPRI 2020 focus 8. Washington, D.C.: International Food Policy Research Institute.

Silbergeld, E.. 2001. To Stop the Army, We Must Be More Global -- Not Less. *Washington Post*, Sunday, March 18, 2001, Section: Outlook p.B3.

Smith, L. C. 1998. Can FAO's measure of chronic undernourishment be strengthened? *Food Policy* 23 (no. 5) 425-445.

Smith, L.C., and L. Haddad. 2000. *Explaining child malnutrition in developing countries: A cross-country analysis*. IFPRI Research Report 111. Washington, D.C.: International Food Policy Research Institute.

Tanzi, V. 2001. Globalization and the Work of Fiscal Termites. *Finance and Development*. Vol 38, No. 1.

Thomas, V., M. Dailami, A. Dhareshwar, D. Kaufmann, N. Kishor, R. E. Lopez, and Y. Wang. 2000.. *The Quality of Growth*. Oxford, England: Oxford University Press.

Timmer, C.P., Walter P. Falcon, and Scott R. Pearson. 1983. *Food Policy Analysis*. Baltimore: Johns Hopkins University Press, Chs. 2, pp. 19-76.

UNAIDS. 2000. *Report on the global HIV/AIDS epidemic*. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS.

United Nations Development Programme (UNDP). 1995. *Human Development Report:* Gender and human development. New York, Oxford: UNDP /Oxford University Press.

UNICEF. 2000. *The state of the world's children*. New York: United Nations.

Williamson J. 1998. Globalization, labor markets and policy backlash in the past. *Journal of Economic Perspectives*. Volume 12, No. 4.

World Health Organization (WHO). 1997. Conquering suffering, enriching humanity. In *World Health Report 1997* -executive summary. Geneva: WHO

_____. 1998. Global financial crisis increases risk of deadly child infections, children's vaccine initiative says. Press Release WHO/83, 10 November 1998. http://www.who.int/inf-pr-1998/en/pr98-83.html.

_____. 1999a. *Reduction of maternal mortality*. A joint WHO/UNFPA/UNICEF World Bank Statement. Geneva, Switzerland: WHO.

_____. 1999b. *Removing Obstacles to Healthy Development*. Geneva, Switzerland: WHO.

_____. 1999c. The *World Health Report 1999*: *Making a difference*. Geneva: WHO.

_____. 2000a *The World Health Report 2000 Health Systems: Improving Performance.* http://www.who.int/whr/2000/index.htm

_____. 2000b. *Economic costs of malaria*. In Roll Back Malaria, Geneva: WHO. http://www.who.int/inf-fs/en/InformationSheet10.pdf .

_____. 2001a. *Climate and health*. WHO Fact Sheet No. 266. December. http://www.who.int/inf-fs/en/fact266.html.

_____. 2001b. Commission on Macroeconomics and Health (CMH). Working Group Papers. <<http://www.cmhealth.org/cmh_papers&reports.htm#Working Group 4>>

World Bank. 1990. *World Development Report.* Table 3.2 pp.41. New York: Oxford University Press.

_____. 1999. *World development indicators* on CD-ROM. Washington, D.C.

_____. 2000a. *Understanding Poverty: trends in poverty over time*. PovertyNet: The World Bank Poverty Focus. http://www.worldbank.org/poverty/data/trends/income.htm

_____. 2000b. *World development indicators* on CD-ROM. Washington, D.C

_____. 2001. *World development Report: Attacking poverty.* Washington, D.C.: The World Bank.

Table 1. Life Expectancy at Birth, by Income Group and Region, 1960-1998

(years)	1960	1970	1980	1990	1995	1998
Europe and Central Asia	65	68	68	69	69	69
East Asia	39	59	65	68	68	69
Latin America and the Caribbean	56	61	65	68	69	69
West Asia and North Africa	47	53	59	64	67	67
South Asia	44	49	54	59	62	62
Sub-Saharan Africa	41	44	48	51	52	49
Developed countries	70	71	74	76	78	78
Developing countries	45	56	58	63	65	62
World	50	59	62	66	67	64

Source: Unicef (2000); World Bank (1999).

Table 2. Child Mortality by Region, 1960, 1990 and 1998 (per 1,000 live births)

	1960	1990	1998
Europe and Central Asia	101	40	35
East Asia	201	57	50
Latin America and the Caribbean	154	53	39
West Asia and North Africa	241	76	66
South Asia	239	135	114
Sub-Saharan Africa	261	180	173
Developed countries	37	9	6
Developing countries	216	104	95
World	193	94	86

Source: Unicef (2000).

Table 3 Growth rates of real GDP/person

	1820-70	1870-1913	1913-50	1950-1996
China	0.0	0.6	-0.3	3.3
India	0.1	0.4	-0.3	1.1
Indonesia	0.1	0.8	-0.1	2.9
Africa	0.1	0.4	1.0	1.2
Latin America	0.2	1.5	1.5	1.8

Source: Crafts (2000) and the references in it.

Table 4 Growth Rates

	Annual Growth Rates			
	1960s	1970s	1980s	1990s
East Asia & Pacific	4.6	7.2	7.4	7.3
Latin America & Caribbean	5.3	5.9	1.9	3.2
Middle East & North Africa	na	6.5	1.9	3.7
South Asia	4.2	3.1	5.8	5.4
Sub-Saharan Africa	4.9	3.9	2.2	1.9
Europe & Central Asia	na	na	1.8	-2.8
Least developed UN classification	na	na	2.5	3.1
World	5.5	4.1	2.9	2.4

Source World Bank (2000b); last year 1998

Table 5. Coefficient of Variability

	1960s	1970s	1980s	1990s
East Asia & Pacific	1.27	0.26	0.26	0.46
Latin America & Caribbean	0.38	0.28	1.56	0.60
Middle East & North Africa	na	0.73	0.81	0.57
South Asia	0.64	1.14	0.25	0.33
Sub-Saharan Africa	0.39	0.83	1.12	1.00
Europe & Central Asia	na	na	2.39	1.55
Least developed UN classification	na	na	0.34	0.67
World	0.12	0.40	0.43	0.39

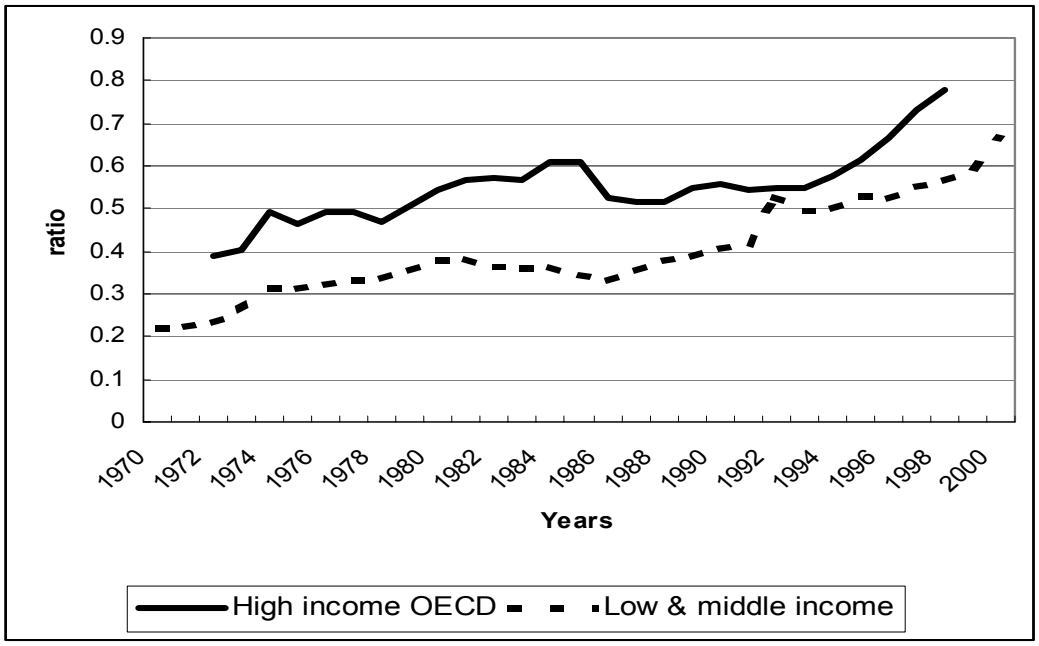
Source World Bank (2000b); last year 1998

Table 6. Health Care Financing and Service Provision, by Stage of Economic Development.
(Percentage shares relate to proportion of population in each category of coverage)

	Stage I		**Stage II**	**Stage III**	
	Poor Countries (per capita GDP below 1,800)*	Low-income countries (per capita GDP between $1,801-5,000)*	Middle-income countries (per capita to GDP between $5,001 and $12,000)*	Higher income Countries (per capita GDP above $12,001)*	
General revenue financed + donor assistance	Public health, disease prevention Public health services (clinics, hospitals) (50-60%) (40-50%)		Public health service (20-40%)	National Health Service (U.K., N.Z.) Medisave + Catastrophic Insurance (Singapore)	
Social insurance	For civil servants and employees of large firms	(10-20%)	(30-60%)	Direct provision →	National Health Insurance (Canada, Australia
				Indirect provision →	Bismarkian Social Insurance (Germany, Japan)
Private Insurance	Negligible	(5-10%)	(15-40%)	Managed care + medicine (U.S.)	
Self-pay	Private hospitals and clinics Pharmacists Indigenous providers (35-45%) (20-40%)		(15-25%)	(15-25%)	

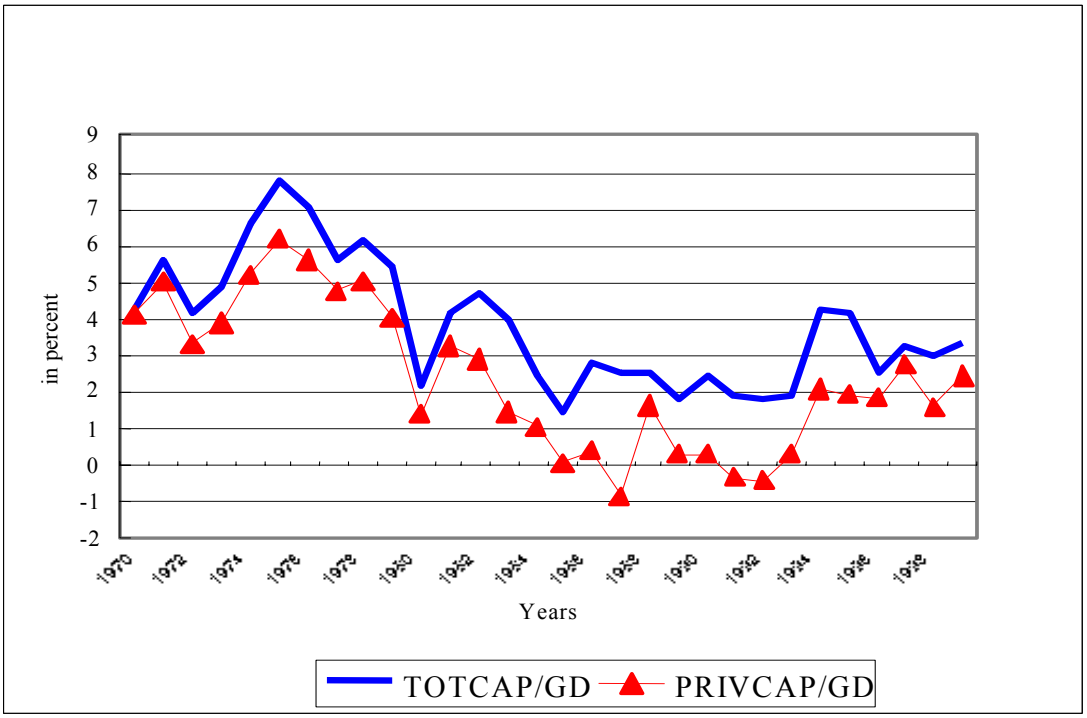
Note: *Per capita GDP on a 1997 PPP basis.
Source: Hsiao, 2000

Figure 1. Trade over Value-Added Merchandise



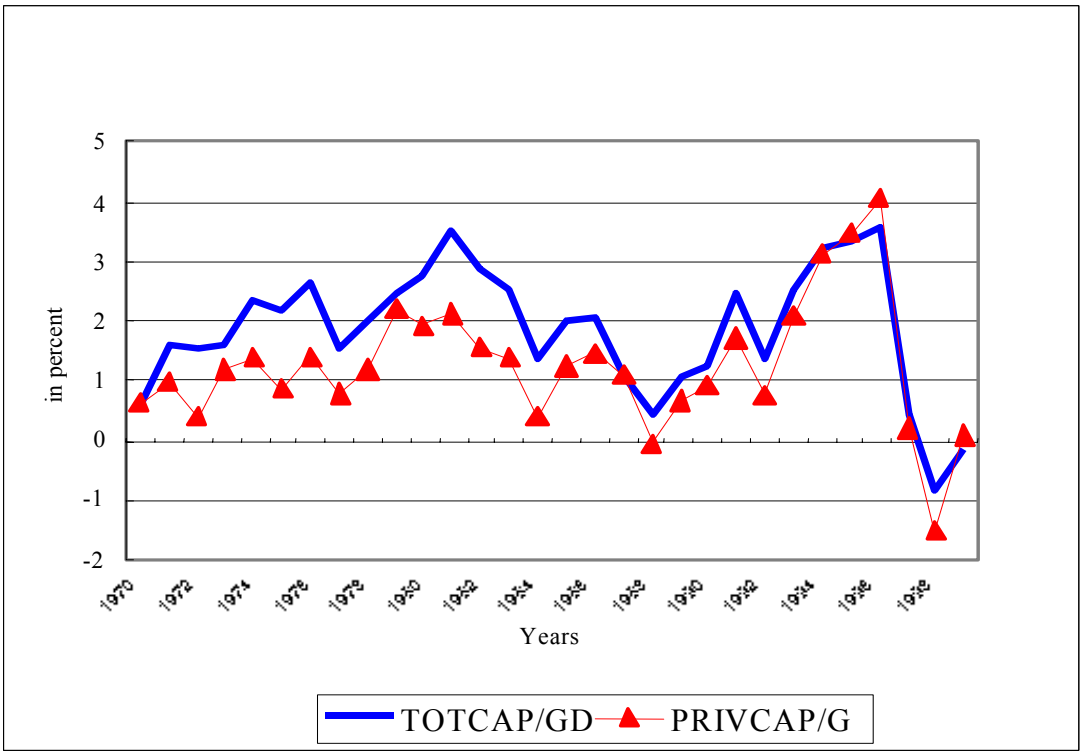
Source: WDI, 2002

Figure 2. Capital Flows as a share of GDP—AFRICA



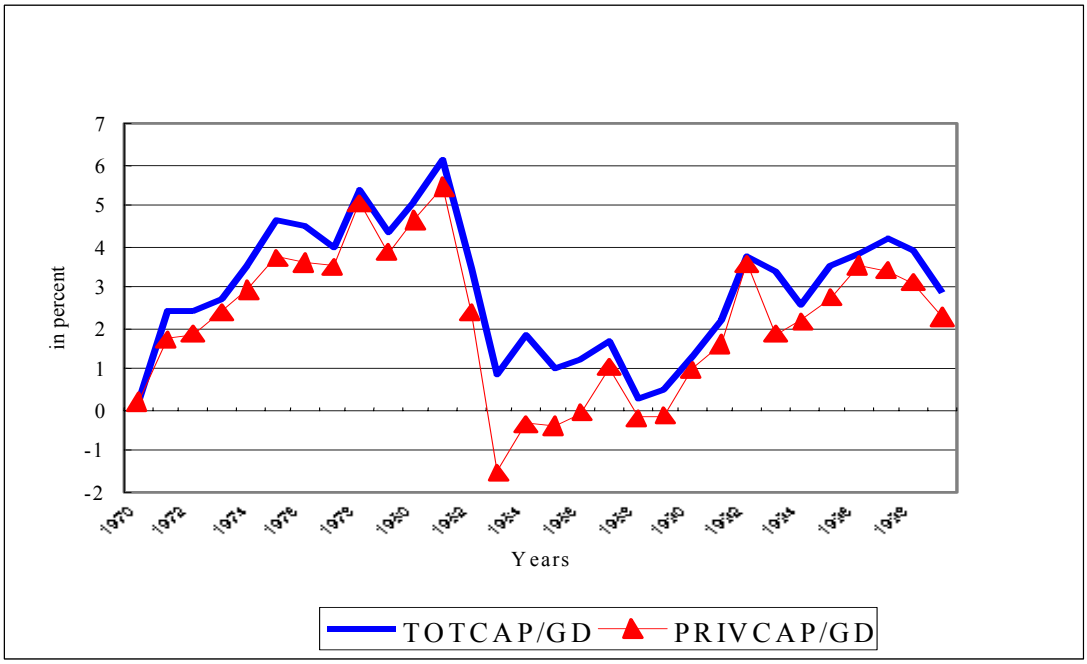
Source: IMF, 2002

Figure 3. Capital Flows as a share of GDP--ASIA



Source: IMF, 2002

Figure 4. Capital Flows as a share of GDP—LAC



Source: IMF, 2002

Chart 1. A Framework linking Global Changes and Health Outcomes

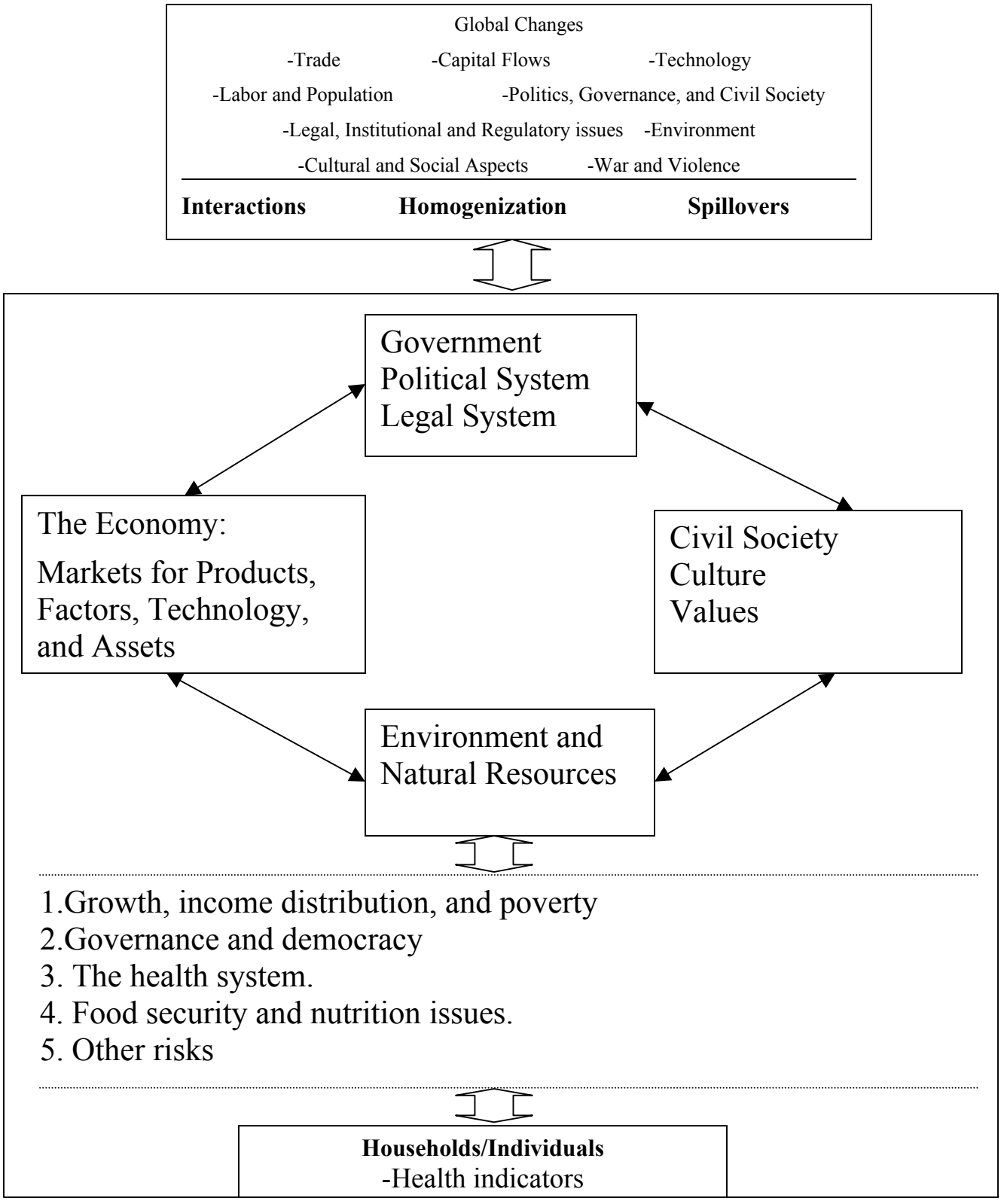
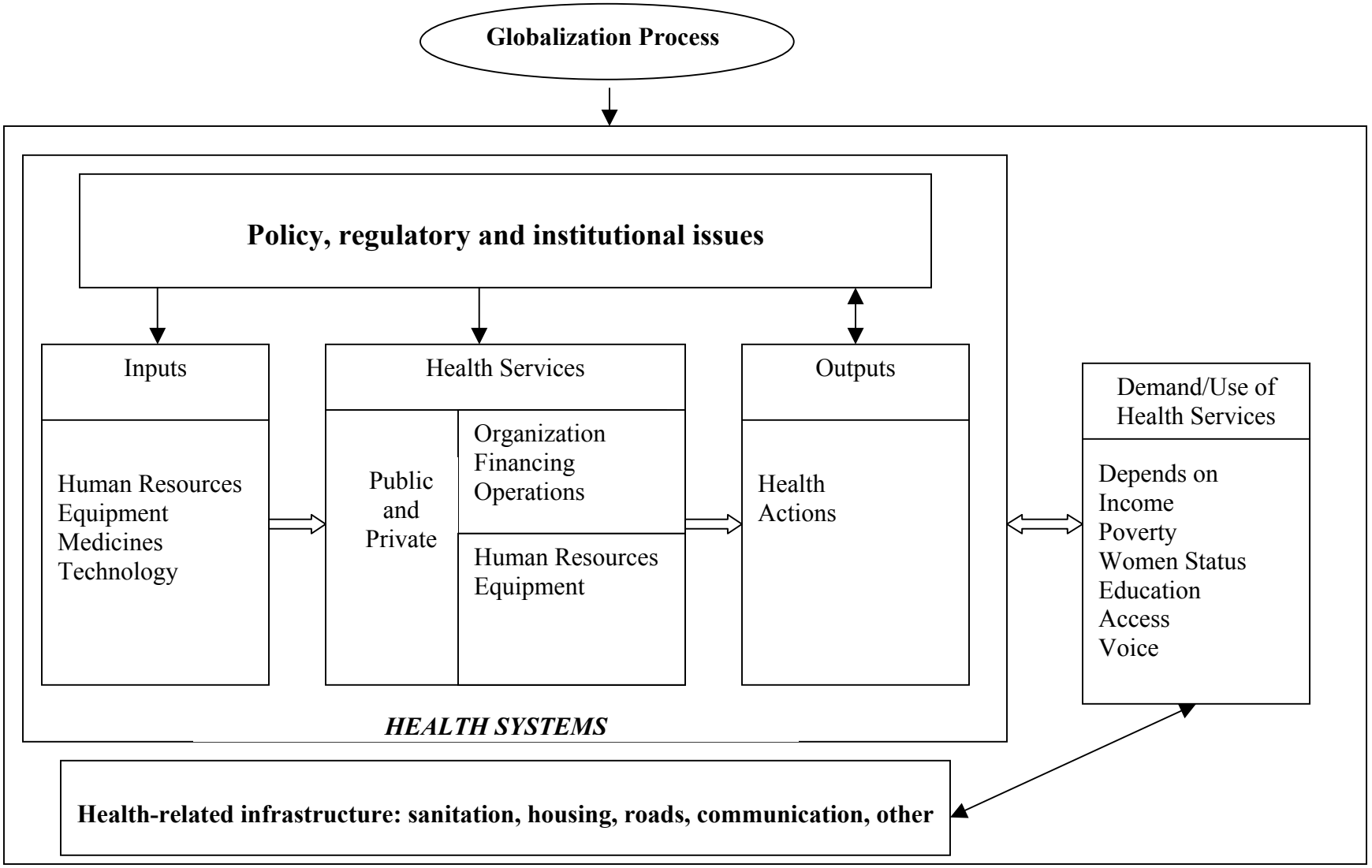


Chart 2. Globalization and Health Systems



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