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# **ECONOMIC THEORY, APPLICATIONS AND ISSUES**

**Working Paper No. 45**

**Cost-Benefit Analysis of  
Economic Globalization**

**by**

**Clem Tisdell**

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# **Cost-Benefit Analysis of Economic Globalization**

## **Abstract**

Argues that it is unrealistic to expect the net benefit of economic globalization to be represented by a single monetary figure because its consequences are diverse and several of its consequences are uncertain. The benefits of economic globalization are assessed in terms of its possible impact on the level of global production and exchange of commodities. Both static and dynamic analysis are considered and particular attention is given to economies of scale and to technological change. Possible beneficial impacts of economic globalization on product variety are considered. The economic consequences of International mobility of factors of production (such as labour and capital) are assessed. In addition, the impacts of globalization on conditions of employment, income inequality, poverty, economic vulnerability and environmental issues of global concern are taken into account in considering the benefits and costs of globalization. While most economists seem to believe that growing economic globalization has yielded net economic benefit to date, its future ability to continue to do this is far from certain.

# **Cost-Benefit Analysis of Economic Globalization**

## **1. Introduction**

Wide differences of opinion exist about the costs and benefits of economic globalization. This is partly because there is disagreement about several effects of economic globalization, empirical evidence is often disputed, economic gains and costs associated with globalization are uneven between existing individuals, and also between present and future generations and between nations, and some consequences (such as reduced national ability to control economic events and changes in economic vulnerability) are difficult to quantify in monetary terms. There is lack of agreement about how interpersonal comparisons of economic benefits and costs should be made. Therefore, it is unrealistic to expect that a single monetary figure can be estimated which accurately measures the net overall benefit of economic globalization. Nevertheless, some quantitative estimates of particular features associated with globalization are available, as is illustrated in this article for example for product variety and changes in the state of the global environment. Further quantitative cost-benefit work is possible and some features for which this seems practical are identified.

The approach which I take here is to identify and critically discuss factors which seem to have a significant bearing on the estimates of costs and benefits of growing globalization. These include greater scope for gains from trading, for enhanced benefits from factor movements particularly of capital, impacts on unemployment, poverty and economic inequality, implications for economic vulnerability and for the state of the environment.

Growing economic globalization is assumed in this article to be a process that leads to the international extension of markets. It is reflected in the growing proportion of global economic production that is traded internationally as well as expanding international movements of capital and labour (Tisdell and Sen, 2004; Tisdell, 2005a). Financial markets have also displayed growing global integration. Let us consider these aspects.

## **2. Production and Exchange of Commodities and the International Extension of Markets.**

Using comparative statics, neoclassical economics has developed strong arguments that the extension of markets results in a potential Paretian improvement (if not a Paretian improvement) for all economic agents involved in the process. It results in greater efficiency in production by enabling greater specialisation in production according to comparative advantages. It enables commodities to be exchanged more widely so that wants can be more fully satisfied. Even if perfect competition exists, the merging of sub-markets (such as national markets globally) is predicted to be an effective means to reduce economic scarcity, given the absence of adverse externalities and other market failures. Within the standard neoclassical framework, the benefits of growing economic globalization outweigh any costs involved (Salvatore, 2007, Ch.3).

The traditional neoclassical argument, however, gives little attention to forms of market competition other than perfect competition and it does not consider the importance of decreasing costs of supply in some important industries.

For example, external economies of scale can be obtained by the market expansion of some competitive industries. Increased globalization enables such industries to expand in size. If the industry is fairly competitive, suppliers will earn normal profit in the long run and buyers will pay a lower price for the product. Therefore, a Kaldor-Hicks gain (a potential Paretian improvement) is likely to eventuate.

Just how much increasing globalization will alter national and regional market structures is unclear. One extreme possibility is that all such markets are transformed into perfect or near perfect markets by greater international market competition. This, however, is probably unrealistic because some barriers to entry into national or regional markets are likely to continue to exist. Nevertheless, traditional static economic analysis would still predict the occurrence of a Kaldor-Hicks gain. For example, suppose that a monopoly exists in a regional market in a product and that the monopolist engages in limit pricing. With reduced barriers to international trade (such as a lowering of tariffs, non-tariff barriers, transport costs, market transaction costs)

even if the monopoly continues to exist in the regional market, the monopolist will be forced to reduce its limit price. Buyers within the monopolist's region benefit and employment by the monopoly rises, although other things remaining equal, the monopolist's profit falls. There is, however, a Kaldor-Hicks economic gain. There could also be some gains to the monopoly if it is exporting because it may be able to access international markets that were previously unavailable to it.

While static analysis throws some light on the economic consequences of growing economic globalization, in the long-term, many of the factors held constant in static analysis change. Dynamic aspects complicate the analysis of the economic consequences of growing economic globalization but must be considered. The following questions need consideration: What consequences will economic globalization have for the evolution of market structures? What impacts is it likely to have on technological progress and innovation? This needs consideration in the light of Schumpeter's thesis (Schumpeter, 1942) and the monopoly-profit thesis of international trade. What are likely to be its consequences for the extent of product diversity?

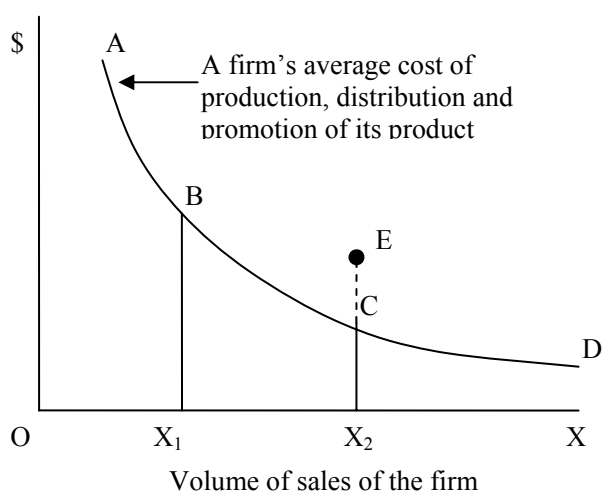
It is probably unrealistic to expect that all markets will become less concentrated and more competitive as globalization proceeds. While many markets will become more competitive or fairly competitive in their structure, some are unlikely to show much change and others may in the long-term even become less competitive as global concentration of market power increases. Some industries display such strong internal economies of scale and scope in production and marketing that natural global oligopolies or monopolies occur. In such circumstances, increased scope for international market competition may result in the elimination of smaller efficient and also less efficient suppliers and result in increased market concentration.

In such decreasing cost cases, it is usually the survival of the largest firms that are favoured because they already have a head start compared to smaller firms in terms of lower per-unit costs of production and marketing. This usually means that firms located in larger markets in developed countries or regions such as the USA and the EU are favoured when increasing scope exists for international competition. With



growing globalization, their chances of globally dominating decreasing cost industries increase. This is illustrated in Figure 1.

In Figure 1, curve ABCD represents the long-run average cost experienced by a firm in producing and marketing a product X. To begin with, assume that this cost curve is the same for all firms no matter where they are located. In a country with a small market, a firm (firm one) may have annual volume of sales of  $X_1$  and experience per-unit costs corresponding to B. On the other hand, another firm in a country with a large market (firm two) may have an annual volume of sales of  $X_2$  and experience a level of per-unit costs corresponding to point C. Both may survive due to barriers to international trade. However, if these barriers are eliminated or become very small, the larger firm in the larger economy can be expected to drive the smaller one out of business. The comparative initial position of the firms gives a competitive advantage to the firm with the larger initial market even though both firms are equally efficient (have the same cost curves of supply). Even if the firm with the larger initial market is less efficient than the one with the smaller one, the larger one can have a competitive advantage. For example, if firm two has an initial level of per-unit cost corresponding to point E rather than C (because it has some X-inefficiency or is on a higher per unit cost curve than firm one), it is likely to be able to out compete firm one because of its initial cost advantage. This is because firm one is likely to experience significant lags as it tries to increase its market share. Firm one is subject to large losses initially in competition with firm two and therefore, is likely to be driven out of business by firm two.



**Figure 1:** An illustration that processes of globalization are likely to favour the survival of large firms in developed economies at the expense of smaller firms in other economies when firms experience internal decreasing average costs as a result of a larger volume of sales.

Note that an evolutionary process is not effective in ensuring the survival of the most efficient firms. Competitive market evolution does not involve an efficient sorting process. Survival of firms is to some extent path dependent and there is a chance element in whether or not the surviving firms are the most efficient. Consequently, some features of this process are analogous to the nature of biological evolution as outlined by Gould (1989, 1990, 2003) and as reinforced by empirical evidence (Gould, 2003).

Assuming decreasing costs of supply, it can also be observed that in this competitive process, surviving firms tend to become larger and may increase their market power globally. Also as a result of scale economies in production and marketing, barriers to entry to the industry can be expected to increase. This is likely to result in a long-term reduction of competition in the industry. In particular, global advertising and promotion of products can become a major entry barrier.

The media industry appears to be one that experiences substantial economies of scope and scale. With growing globalization, there is a perception that the major US media companies have been increasing their market dominance of the media globally. They

have had an initial advantage because of the large size of the US market compared to other markets as illustrated by the case shown in Figure 1. This increasing market domination is seen by some as a threat to local cultures, regional perspectives and social diversity. Often the extension of markets can have social consequences, the costs and benefits of which are hard to quantify. These effects are not confined to international exchange in the media industry. There is little doubt that international trade in commodities as a whole alters lifestyles and social activities.

There is a widespread belief that growing globalization stimulates economic growth. This may come about to some extent due to a more efficient allocation of resources globally. In addition there is an expectation that it will contribute positively to technological progress, innovation and diffusion of new techniques and methods. How effective growing globalization will be in the long-term in promoting technical and scientific change is unclear. Application of Schumpeter's theory of technological change and innovation (Schumpeter, 1942) raises the *possibility* that on a worldwide scale, technical progress could be retarded in the long term by the changes in market structures generated by globalization. Schumpeter's theory implies that the rate of technological progress in an industry is an inverted U-shaped function of the degree of economic concentration in the industry, other things held constant (Tisdell and Hartley, 2008, Ch.9; Parker, 1974). Furthermore, Schumpeter's theory (Schumpeter, 1942) implies that the rate of technological progress displayed by firms in an industry tends to decline **eventually** in relation to their size, other things kept constant. This relationship, therefore, may have an elongated reversed-U shape. Some evidence compatible with this hypothesis was found, for example, by Scherer (1965) and more recently by Alexander et al. (1995).

Thus, Schumpeter believed that under highly competitive market conditions technical progress is retarded. In effect, this is because there is a lack of protective niches for businesses (Tisdell and Seidl, 2004). Therefore, in those industries which become much more competitive as a result of growing globalization, the rate of technological progress and innovation would be predicted to decline. Schumpeter also argued that very large firms are likely to become bureaucratic and less conducive to technical progress. As discussed above, processes of globalization will allow some firms to become very large. This will also not be favourable to technical progress. Only those

industries in which firms remain of moderate size and retain some market power as globalization proceeds would maintain a high rate of technical progress and innovation. On the whole, Schumpeter's theory casts doubts on the proposition that growing globalization will have positive long-term effects on the rate of technical progress and innovation.

Another thesis that pays particular attention to the importance of imperfect competition in international trade and investment is the monopoly-profit thesis (Posner, 1961). The monopoly-profit thesis of international trade asserts that the basis of much international trade is the sale of innovative or relatively innovative commodities in which the innovating businesses have a temporary global monopoly or near monopoly. This 'temporary' monopoly may be based on legal intellectual property rights (such as patents, copyrights and trade marks) or on secrecy or a combination of both. This temporary monopoly provides innovative firms with profitable opportunities to sell their innovative commodities abroad. However, their competitive advantage may only be temporary because other businesses are likely in due course to develop competing innovations. Thus, many businesses are involved in a competitive race involving expenditure on research and development, invention and innovation and this has significant implications for the nature of international trade and investment as well as for the dynamics of change in the variety of available commodities.

The monopoly-profit thesis can be linked to the theory of the international product cycle and with new technology theories of international trade and investment generally.

The theory of the international product cycle, as presented by Vernon (1966) holds that new products are usually developed and first produced in high income countries and initially are mainly marketed in the home market of the country where the innovation occurs. Exports to other high income countries then commence and grow as these markets expand, innovating companies establish production plants in these countries and consequently, become multinationals.

Eventually production of the new commodity is likely to cease in higher income countries and gravitate to less developed countries. Higher income countries may then import the product from producers in less developed countries but this may after a time, only be in small quantities because continuing innovation in higher income countries may make the original product obsolete in these countries. While high profits may be initially and for some time be made by an innovator, eventually the profit to be made from producing and marketing the original product falls as substitutes appear. Monopoly-like advantage of innovators last only for a limited period of time. These processes generate marked economic and geographical life-cycles for new products.

The monopoly-profit thesis (as previously pointed out) emphasizes the significance of intellectual property and knowledge for international trade and investment. Firms that have superior intellectual property and know-how have a global monopoly or near monopoly in its use. Generally, it is firms based in more developed countries which have this superiority and this provides them with advantages in international trade. Growing globalization may enable them to exploit these advantages more quickly and more widely internationally than when international trade and investment is restricted. They are likely to be net gainers from globalization. At the same time, these globalization processes enable consumers to benefit by new products being made more widely and quickly available and by lower prices if economies of scale are important.

Comparatively, larger firms (compared to smaller ones) are likely to be the main beneficiaries from this globalization process because they are more likely to find it profitable to defend their intellectual property and know-how internationally taking into account the cost of doing so in relation to their benefits. This further adds to the argument that economic globalization is likely to strengthen market domination by some larger companies. It may also become more difficult for new firms to challenge their market domination.

In addition, economic globalization appears to be altering the nature of the international product cycle as described by Vernon (1966) and may change its duration as found for example, by Gao and Tisdell (2005). It appears to be causing the

international location of production of commodities to become more fluid and in many cases, the supply of components used for producing final products has become geographically more dispersed.

The geographical location of production of new commodities now appears to shift more quickly from developed countries to less developed ones. Production of some commodities developed in higher income countries occurs for shorter duration than previously or unlike in Vernon's model, may even commence offshore in less developed regions. This is probably due to fewer restrictions on international trade and foreign direct investment. If the developers of the new products have monopoly power through intellectual property rights or can protect their knowledge by other means, these new opportunities increase their profit. On the other hand, it reduces demand for labour in more developed countries. It fosters the rapid international transfer of skills and can contribute to the economic development of less developed countries. For example, economic globalization is assisting the economic development of China and India. Foreign investment and technology transfer is contributing to this process.

Economic globalization also facilitates the shedding of mature industries by developed nations. For example, in recent times, global steel production has been increasingly located in China and India.

A possible negative consequence from the point of view of developers of new technology in higher income nations is that as a result of more rapid transfer of production of new commodities to developing economies, producers in developing countries obtain the skills and know-how to become effective competitors more quickly. This globalization process reduces the duration for which the developers of the original technology are able to earn monopoly profits, even though international transfer of production may enable them to earn higher profits initially. The possibility of this occurring increases when the government of a developing country has positive industrial policies to support this process, as Japan has and as China may have.

Many modern commodities involve the combination of multiple components which may be obtained from varied geographical locations. Economic globalization

facilitates the supply of these components from an increased range of locations. This flexibility in sourcing supplies usually provides suppliers of final products with scope to reduce their costs of production, taking into account the relative costs of supply of components from different locations and their quality. In such cases, the international product cycle is more complex than is indicated by Vernon's theory.

When companies are involved in production involving use of their manufactured components, they may retain production of some components involving important advances in know-how in the country where their headquarters are. These may then be shipped abroad for use in assembling the final product of the company. This may be done to retain control of the technology or it may be that the components involved require the maintenance of a high standard of quality that is not assured in the country assembling the product and manufacturing other components for it. For example, China has a high-level of import of manufactured components which are used in producing final products (Tisdell, 2007c). The above mentioned factors may help to explain the high level of China's imports of manufactured components.

Even when firms are not directly involved in international production of commodities, they have to make decisions about whether to make, buy or contract out the supply of components of their production. Growing globalization can be expected to alter their decisions in relation to these aspects. It *may* result in fewer components being made in house and some being purchased in the market place or their production contracted out of the company. These decisions, however, will be constrained by strategic considerations and the possible uncertainty associated with supplies from outside the firm. These aspects have been insufficiently explored.

### **3. Product Variety and the Benefit of Economic Globalization**

A further issue is whether economic globalization reduces or increases product variety. Furthermore, how is product variety related to human satisfaction or welfare? These issues are not fully resolved. Possibly globalization increases product standardisation and reduces product variety globally. This is because it reduces the number of suppliers of products due to more widespread competitive market pressures. At the same time, in many local areas (but not all) the range of products available may

increase. Globally product variety may fall, but it may rise in some local areas. Chain stores for example, may increase the variety of products available at the local level where they operate, but tend to sell a similar range of products at all their locations. On the other hand, the growing practice of franchising may reduce the variety of commodities available both globally and in many local areas. Apart from these cross-sectional effects, another little explored aspect is the likely effect of globalization on changes in product variety with the passage of time.

Broda and Weinstein in (2004, 2006) argue that the principal economic benefit from growing economic globalization is that it enables buyers in every country to have available to them a greater variety of commodities than otherwise. The set of possible choices available to buyers (and in most cases actual choices) are expanded. Neoclassical economics predicts a substantial possible increase in the economic welfare of consumers as a result of the expansion in the variety of available commodities. However, measuring the size of these benefits in monetary terms is complex and difficult. The estimates depend on the underlying theories adopted and the simplifying assumptions made in order to make estimation tractable.

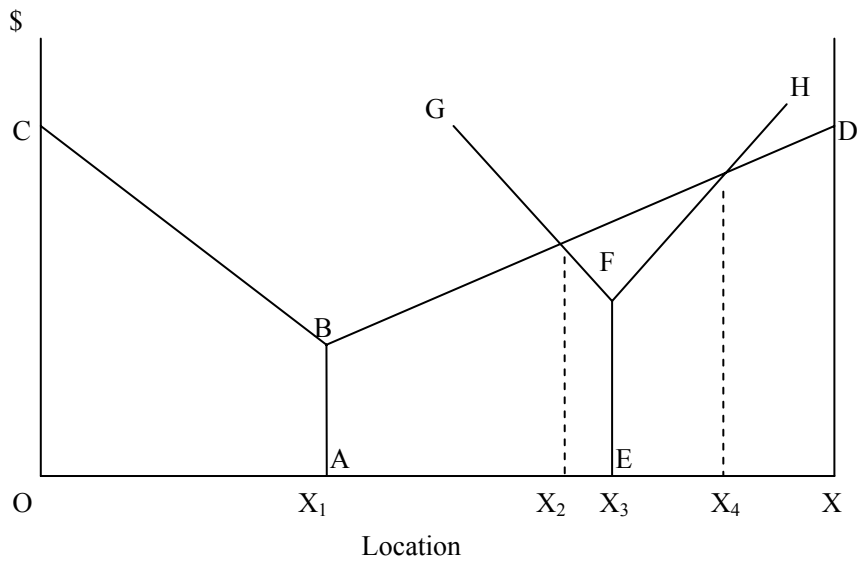
Broda and Weinstein (2004, 2006) base their estimates of these economic benefits on analysis of Krugman (1980) which is related to the framework developed by Spence (1976) and Dixit and Stiglitz (1977). They find that alternative economic models of product variety of Hotelling (1929) and Lancaster (1975) cannot be easily applied to their estimation. Nevertheless, these alternative models are not theoretically irrelevant. For example, Hotelling's model implies that the global variety of products may actually fall as a result of growing globalization. This could result in reduced choice of product variety in some locations. This is a possibility not raised in the modeling by Broda and Weinstein.

Let us consider Hotelling's model briefly and then discuss the analyses of Broda and Weinstein. The Hotelling (1929) model was originally developed to predict the possible geographic location of competing businesses and is a pioneering model in location theory (Ottaviano and Thisse, 2004, p.2573). Subsequently it was used to predict the extent to which product differentiation (variety) might occur under competitive market conditions and also applies to predicting the degree of



differentiation in political platforms of competing political parties in democracies (Tisdell and Hartley, 2008, Chs. 9, 14).

The Hotelling (1929) model suggests that with growing globalization, the number of sources from which final commodities are supplied is liable to fall. This can be illustrated by Figure 2. There it is assumed that buyers of a product are equally located along a spectrum,  $X$ , and that suppliers of the product are initially located at two points on the spectrum;  $X_1$  and  $X_3$ . The per unit costs of production (inclusive of normal profit) at location  $X_1$  is  $AB$  and at location  $X_3$  it is  $EF$ . Production plus delivery costs per unit of the product from location  $X_1$  and shown by the lines  $CB$  and  $BD$  and from location  $X_3$  are  $GF$  and  $FH$ . If the product is priced at its production plus delivery cost and is relatively homogenous, suppliers at location  $X_3$  will supply all buyers between locations  $X_2$  and  $X_4$  and suppliers from location  $X_1$  will supply the remainder of buyers. Suppose now that as a result of growing globalization, the cost of delivery falls but production cost at each location remains unaltered. As a result of this, the size of the market of supplies at location  $X_3$  will tend to fall. In fact, it will disappear if line  $BD$  rotates sufficiently clockwise to intersect line  $EF$ . In that case, buyers located between  $X_2$  and  $X_4$  could have less choice of variety, if variety varies with its geographical source as assumed by Broda and Weinstein (2006, p.548).



**Figure 2:** Diagram used to illustrate the proposition that the forces making for globalization are likely to reduce the number of locations from which supplies are obtained. There can be less variation in sources of supply geographically as a result of globalization.

Nevertheless, while the Hotelling model in this static case allows the possibility that globalization will reduce product variety, it is inadequate to resolve the issue of whether on a global scale and in the long-run with technological change, globalization is likely to lower product variety, other things held equal. I have suggested above that it could do so globally but at the same time it might increase the variety of available products regionally as a result of greater ease of international trade. Broda and Weinstein (2004, 2006) have observed that between 1972 and 2001, the variety of imported goods available to American consumers increased greatly and has done likewise in many other countries. This time-frame corresponds with a period of rapidly growing globalization. They estimated that American consumers would have been willing to pay the equivalent of about 2.6 percent of GDP to have the increase in the variety of their imports available in 2001 compared to their variety in 1972 (Broda and Weinstein, 2006, p.576). There is no doubt that greater variety of products is valued by consumers and that international trade can increase the variety of products available to them at the national level.

However, it cannot be deduced from the study by Broda and Weinstein (2004, 2006) whether globalization is increasing the variety of products available globally. It is possible for the variety available in individual countries to rise and for global variety to fall. A fall in global variety of products may however, take some time to occur and global variety will not only be influenced by the occurrence of globalization. Furthermore, the demand for different types of imports is influenced by migration. An increased variety of sources of immigrants to a country is likely to result in a more diverse range of imports to this country from the countries of origin of immigrants.

While growing globalization increases the variety of products available in a country initially and possibly for some time, it could result in a reduction in the long term. Variety might, for example, peak after a time and then decline but not become as limited as when international trade was very restricted. Consumers might still be better off (despite the reversed-U-trend in the availability of varied products locally and eventually reduced global variety of products) than would be the case with restricted scope for international trade and investment because the latter involves even less variety locally. However, in the light of Schumpeter's theses and evolutionary considerations discussed, growing globalization may reduce the global rate of new product development and innovation. There is a strong possibility that this rate will decline in the long-term. This is likely to be assessed as a negative impact.

It should be noted that Broda and Weinstein (2004, 2006) do not consider the changes in the stock of variety of commodities globally and assume that domestic variety is unaffected by an increase in the variety of imports (Broda and Weinstein, 2006, p.580), however, it is possible that the variety of commodities produced in higher income countries, such as the USA, has declined with growing globalization because production of many commodities previously produced at home in the United States has moved offshore, for example to China. Therefore, the model of Broda and Weinstein may overstate the impact of globalization in increasing product variety in higher income countries. Another limitation of the modeling of Broda and Weinstein is their assumption that the 'same' commodity when supplied from a different country be regarded as a different variety. For example, they regard Japanese wine to be a different product variety to French wine. However, some Australian, Californian, Chilean, Spanish and South African wines are close substitutes for some French wines.

Because of data limitations and the cost of estimation using highly disaggregated models, their categorization of product varieties and products is relatively coarse. Nevertheless, they have made a useful start in providing the first estimates of the economic benefits of economic globalization arising from its impacts on the availability of a more varied basket of commodities.

Nevertheless, the cost-benefit analysis involved and the results obtained need to be assessed critically. These results depend crucially on the type of model adopted for the analysis and on the type of assumption employed to make the estimation tractable. Furthermore, the time-period in which the empirical analysis is conducted should be kept in mind. For example, the effects of globalization on the growth in the available variety of commodities observed by Broda and Weinstein for the period 1972-2001 may not be sustained in future periods. In fact, they already observe a tapering off in the growth of available product varieties in the USA in the 1990s compared to the period 1972-1988 and suggest that this might be because “much of the gains from globalization arising from rise in importance of East Asian trade may have been realized prior to 1990” (Broda and Weinstein, 2006, p.574).

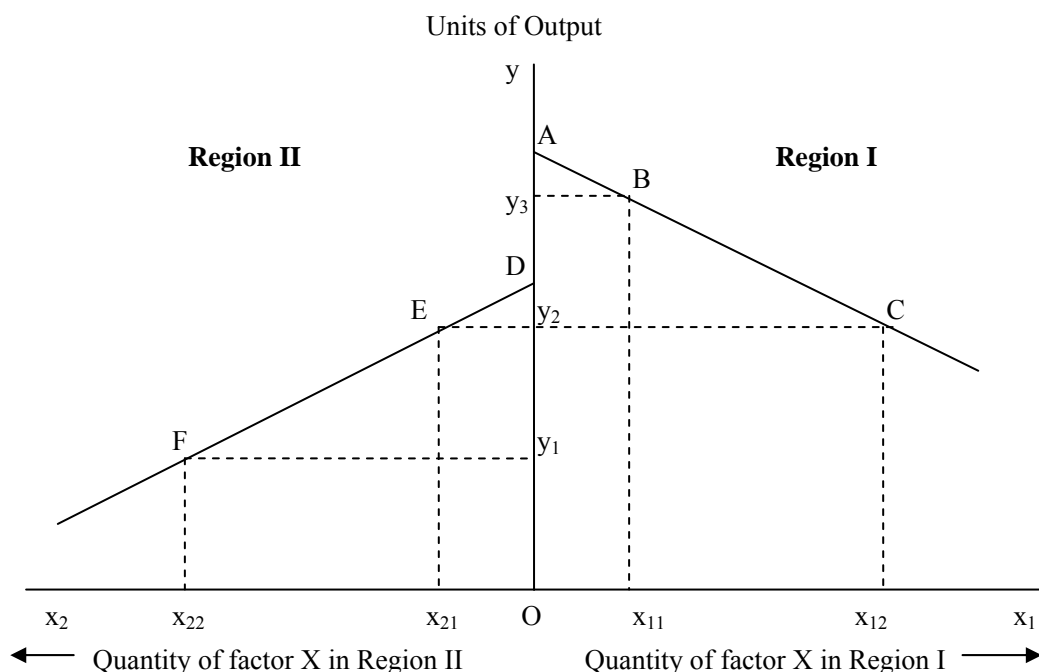
#### **4. Increased Mobility of Factors of Production and Changes in the Location of Development and Globalization**

Increasing globalization facilitates the geographical movement of factors of production and this enhanced mobility can result in substantial economic benefits. There appear, however, to be few quantitative monetary estimates of these benefits. Economic benefits from increased factor mobility can include a rise in global output relative to the factors of production employed. As a result of greater mobility of factors of production, some regions may have their economic development and population increase whereas other areas may decline as economic globalization proceeds. Measurement of the benefits and costs will be heavily influenced by the type of model used to analyse the situation. Here two types of models are considered. The first is based on traditional neoclassical economics and assumes the absence of local or regional economies of agglomeration and the absence of local externalities and public goods associated with regional development. The second model takes account of economies and diseconomies of agglomeration of economic activity and

local public good consequence of regional economic development along the lines highlighted by the new economic geography (see, for example Head and Mayer, 2004). Measurements of economic benefits are more complicated in the latter case.

There is no doubt that forces involved in globalization have enhanced the international mobility of factors of production, particularly of capital. There are now fewer barriers to foreign direct investment and although international movements of labour continue to be restricted, considerable movements of labour internationally are occurring. Some of these movements of labour are illegal but many governments now woo immigrants with high levels of skill. Standard neoclassical theory implies that changes which reduce impediments to international movements of factors result in a net economic benefit, if the Kaldor-Hicks criterion is adopted. This can be illustrated by Figure 3. The Kaldor-Hicks criterion (also known as the potential Paretian improvement criterion) implies that there is a social economic gain from a reform if those who benefit from it could compensate any losers for their loss and be better off than before the change.

Consider a world consisting of two regions or nations. I and II, and one factor of production, X, labour or capital which can move internationally. For simplicity, suppose that only one product Y, is produced and that the aggregate supply of the internationally mobile factor is perfectly inelastic. With restrictions on international movements of X,  $x_{11}$  if X is supplied in Region I and  $x_{22}$  if it is supplied in Region II. If ABC represents the marginal regional productivity of the mobile factor in Region I and if DEF shows its regional productivity in Region II, its marginal productivity is highest in Region I and is least in Region II. It is equal to  $y_3$  in Region I and  $y_1$  in Region II. This disparity would be reflected in differences in wage levels between the two regions if the factor of production is labour and in disparity or interest rates if the factor of production is capital.



**Figure 3** An illustration of the economic consequences of greater global mobility of factors of production based on neoclassical modeling.

Global free movement of the mobile factor of production will equalize its marginal productivity in all regions. This will raise global production when a constant aggregate amount of the factor X is employed. As illustrated in Figure 3, the marginal productivity in each region of X equalizes at level  $y_2$  and so does the payment for each unit of it, given competitive market conditions. If the mobile factor is labour, free movement reduces the wage rate in Region I and increases it in Region II. These regions may correspond, for example, to developed and less developed countries respectively. Note that the economic surplus from non-mobile factors of production rises in Region I and falls in Region II. Total production falls in the region that is naturally less productive and rises in that which is naturally more productive, and consequently differences in regional contributions to global production are magnified.

Given this neoclassical model, one could expect workers in higher income regions to be opposed on economic grounds to immigration from lower income regions because it reduces wages in higher income countries. Because immigrants can generate social tensions and cultural conflict, this may also create national demands for limiting immigration. On the other hand, owners of immobile resources in higher income

countries would obtain economic benefit from such migration, for example owners of agricultural land in the United States can increase their surplus by using low-cost labour from Mexico.

The above economic model, however, is likely to be of limited relevance for measuring the economic benefits from greater global mobility of factors of production when account is taken of secondary and tertiary industries. This is because it fails to take account of economies of agglomeration (Fujita and Thisse, 2000), substantial economies of scale and scope, and differences in sharing of economic benefits at different locations due to forms of 'open-access'. The latter benefits are quite varied and may include access to support from public welfare programmes, greater opportunities for employment choice of a wider range of jobs, improved economic prospects for offspring, and better environments, for example, in higher income countries compared to less developed regions. Furthermore, various types of favourable externalities may be obtained by being located in higher income regions. Modeling these aspects in a simple way is a challenge. This is especially so when movements of different types of factors of production result in differences in external benefits.

For example, a more favourable social attitude seems to exist in higher income countries to the immigration of skilled labour than unskilled labour. Is it because the former generates (or is believed to generate) greater positive economic externalities? Or is it because social integration of this group is believed to be easier? Or possibly there is a perception in higher income countries that more skilled immigrants are also likely to become less dependent on welfare benefits and therefore, are not as costly to taxpayers in higher income countries as unskilled immigrants. It is possible also that inward movement of skilled migrants and of capital to a region may accelerate technological progress and inventiveness in the region receiving these. This may provide widespread economic benefits to the region and provide momentum for its further economic growth. This economic growth may be supported by increasing returns from research and development and innovation thereby encouraging more immigration of skilled workers and capital including venture-capital. Consequently, cumulative causation of the type suggested by Myrdal (1956) may be experienced and is also a possibility given Romer's economic growth model (Romer 1986).

New economic geography theories of economic development stress the importance of economies of agglomeration of economic activity as contributors to regional and urban development. As outlined, for example, by Duranton and Puga (2004) and by Abdel-Rahman and Anas (2004), these economies can arise from sharing, matching and learning externalities experienced by economic agents in a locality. These theories, emphasise (unlike in the case of standard neoclassical theory) the importance of external economies of agglomeration and of other local externalities and public goods for regional development.

These theories raise the question of whether simple models based on average rather than marginal values (which are the basis of neoclassical economic theory) might throw more light on the nature of the phenomena involved in the distribution of global economic growth when increased global mobility of some factors of production occurs. If this is so, the resulting global resource allocation is unlikely to maximize global production in relation to the resources employed. Higher income regions are likely to over develop in relation to lower income regions given the theory of utilization of open-access resources (Gordon, 1954). Open-access resources are those which no-one is excluded from using. A similar proposition is that many cities are likely to exceed an optimal size because of co-ordination problems (Duranton and Puga, 2004, p.2075). Nevertheless, global production is liable to be higher and incomes higher than if international mobility of factors of production is not allowed to occur or is severely restricted.

Furthermore, industrial development may not occur in ideal geographical locations due to path dependence and myopia, as in the case of cities or central places (Tisdell, 1975). Nevertheless, even though this may be economically far from ideal, freedom of factor mobility can be expected to result in greater global production than by disallowing agglomeration.

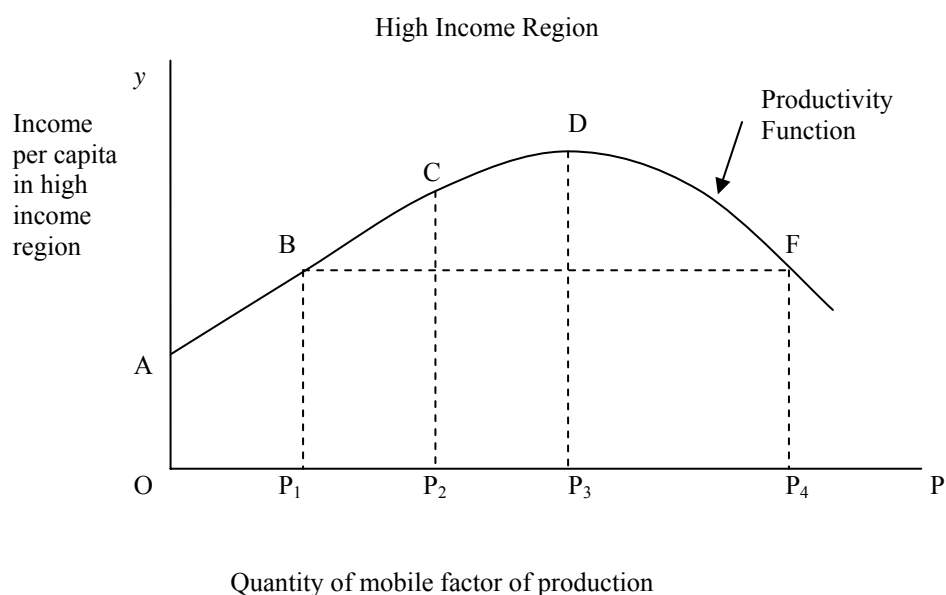
While the above theory suggests that globalization favours the growth of higher income countries, it does not rule out economic breakthroughs for some lower income regions as they reform their economic systems to take advantage of their changing circumstances. Japan made such a transition and China is in the process of doing this. China and associated Asian countries have become a magnet for foreign investment



and the Asian region has strengthened as a world growth centre; a process facilitated by growing globalization. Eventually this region could become a more relatively permanent global centre of economic growth.

Some features of the new economic geography can be illustrated by a simple example. Suppose two regions, a high income region and a low income region and that each contains a factor of production,  $P$ , which is homogenous in inelastic supply and potentially mobile.  $P$  might be the working population in each region. Initially, however,  $P$  is restricted to its own region but subsequently with globalization it becomes perfectly mobile. Given that per capita income is initially lower in the lower income region,  $P$  gravitates to the higher income region as globalization proceeds. This flow will continue until per capita incomes are equalized in the regions, or a corner point solution emerges. In the latter case, all of factor  $P$  flows from the low income region to the high income region. What will be the benefits or costs for the higher income region of these flows?

This can be illustrated by Figure 4. The curve ABCDF shows per capita income (or productivity) in the higher income region as a function of the mobile factor  $P$ . In this region,  $P$  is assumed to be initially  $P_1$  and therefore, income per capita corresponds to  $B$ . If after globalization the inflow of  $P$  to the high income region is less than  $P_4 - P_1$ , all benefit. The per capita incomes of pre-existing residents of the high income region increase as well as that of immigrants, if we assume the mobile factor is labour. On the other hand, if we assume that the inter-regional equilibrium is only established when migration to the high income region exceeds  $P_4 - P_1$ , pre-existing residents of the high income region suffer a reduction in their per capita income. Migrants on the other hand, usually have higher incomes than in the absence of inter-regional labour mobility. Note that the maximum economic benefits for residents of the high income region would occur for inauguration of  $P_3 - P_1$  persons from the low income region.



**Figure 4:** Possible economic impacts on a high income region of inflows of a mobile factor of production from a low income region.

Much cost-benefit analysis of such matters still remains to be done. Progress in this area, however, depends on estimating regional production functions which take account of agglomeration economies directly, such as has been done by Henderson (2003), or the adoption of indirect measures of their importance (Rosenthal and Strange, 2004, pp. 2128-2132). The need to take account of spatial aspects of economic activity becomes more important as globalization proceeds.

## 5. Employment, Income Inequality and Poverty in a Globalizing World

Economic globalization has increased the extent to which the level of economic activity in many countries depends on external markets. As a result, national governments are less able than previously to regulate levels of national employment and economic activity. Whether this rising external dependence results in greater variability of macroeconomic variables is unclear. Nevertheless, as economies become more open they may experience more frequent structural adjustment than when they are relatively closed and could experience greater job insecurity. To cope with such changes, greater adaptability of the workforce and greater mobility of labour is needed.

Views on the possible effects of globalization on inequality of income are varied. Some writers believe that differences in per capita income between nations will diverge as globalization occurs (for example, Singer, 1950; Frank, 1978) whereas others believe that convergence is more likely.

Personal income obtained from labour has become more unequal as increasing globalization has occurred in recent decades (Mishell et al., 2001; Ryscavage, 1999). Incomes of the skilled and more highly educated have increased relative to those with little skill. One explanation given for the growing inequality is that demand for skilled or more highly educated labourers has increased relative to that for unskilled due to technological change (Aghion and Williamson, 1998, pp.42-43). Another contributing factor is that growing globalization has resulted in a higher proportion of commodities involving less skilled labour being produced in countries that have an abundant amount of this labour. This has resulted in reduced demand for unskilled labour in higher income countries and as would be expected on the basis of the Samuelson Stolper theorem, has moderated wage rises for this group (Wood, 1998). On the other hand, skilled labour is in short supply globally and the demand for it has increased strongly with global economic growth.

Economic growth and growing globalization have been associated in recent times with rising personal income inequality. The increasing divergence in incomes is mainly between the levels of income of the skilled persons and that of unskilled workers. This pattern is not consistent with that predicted by the Kuznets curve (Kuznets 1963; Tisdell and Svizzero, 2004). Some of the economic costs associated with this growing income inequality are identified and discussed in Tisdell and Svizzero (2004). This divergence in incomes seems to be occurring both in developed and less developed countries. Given that skilled labour is relatively mobile internationally compared to unskilled labour, this pattern is not surprising. Furthermore, the supply of unskilled labour is still relatively elastic in many less developed countries, but not that of skilled labour. In these circumstances, one would expect, on the basis of Lewis's theory (Lewis 1954,1979), that the real wages of unskilled labour in less developed countries would remain relatively low until the level of surplus rural labour is absorbed in employment in manufacturing and tertiary industries.

While growing globalization appears to be contributing to growing inequality of personal income worldwide, it does not follow that it is a source of a growing incidence of poverty. In fact, in those developing countries that have experienced accelerated economic growth as a part of the opening up of their economies to the outside world, such as China, the incidence of poverty has fallen. China has simultaneously experienced growing income inequality and a significant fall in its incidence of poverty. However, not all countries are fortunate enough to be able to obtain significant economic growth as a result of globalization. Some are resource-poor and have significant natural barriers to international trade. These include a number of small economies in the Pacific (for example, Kiribati and Tuvalu) and some land-locked countries such as possibly, Mongolia. Natural barriers to international trade by such countries include high transport costs required to participate in such trade. Furthermore, diseconomies of scale due to their small home markets restrict their foreign trade possibilities. In some countries, social and political instability, lack of law and order, corruption, civil conflict, war and a system that is not supportive of commerce limits their ability to participate effectively in the process of economic globalization.

There is little evidence that growing economic globalization has led to the immiserization of developing countries as a whole. In fact, just the opposite has happened for several developing nations. For example, the increasing involvement of East Asian countries in economic globalization has contributed greatly to their economic growth and a reduction in their poverty rates. The result has been the opposite to that predicted by the Marxist-like theory of Frank (1974). Nevertheless, many less developed countries have failed to exhibit economic growth and their poverty rates have risen, as is evident in Africa and to some extent in the Pacific islands. It is doubtful whether their economic misfortune can be mainly attributed to growing globalization. Yet, in many cases, political corruption has reduced their national gains from their limited participation in global trading. For example, in some cases bribes paid to local politicians and officials has reduced the royalties such nations have obtained from their exports of natural resources, such as minerals and timber.

Even countries that have reduced their incidence of poverty in step with their increased involvement in economic globalization have not always been able to reduce the incidence of poverty in all their sectors and regions. For example, the incidence of rural poverty has risen in some. This is because adjustments to changing market conditions takes time and some labourers seem less mobile and less able to adjust to market change than others.

It is true that the gap between the level of per capita income in the very poorest nations and that of the richest nations has widened as economic globalization has gathered momentum in recent years. The very poorest nations have not experienced economic growth or have had very weak growth or economic decline in this period. These trends cannot be adequately explained by their involvement in the process of globalization because their involvement is limited. On the other hand, economic globalization has helped to maintain the economic growth of higher income countries, even though at a slower rate than several of the East Asian emerging economies. Thus the widening gap between the poorest and richest nations is associated with growing globalization but not for the reason hypothesized by some Marxist writers.

Growing globalization experienced in recent decades has been associated with a decline in the global occurrence of poverty but has not been able to reduce the incidence of poverty in all developing countries and in all geographical locations (Salvatore, 2007, Pp. 404-405 and references given there).

Several global indicators of trends in the incidence of poverty are available as well as its correlates, such as the number or proportion of underweight children in a population, child mortality, the proportion of children obtaining elementary education and expected length of life. For the world as a whole, these indicators have shown desirable trends as globalization has proceeded. This does not, however, mean that increasing globalization is the causal factor. Nevertheless, where economic growth has accompanied economic reforms and the opening up of economies to the outside world, as in the case of China, a significant reduction in the incidence of poverty has also occurred.

It is probably overly ambitious to attempt a cost-benefit analysis of the impact of economic globalization on reducing poverty. Nevertheless, cost-benefit analysis can be applied to many aspects of poverty-reduction policies. For example, the cost-effectiveness or productivity of public expenditure to reduce the incidence of poverty can be assessed. For example, if there is a public goal to maximize the number of persons or families escaping from poverty in relation to the public expenditure undertaken for poverty reduction, the effectiveness of public expenditure can be assessed. In some developing countries, this goal may not be achieved because some funds intended to assist the poor are obtained by the non-poor, or public administration costs incurred in distributing the funds may be higher than is necessary. While progress has been made in quantifying many of the effects of poverty alleviation programmes (see, for example, studies in Tisdell, 2007a, including Weerahewa and Prasada, 2007), actual cost-benefit analysis of these policies are very limited. There is considerable scope for applying cost-benefit analysis in this area.

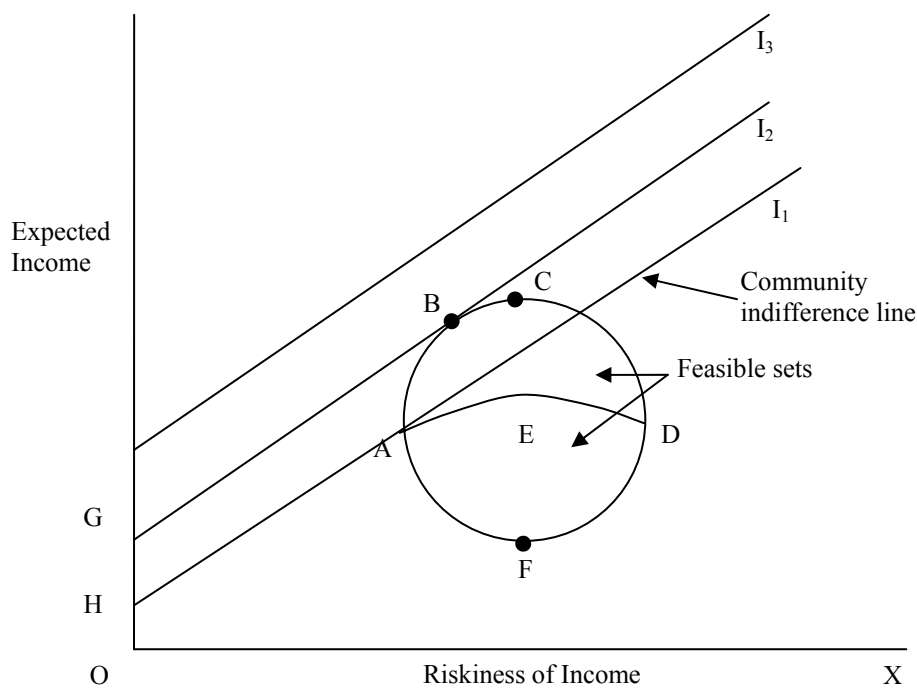
Similarly, while the UN's Millennium Development Goals are of global importance, particularly those concerned with development and poverty eradication, they appear to not to involve much emphasis on cost-benefit analysis (Tisdell, 2007b). These goals include halving the population with an income of less than \$1 a day in 2015 compared to the situation in 1995 and reducing under-five child mortality by two-thirds between 1990 and 2015. These are definite targets. Once again, cost-benefit analysis does not appear to be emphasized. Nevertheless, given that resources for poverty alleviation are limited, a role does exist for cost-benefit analysis in designing policies for poverty alleviation.

## **6. Economic Vulnerability, Globalization and CBA**

Economic globalization (according, for example, to the theory of comparative advantage) fosters international specialization in production. In countries possessing few resources with little variation in these, a high degree of specialization can occur with growing globalization. This lack of product diversification can make their economies very vulnerable to external changes in demand. Many developing countries are dependent on a narrow range of export commodities for their foreign exchange

earnings and increasing globalization can narrow the range of commodities produced by them.

Thus in undertaking a cost-benefit analysis of the extra trade opportunities opened up by growing globalization account should also be taken of the extra risks of greater economic specialization. Usually, there is positive aversion to increased risk-bearing, other things remaining equal. This problem can be illustrated by Figure 4. Initially, a developing country is assumed to have a collection of expected income and riskiness of income possibilities as shown by the set bounded by AEDF. As a result of growing globalization, suppose that this set expands to that contained within the circular body bounded by ACDF. Given that the lines marked  $I_1$ ,  $I_2$  and  $I_3$  represent the community's indifference curves for expected income and riskiness of income combinations (these are shown as straight lines but in practice probably increase at an increasing rate), A is initially optimal but subsequently B is optimal. Note that C gives a higher level of expected income but is not optimal because of the extra risk it entails.



**Figure 5:** Risk and uncertainty needs to be allowed for in the application of cost-benefit analysis. This creates challenges for the analysis.

Measuring risk can be quite challenging. In some cases, risks may be so uncertain that they cannot be quantified in terms of specific probability. Nevertheless, uncertainty still needs to be taken into account in cost-benefit assessment. Various criteria for decision-making under uncertainty can be applied in such cases. Note also that the riskiness of increased specialization in production depends on the extent of 'lock-in' to this specialization. If it is relatively easy and low-cost to switch specializations, then considerable economic flexibility exists and specialization in production only poses a minor risk. However, if this is not so, the economic risks from specialization in production can be substantial. Standard neoclassical theory assumes flexibility in resource-use but New Institutional Economics (for example, of the type introduced by Williamson, 1985) does not. The background theory which an economic analyst decides is relevant influences the nature of the cost-benefit analysis undertaken and usually the results obtained. Choice of appropriate economic theories is crucial for meaningful cost-benefit analysis.

Another vulnerability concern is that increasing globalization can result in the production of commodities required for effective defence moving offshore. This reduces the self-reliance of the country experiencing this in defending itself against aggressors. It may wish to forgo some economic efficiency in such cases to secure greater security for its defence. For example, in December 2007, President Bush announced that the USA would escalate its production of biofuels in order to make it less dependent on imported oil for its energy needs.

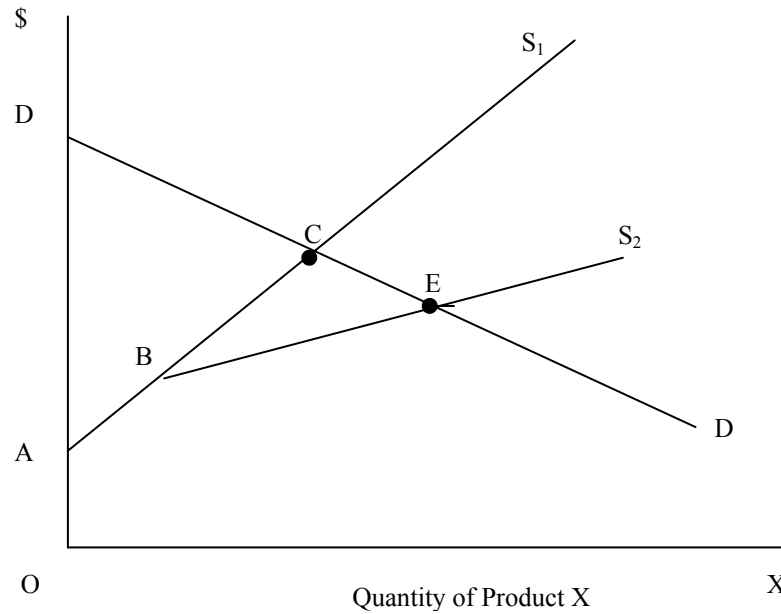
Again, it is possible that greater global competition could reduce profit margins in low levels in some decreasing cost industries, such as air travel. In such cases, the industries are economically highly vulnerable to a shock that may suddenly cause the demand for their services to drop drastically (Tisdell, 2006). This has been demonstrated for example, by the economic impacts of terrorist attacks, such as the September 11 attacks in the USA. Furthermore, international competition and efficiency considerations may dictate the adoption of highly interdependent networks in countries such as web networks. Widespread economic disruption can occur if such networks are sabotaged. In some cases, this sabotage could make national defence more difficult. In both cases, increasing economic concentration due to economies of scale brings increased economic benefits but at the cost of greater vulnerability. Cost



estimates of the measures taken to reduce this vulnerability (such as in the airline industry) could be compared with the economic benefits of industry concentration. Cost-benefit analyses would also be possible of the anti-terrorism measures adopted by governments.

To the extent that globalization results in best practices being more widely adopted in industry because of competitive pressures, it tends to make for homogeneity of productive units. This homogeneity may impede economic adjustment to changing economic conditions, and slow technical progress if diversity is favourable to such progress (Tisdell, 2006). Consider the adjustment issue. Increased homogeneity tends to reduce the slope of the industry supply curve. In the simple cobweb model case, this change shows the adjustment of the market to its equilibrium after the market suffers a shock. The adjustment mechanism is therefore less beneficial than previously. However, in equilibrium and assuming static analysis there still is a net economic benefit from more widespread adoption of best practice in the industry..

This is illustrated in Figure 6. There,  $AS_1$  is initially the industry supply curve but as a result of greater international competition, less efficient firms in the industry become more efficient and the supply curve becomes  $ABS_2$ . Given the demand curve  $DD$ , there is an increase in economic surpluses equivalent to the area of triangle  $BCE$ . However, this benefit is offset to some extent by slower convergence to industry equilibrium if a shock occurs and if the simple cobweb model applies. Therefore, the relevant cost-benefit analysis should also be extended to take account of market adjustment mechanisms. This is in line with the view of many members of the Austrian School of Economics (for example, Hayek, 1948) that market adjustment mechanisms should be taken into account in economic assessments. There is considerable scope to expand the application of cost-benefit analysis in this area.



**Figure 6:** A diagram used to illustrate the proposition that while economic globalization may result in increased economic benefits in equilibrium conditions, it may add to the economic costs associated with market adjustment. Globalization may also show technical progress by reducing economic diversity.

## 7. Environmental Issues, particularly Global Warming, and CBA

Increasing globalization has stimulated global economic growth and has helped to bring about large increases in the level of global economic production over a long period of time. As a result, several transboundary and global issues have become important. For example, globalization and market extension have played a major role in the reduction of the world's genetic assets or stocks. Furthermore, the extent of and the type of economic growth which has occurred has, since the Industrial Revolution, been a major factor in global warming, according to most scientists.

Economic mechanisms that lead to a loss of genetic diversity of livestock breeds as market extensions and globalization proceed are outlined in Tisdell (2003). The general arguments also apply to the genetic stock of crops and other cultivars used in agriculture. In addition, global economic growth has resulted in growing loss of genetic diversity in the wild. Several mechanisms are involved. For example, agricultural expansion and intensification and urban expansion eliminates the habitats of some wild species. For instance, the expansion of oil palm production in Borneo

results in loss of forest habitat required for the survival of many tropical species, such as the orangutan. This conversion of forested land to agriculture is being driven by rising world demand for palm oil. Similarly, deforestation in the Amazon is occurring to make way for soya bean and cattle production, and is partly driven by world demand for these products. Not only is this reducing the stock of biodiversity in the wild but it is also adding to the amount of greenhouse gases in the atmosphere. As a result of forest loss, less carbon is sequestered in trees.

Some cost-benefit studies have been completed of the economics of conserving biodiversity but much further work remains to be done. For example, Pearce and Moran (1994, Ch.6) have studied the economics of conserving tropical forests taking into account the diversity of their plants and their potential for producing new pharmaceuticals. When this is taken into account as well as the other benefits for conserving these forests, such as their role in sequestering carbon dioxide, Pearce and Moran arrive at a large net benefit per hectare for their conservation. The total economic value (both use and non-use values) from conserving such forests is shown to be high. The concept of total economic value was popularized by Pearce et al. (1989) and aims to provide estimates of tangible and intangible economic benefits from conservation (see Pearce and Moran, 1994, Tisdell, 2005, pp. 110-113). Many of those benefits are not marketed.

Economic growth of the type experienced since the Industrial Revolution has been implicated as a major contributor to global warming. This economic growth has been based to a large extent on the utilization of fossil fuels, has been a major contributor to the build up of greenhouse gases in the atmosphere and consequently to global warming. If economic production and consumption continue to involve the current levels of use of fossil fuels (or current trends continue), major adverse social and economic consequences are expected globally before the end of the century due to global warming.

Growing globalization by stimulating economic growth in production and consumption based on growing use of fossil fuels has accelerated the global warming problem. China and India, for example, have increased their emissions of greenhouse gases as a result of their rapid economic growth which has been facilitated by growing

globalization. The hope that an environmental Kuznets of relationship would solve the global warming problem has proven to be a false hope (Tisdell, 2001). That, however, is not to suggest that a return to inward-looking economies is an effective way to deal with the problem. This would merely increase the economic burden of reducing greenhouse gas emissions compared to alternative strategies such as ensuring that greenhouse gas emissions are efficiently reduced globally. This could in principle be achieved by ensuring that the environmental price for such emissions reflects social externality costs and is the same anywhere. This is on the basis that the emissions have common-pool consequences.

At the present time (2008), no global system of positive uniform pricing exists for greenhouse gas emissions (for example, for CO<sub>2</sub> emissions) although the EU has been developing such a system for its member states. This means that while in the EU pricing has developed for greenhouse gas emissions, in many countries no such system operates and the global environmental externalities involved are unpriced. This is the case, for example, in China and India. As a consequence, industries that have a high intensity of greenhouse gas emissions tend to relocate from regions that charge for or regulate these emissions 'strictly' to regions that do not. This can be expected to stimulate foreign investment in the establishment of globally polluting industries in regions that have little or no control on their emissions, will result in the increased production in such regions of products adding to global pollution and their increased export to countries having stricter pollution controls.

Most developing countries are reluctant to impose stricter controls on emissions of global pollutants because this is likely to slow their rate of economic growth. They also point out that their per capita level of greenhouse gas emissions are much lower than in higher income countries. Their opposition to global pollution controls appears to be mainly based on the grounds that income in their countries are lower than in more developed countries, and therefore, they should be less constrained in their growth options. Significant international political barriers exist to having uniformity or near uniformity in charges for greenhouse gas emissions in all regions. Those barriers are unlikely to be overcome soon. In these circumstances, greater economic globalization is making it more difficult to address environmental issues arising from market failures.

Apart from this, there is still (2008) continuing disagreement between nations about whether reductions in greenhouse gas emissions by nations should be mandatory, about how much individual nations should have to reduce greenhouse gas emissions and whether some (such as less developed nations) should be required to reduce their greenhouse gas emissions at all. This disagreement is primarily about how the burden of reducing greenhouse gas emissions should be shared internationally. This conflict persists despite the finding by Nicholas Stern (HM Treasury, 2006, p.ii) from his in-depth cost-benefit analysis of the economics of reducing greenhouse gas emissions that “the benefits of strong early action [to limit greenhouse gas emissions] considerably outweigh the costs”. Unfortunately, while the Stern Report indicates the collective economic wisdom of reducing greenhouse emissions like much cost-benefit analysis, it only provides only a partial means for resolving social conflict.

It is impossible here to provide a detailed account of the cost-benefit analysis undertaken by Stern. He provides a range of results based on a variety of hypotheses. However, his central argument is that a realistic global target is to stabilize the atmospheric concentration of CO<sub>2</sub> at 550ppm by 2050 and that this will require reduction pathways to be established to lower current global greenhouse gas emissions by around 25% by 2050. He estimates that about a 1% reduction in GDP will be required by 2050 to achieve this result. This policy initiative will, however, avert even larger future decreases in GDP that will occur if nothing is done to reduce greenhouse gas emissions now. The net averted loss of GDP after 2050 may be of the order 4-19%, that is 5-20% less the 1% cost of the aversion. Stern, however, recognizes that there is uncertainty in these estimates and provides a range of possible costs and benefits. He admits that his analysis involves difficult ethical and measurement issues and that “the results have to be treated with circumspection” (HM Treasury, 2006, p.ix). Nevertheless, his work represents a major positive contribution to the rational economic evaluation of climate change policies.

The following are some of the issues which Nicholas Stern had to consider in completing his cost-benefit analysis:

- (1) Estimates by national scientists of the biophysical consequences and relationships involved in climate change are imprecise. Therefore, uncertainty has to be allowed for in the cost-benefit analysis.
- (2) The economic and biophysical consequences of global warming are expected to be geographically distributed in an uneven manner. For example, developing countries are likely to suffer more heavily than higher income countries. This raises the question of how the distributional consequences of the impacts should be allowed for in the cost-benefit analysis. Stern considers the possibility of weighting the losses of low income countries more heavily than those of higher income countries. There may, however, be disagreement about the appropriate weights.
- (3) The costs and benefits of global climate change involve a very lengthy time scale. This highlights the question of the extent to which future costs and benefits should be discounted. This matter requires consideration of philosophical issues about the intergenerational fairness of the distribution of income and the availability of economic opportunities. One extreme possibility is not to discount at all.
- (4) Gross domestic product is only a partial indicator of economic welfare. For example, it does not register the value of non-marketed commodities many of which may be lost as a result of global warming. Stern (HM Treasury, 2006, p.x) suggests that these non-market losses would be equivalent to an extra loss in per capita consumption of about 6% in this century if no action is taken to slow climate change. The accuracy of this figure is unclear but it recognizes the reality that the availability of marketed goods only partially measures economic welfare.

## **8. Concluding Observations**

According to several different measures, economic globalization has proceeded at a rapid pace in the last four decades or so. However, assessing its costs and benefits by devising a single monetary measure does not seem to be realistic. This is partly because the impacts of globalization are multidimensional, there are distributional consequences and its long-term consequences can differ considerably from those in the medium- to short-term. Furthermore, there is considerable uncertainty about some

of the consequences such as the long-term global environmental consequences of the type of economic growth that it has stimulated. In addition, it has stimulated the rapid economic growth of some regions (such as East Asia) which in turn is likely to alter the international balance of political power in the long run.

Economic globalization has stimulated global economic growth via changes in the international location of industries and by increasing freedom of capital movements, including foreign direct investment. However, this does not mean that it will lead to optimal location of production internationally. Nor does it mean that all industries will become more competitive nor that the potentially most efficient firms are the most likely survivors. Path-dependence is a problem in this latter case. The global market structures that emerge may not be conducive to high rates of technological progress given Schumpeter's hypotheses. Increasing inequality of personal income has been associated with growing globalization in recent decades. To a large extent, this may be due to the nature of technological progress in modern times. However, economic globalization has most likely reinforced this divergence. Also differences in per capita income (between the poorest and the richest) of nations have increased. There are many possible reasons for this. However, some nations are so poorly placed as to be unable to participate in the process of economic globalization to any significant extent. As globalization has proceeded, the incidence of global poverty has declined especially in countries (such as China) that have experienced considerable economic growth. Nevertheless, the incidence of poverty has risen in some countries or hardly changed at all. In some cases, this is because they have little scope for international exchange. Less security of employment also appears to be a feature of growing globalization.

In addition, even in cases where growing globalization raises economic efficiency, this can be at the expense of heightened vulnerability to shocks of various kinds, such as those from terrorism and war. Furthermore, economic adjustment mechanisms can become less effective. Adjustment to, shocks may be prolonged and this also involves a cost.

Increased economic globalization and associated economic growth have brought global environmental issues to the fore. These developments, such as increased global

warming, pose new global political challenges. It is likely to be difficult politically to arrive at a solution which corrects these market failures in an efficient way. It would be desirable for this problem to be resolved by strategies other than by restricting international exchange and investment. Nevertheless, an option of countries that restrict their greenhouse gas emissions would be to place international trade and investment restrictions on those nations that do not.

There appears to be a widespread belief amongst economists that to date growing globalization has yielded a net economic benefit. It has helped reduce the incidence of poverty globally, has contributed to a rise in incomes globally, and increased the variety of commodities available at regional levels. On the other hand, it has been associated with growing income inequality, has contributed to global environmental problems, has increased job insecurity and it is by no means clear that it will have a positive influence on technological progress in the long-term.

Cost-benefit analysis of the consequences of economic globalization can be undertaken in two different ways. Quantitative conclusions can be reached by exploring the implications of economic theory for economic benefits and costs when market extension occurs. A problem with this approach is that opinions can differ about the relevant theory to apply and the cost-benefit implications of different theories are not always the same, as has been shown in this exposition. Judgment is, therefore, required to select the most relevant theory. A further problem from a policy perspective is that policy-makers may not find qualitative results adequate for making a policy choice. The second approach (and one which in principle is highly desirable) is to quantify the costs and benefits involved in changes related to globalization. As shown here, Broda and Weinstein (2004, 2006) do this in relation to the growth in the available variety of commodities associated with growing globalization and Nicholas Stern (HM Treasury, 2006) does this in relation to policies designed to reduce the rate of global warming; a process that has been accelerated by growing globalization. Nevertheless, quantitative findings have to be interpreted cautiously because their adequacy depends on the underlying adequacy of the theory that underpins them and the assumptions employed to make the data analysis tractable.



## 9. Acknowledgements

I wish to thank Robert Brent for his constructive comments on an earlier draft of this paper. The usual *caveat* applies.

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