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Trade and the Evolving World Economy

New technologies have great potential payoffs, but they require more sophisticated forms of social organization.

by Graciela Chichilnisky and
Geoffrey M. Heal

"There is no such thing as free trade in steel; what we're trying to obtain is fair trade."

This comment by the chairman of Armco, Inc., made during U.S.-European steel-export negotiations, seems to capture a growing attitude among American business leaders: although they do not like protectionism, more and more of them are concluding that too many countries are stacking the deck against American competitors.

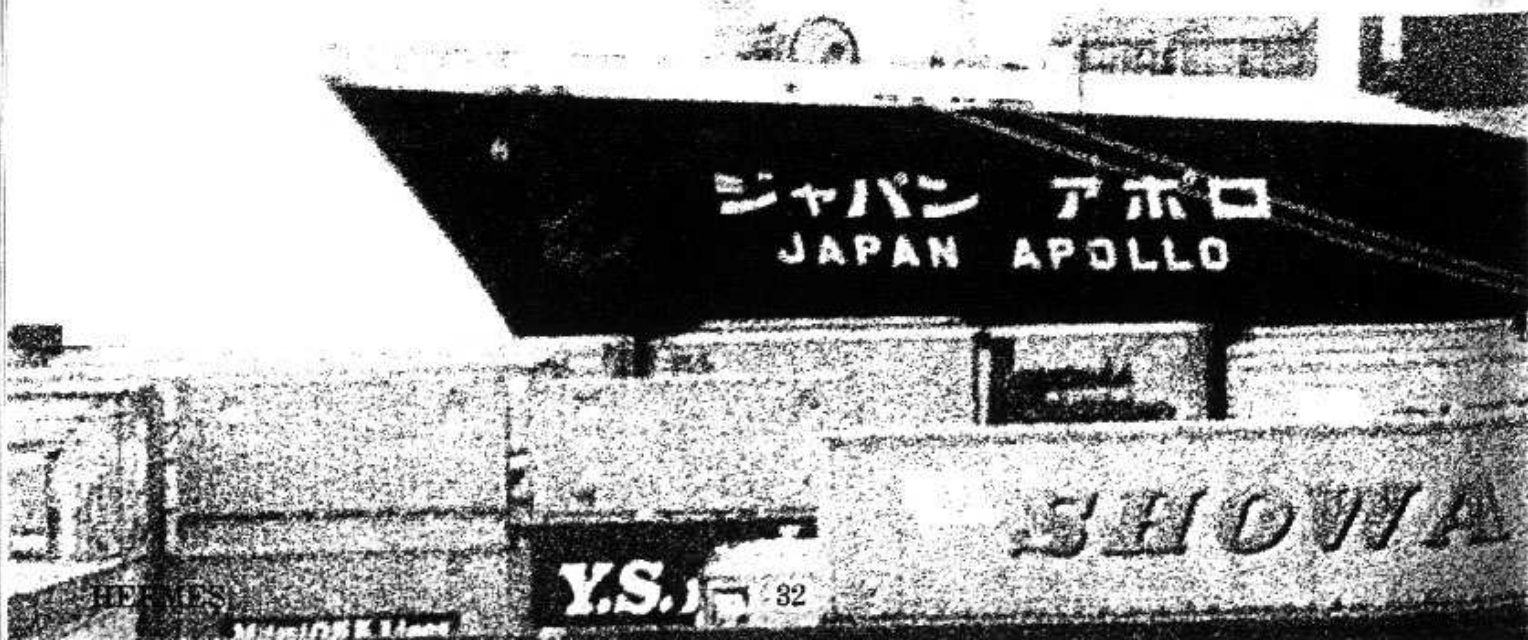
The severe recession of 1980-83 and its lingering effects in certain regions and business sectors; unemployment stuck at record-high levels; the decline of such industries as steel and autos: all these have brought pressure on leaders of industrial countries to protect their industries from international competition.

In the U.S., the high value of the dollar has added fuel to protectionist fires. As foreign goods became less expensive in dollar terms, they displaced domestic goods, leading to a large balance-of-trade deficit and to further pressures for protectionism.

In only a few cases have these protectionist responses been the traditional tariffs or quotas. More often, there have been informal agreements to restrict competition; for example, voluntary restrictions on the number of Japanese cars imported into the U.S. and U.K., or the suggested harmonization of prices of food exports from Europe and the U.S. A United Nations report calls these "measures of flexible protection."

What Does "Fair Trade" Mean?

The phrase "fair trade" appears often in the current free trade vs. protectionism debate, but so far it has not been convincingly defined. There is only an intuitive feeling that the market needs to be protected against manipulation or unfair practices. In fact, expressions of concern for fair trade are often little more than attempts to give a veneer of respectability to a protectionist lobby.



Underlying the rhetoric, however, are substantive issues that deserve our attention. The range of policies governments have used to intervene in markets has expanded dramatically, and these measures do undermine competition. In addition to tariffs and quotas, which are supposedly controlled by the General Agreement on Trade and Tariffs (GATT), there are export subsidies, regulatory policies which give an advantage to domestic firms, and indirect subsidies through support of R&D, to mention only a few. Calls for fair trade often emerge in response to the proliferation of such practices, which are viewed as subjecting other producers to unfair competition.

We are used to measuring a country's position in the world market against two polar benchmarks: the open or liberal economy, with no trade restrictions and with extensive participation in international markets, and the closed economy, with trade restrictions and minimal involvement in trade.

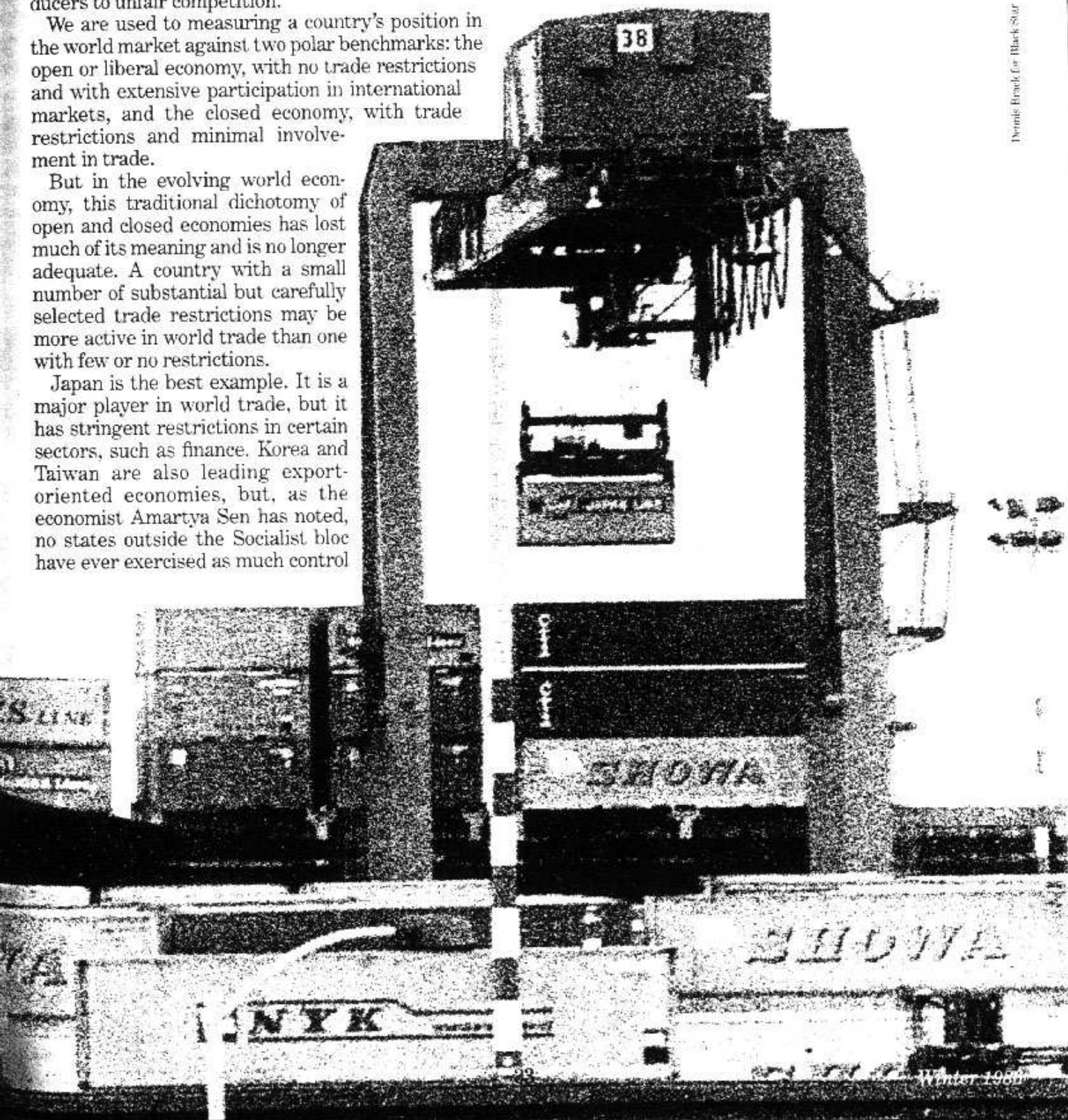
But in the evolving world economy, this traditional dichotomy of open and closed economies has lost much of its meaning and is no longer adequate. A country with a small number of substantial but carefully selected trade restrictions may be more active in world trade than one with few or no restrictions.

Japan is the best example. It is a major player in world trade, but it has stringent restrictions in certain sectors, such as finance. Korea and Taiwan are also leading export-oriented economies, but, as the economist Amartya Sen has noted, no states outside the Socialist bloc have ever exercised as much control

over their economic resources as these two countries.

On the other side, Chile, in the 1970s and early 1980s, adopted an open trading policy, but it has not increased its participation in international markets. More liberal policies do not necessarily mean more trade.

There is another reason why the old liberal vs. protected distinction is no longer particularly informative. A free trading regime used to be associated with balanced and efficient trade patterns; however, with the emergence of new technologies, this association has weakened. Protectionism does not provide the answer here either. There is an obvious need for new concepts,



Dennis Brack for Black Star

and the interest in fair and orderly trade reflects this need.

The Classical Argument for Free Trade Reconsidered

Classical theories explain that trade arises from comparative advantages and leads to efficiency; everybody does better when there is trade than where there is none, according to this model.

Different countries or regions have different resources, or in the economists' phrase, different factor endowments—capital, labor and other productive inputs—and can thus produce goods at different costs. If trade stems from such differences, and the most efficient producer of widgets or autos trades with the most efficient producer of shoes or machine tools, then everybody is better off.

This model explains very well why the U.S. exports food, while the U.K. imports food: the U.S. has more land and can produce at lower costs.

But the theory of comparative advantages cannot explain why Europe imports and the U.S. exports computers and aircraft, or why Japan exports automobiles or electronics to other industrial countries. Such trade has little to do with comparative advantages in the traditional sense; it has much more to do with who entered the field first, whose R&D programs have been most successful, and who has managed to get costs down furthest through mass production and the successful exploitation of economies of scale.

More can be said about competitive international markets. The "invisible hand," an informal term for the process of market adjustment, leads, under appropriate conditions, to prices at which markets clear—where there is a buyer for every good to be sold at a given price. It also leads to an efficient distribution of resources. This means that no other distribution of resources can make somebody better off without someone else being worse off. Under certain conditions, efficiency is also associated with the maximization of profits. Under the right circumstances, no intervention is needed to achieve all this; these are the natural outcomes of the free working of the market.

So where does fair trade fit into this? Fair trade usually means trading practices that are consistent with competitive markets, leading to optimal outcomes. Unfair competition typically refers to practices that may hinder the achievement of optimal outcomes. For example, low import prices, which are achieved by foreign governments' intervention, are deemed to be artificial and to hinder the achievement of efficiency by competitive markets.

Confusion arises because for certain imports—oil or other extractive resources, for example—the problem is the opposite: prices are too high, not too low. It is not true that Japanese cars compete with domestic production while OPEC oil does not. In both the U.S. and the U.K., oil imports compete with domestic production; in other industrial countries, oil competes with coal and

other domestic energy sources.

It seems clear, then, that fair competition cannot be characterized only by the level of import prices. The level of prices is but a "proxy" for the main economic concern: the appropriate functioning of markets. We want the invisible hand to do its job. So the issue is not free trade vs. protectionism; it is which trade policies are conducive to market clearing and the efficient distribution of resources.

Efficient Trade and Economies of Scale

We noted (1) that under certain conditions the invisible hand leads to trade balance and to efficient allocation of resources; and (2) that classical theories of international trade give a good explanation of certain types of trade (food, for example), but not of others (certain industrial products). These two observations are related.

The invisible hand works well when businesses function with decreasing returns to scale; that is, small-scale production is as efficient (or more efficient) than large-scale production. But the invisible hand does not work when there are increasing returns to scale.

In fact, economies of scale are clearly significant in many fields important in international trade; indeed, this is typically the case in precisely those areas where traditional trade theory seems most lacking in explanatory power: the manufacture of computers, aircraft, autos and electronics.

In all of these cases, there are reasons why large-scale production leads to lower costs and to a breakdown of "invisible hand" arguments. The reasons may be purely technological, or they may derive from the high fixed costs of R&D, as in the case of computers, or they may be partly managerial and organizational, as with automobiles and the information industries. In any event, classical trade theory assumes away all such effects; this is a crucial step in its ability to derive the well-known propositions about market clearing, efficiency and gains from trade. The distortionary effects and welfare losses associated with interventions in the market, through tariffs and quotas, are also demonstrated under the assumption of decreasing returns to scale.

When scale economies in production are taken into account, the applicability of the classical theory is greatly limited. If one admits increasing returns to scale, the usual conclusions about the gains from unrestricted trade and the working of the invisible hand must be heavily qualified.

In particular, a concept of orderly trade emerges naturally because there are conditions under which active management of trade flows is needed to ensure that markets clear and that all countries gain. The invisible hand no longer suffices.

In an international economy with increasing returns, all of the gains from free trade may accrue to just one trading partner, the other partners possibly being net losers. Active management of trade flows may be required to assure market clearing and efficiency.

Management of trade flows typically involves carefully coordinated limits on imports or on exports, or involves some mutually agreed-on and compensating transfers from the gainer to the losers.

A framework emerges within which one can evaluate alternative trade policies and find analytical equivalents to such phrases as "undue market penetration" or "unfair competition." Both of these phrases will still refer to deviations from market clearing and efficiency, but the comparison now is with the efficient market-clearing outcomes arising from managed trade, rather than from free competition.

It is important to differentiate between *managed trade* and *protectionism*. The two terms are very different, the former being a far more constructive approach to international economic relations. While protectionism prevents specialization and limits trade, managed trade may in some cases encourage specialization and allow trade to expand. To see this, it is helpful to look in more detail at the working of the invisible hand in markets with economies of scale.

The Invisible Hand and Large-Scale Technologies

It is often overlooked that with scale economies in production, there may be no price at which it is possible for all partners to gain from trade, and for trade also to balance. This is true even when prices are fully flexible and markets perfectly competitive.

With scale economies in production, price adjustments in response to market forces may never be able to balance supply and demand.

The conclusion, then, is that to achieve gains from trade and also balance between supply and demand, we may need a "visible hand"; the invisible hand (price adjustments that follow supply and demand) is unable to do this work adequately. The management of prices, of trade flows, or of a combination of both, may be needed to achieve efficiency and to clear markets at the same time.

Consider two countries and two produced goods, each manufactured under conditions of economies of scale. Each country produces most efficiently by specializing in one good and meeting its needs for the other by trade. If each country were to produce all of its requirements for both products, there would be smaller-scale and thus less-efficient production.

Productive efficiency requires specialization in trade, each country exporting the good in which it specializes, and importing the other. This familiar argument certainly applies to economies of scale; however, the argument neglects an important point.

We have looked so far only at the supply side of the problem, rather than at overall feasibility. From the point of view of supply or productive efficiency, it would be desirable to specialize and trade. But is this feasible? Will there be a market for the goods thus produced? This is a crucial question. Without such a market, producers obviously cannot sell their products, and the output levels, which are *a priori* productively efficient,



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Adam Smith: Do new technologies in production today require the intervention of a "visible hand?"



Peter Forstner

Geoffrey M. Heal and Graciela Chichilnisky

would not be produced.

Specialization is feasible only if the international market can clear: that is, if the amount that each country wishes to export of the good in which it has specialized equals the market prices of what the other one wishes to import.

This sounds like a remarkable coincidence, and indeed it is. The coincidence does occur in markets with constant or decreasing returns, one of the striking roles of the invisible hand. But in markets with increasing returns to scale, this is *not* a typical outcome. With scale economies in production, price adjustments may not equate demand and supply and ensure that markets clear. No matter how flexible prices are, a free-market equilibrium may fail to exist; the potential gains from specialization may never be realized.

The reason for this failure is that the level of production of an industry with economies of scale does not adjust continuously in response to price movements or to shifts in demand. It typically changes in quantum jumps, and thus may persistently fail to match demand.

For a given set of prices, there is a level of production below which it is not efficient or profitable for such industries to operate. Now, at such prices, demand may be smaller than the minimum level of output. If production were to take place at this minimum level, there would be excess supply, which is obviously not a sustainable outcome. The alternative is for producers not to produce at all; intermediate outcomes lead to losses. If producers do not produce, however, there will be excess demand; markets again will not clear.

As prices change, demand shifts up and down, and it does so in small increments. By contrast, the increasing-returns firm can only produce either above a minimum efficient level of output, or at zero. The market thus jumps from excess supply to excess demand as prices change and as the producer switches between somewhere above the minimum feasible output and zero output. The market may remain persistently in disequilibrium positions. This cannot happen in decreasing-returns economies, because supply adjusts continuously to changes in demand and prices; the requirement of positive profits places no minimum constraint on output.

Consider, as an example, the trading relationship between the U.S. and Japan. It is characterized by a persistent need to face the Japanese with quantitative constraints on their exports if trade between the two countries is to be held in balance, or even in an acceptable degree of imbalance. The constraints are "voluntary quotas," typically imposed on goods whose production is characterized by increasing returns, namely automobiles and consumer electronics.

Another example may be the excess demand for industrial goods exported from industrial to developing countries and produced under increasing returns. A measure of this excess demand is shown by the persistent balance-of-payments deficits of the importers, such as the U.S.A.

Managed Trade is Not Protectionism

Trade management, as defined here, may be quite different from other forms of market intervention, such as protectionism.

Protectionism is designed specifically to prevent specialization that would naturally occur as a result of market forces. An example is the multifiber agreements. These seek to delay the trend toward specialization of the textile industry in developing countries, which presumably offer better prices and products. The agreement attempts to prevent or reduce specialization, and is therefore conducive to inefficiency. Less explicit policies of this sort exist in other industries, such as steel and various light manufactures. The purpose of protectionism is frequently to protect inefficient industries from competition, and it generally does this by reducing trade.

In contrast to protectionism, our vision of managed trade would aid market clearing and promote overall efficiency, leading to optimal outcomes in markets where the invisible hand alone cannot ensure such outcomes. In certain cases this procedure may lead to more rather than less specialization, and to more trade rather than less.

Efficiency may require appropriate policies to phase out rather than to protect obsolete parts of an industry. An example is the European policy toward steel, where incentives are offered to ease the phasing-out of plants in sectors of the industry that have a large, minimum-efficient scale of operation, and that cannot compete with Taiwan or Korea, while encouraging the production of more specialised products. This case shows clearly the difference between managed trade and protectionism. It also illustrates the fact that managed trade policies cannot be formulated in isolation from other domestic policies. Indeed, the management of trade should be seen as a natural extension of existing sector-specific policies in the international arena.

In general, as our examples suggest, a coherent managed trade policy would not involve techniques or institutions that, on their own, are fundamentally novel. It would, rather, involve the coordinated application of existing domestic policies to those sectors of the economy that are in international trade, with, of course, the understanding that such policies be well designed and efficiently implemented, something that has not always been the case.

New approaches to government regulation, involving competition as well as control, could be applied to the international sector, as well as to purely domestic sectors. Of course, this would require overall consistency of policies, as well as an internationally agreed-on set of rules and practices, which would be a modification and extension of the existing GATT framework.

With increasing government involvement in and encouragement of high-technology and export-oriented industries, there is a clear need for a revision of the institutional framework governing international trade in order to define acceptable goals and limits for

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involvement. Such a revision will automatically constitute a definition of trade policy, and it must be developed with consideration of the above issues.

Structural Change and New Technologies in a Changing Economic Environment

In an evolving economic environment, the ability of an economy to adjust to change is crucial to its success. Yet the very productivity and technological innovation that assure the supremacy of industrial nations in the international order lead to inflexibilities and strains in their economies. The less-productive and less-innovative developing countries have a compensating virtue: they can adapt faster to a changing environment. In the capital-rich industrial countries, both trade imbalances and inadequate structural flexibility are associated with economies of scale.

With scale economies, it is only when operating at high-output levels that a firm is efficient and productive. Thus, it becomes impossible to ensure the gradual contraction of declining industries and the gradual expansion of their successors.

The difficulty arises because productivity increases with the scale of operation, then decreases when this scale is reduced. Once an industry is uncompetitive and unprofitable, any contraction will reduce its productivity and will make its position deteriorate further. Since contraction is a natural consequence of an uncompetitive position, there is a vicious circle of decline here. Loss of competitive position leads to contraction, which leads to further loss of competitive position, and so on.

Only through expansion can the firm with scale economies break out of this cycle. But expansion is emphatically *not* a natural consequence of loss of competitiveness. Such expansion would require some visible hand to overcome the natural outcome of market forces. Because of the risks involved and the public-good aspects of the problem, policy intervention may be optimal.

This phenomenon should be contrasted with the traditional case of diminishing returns and diseconomies of large-scale operations. Here, productivity rises as output is cut back. Small-scale production avoids the diseconomies of large-scale production. Under these conditions, an uncompetitive industry will naturally reduce its scale. This will then raise its productivity and help to restore its competitive position. The firm is "leaner but fitter." A loss of competitiveness, therefore, sets in motion forces that tend to compensate for loss and that to restore the original position, rather than forces that lead to cumulative decline. In the case of diminishing returns, industrial structures have a degree of inherent stability and will change smoothly.

In the case of increasing returns, however, industrial structures may be innately unstable and will respond erratically to changes in the economic environment. They may also amplify the effects of external shocks, making the transition to a new technology an economically costly and difficult operation. This tends to occur

more often in older industrial countries with a large number of increasing returns sectors. The newly industrializing countries can adapt faster and thrive in a changing world environment, as they have in the last decade.

Conclusions

The technical improvements in industrial economies that led to greater efficiency and productivity also led to instability and to increased costs of adjustment. Persistent trade imbalances and problems of structural adjustment both have roots in changes in technology, which have led to the greater competitive efficiency of large-scale organization.

Both of the issues of fair competition and orderly trade appear in the search for trade patterns that are conducive to trade balance, that permit efficient production patterns and that lead to industrial adjustments with minimal social costs. These patterns will typically not emerge from market forces, but will require conscious and selective intervention.

The ultimate conclusion from this analysis is that, short of abandoning the great benefits of new technologies, one cannot recommend, as an objective of international policy, a return to the pursuit of a trade regime that is as uniformly liberal as possible. With increasing returns, the invisible hand cannot ensure harmonious and efficient outcomes.

Newer technologies have great potential payoffs, but they require more sophisticated forms of social organization. There is a need for institutions that facilitate patterns of trade consistent with balanced markets, and with the smooth occurrence of any necessary structural changes.

International economic policies must be coherent with domestic economic structures, especially when the trading economies exhibit increasing returns to scale. For developing countries this means a realistic appraisal of the limits on export prospects for many of their labor intensive products or raw materials, and a reorientation towards local markets, or towards exports of more capital-intensive goods, perhaps to other developing countries.

For industrial countries, more sophisticated and realistic policies toward the new large-scale technologies are needed. The major technological innovations of our time require increased sophistication of our economic institutions. With increasing returns, unaided markets cannot be expected to perform perfectly. 4

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