

Trade and public health in an open economy: a framework for analysis

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While attempting to develop a framework for analyzing the relationship between health and trade, talking to health specialists and reading the literature made it clear that this issue can be approached from several perspectives. Some people, mainly economists, refer to health and trade by and large in terms of efficiency. Others think about equities. In each case, little is seen beyond the individual's point of view. The case is similar to asking a group of engineers to design the best car in the world. A tiny minority may think that the fastest car is best even if it kills the driver in the first few seconds. Others might think that the safest one is best or that the best car must be friendly to the environment. Obviously, there are distinct objectives and trade-offs between the different attributes to be chosen.

The optimal health system, then, be it on the national or the international level, also has to balance and weigh the various objectives of different actions. People may have different views as to the appropriate

weight of objectives and which should be given more importance. But a health system cannot go to extremes and center only on efficiency or even equity. It has to be a balanced package.

Health is a very special sector, most people will agree. But it also happens to be part of the economy. Thus, it must reflect certain general rules of economic behavior, given that productive resources in the economy are limited. In a basic breakdown of the economy, national resources can go to primary (agriculture), secondary (manufacturing) or tertiary sectors (services). Resources allotted to one sector cannot be made available to the others; if agriculture gets the resources, services and manufacturing will be curtailed. Obviously, health services and industries related to health are located in secondary and tertiary sectors.

Many poor countries put most of their resources into the primary sector, agriculture. They are poor, productivity in agriculture is low, and labor is tied down. Factors of production cannot be released from agriculture to go to

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manufacturing or services and create other things outside agricultural products.

In the long run, accumulation of factors of productions has to take place to expand the sectors that provide goods and services related to health. If 80% or 90% of your resources are tied down in agriculture, as they are in some really poor countries, there is very, very little that can be done to make basic health services available to everybody in the economy. Over time, as all resources are pulled and developed in the right direction, the foundations for providing health services will expand naturally. The process of development inevitably involves moving resources out of agriculture into manufacturing, and on to services. Today, we understand this process better than before. We know what the crucial determinants are. We used to think that growth was largely a matter of physical investments. Just invest a lot and you will grow fast.

Today, we know that other things are equally or even more important. The main determinants of growth and development are human capital, health of the population, well-defined property rights, legal institutions that work fairly, and public administration that is honest and efficient. Macroeconomic and political stability matters a lot, too.

Those are the lessons we have learned. Another consequential factor is the openness or competitiveness of the economy, both internally and externally. But that is only one factor, and not even the most important. The most important are, to repeat, human capital, followed by the health of the population, and then legal, economic and political stability.

So, in essence, if only one thing is picked up out of the whole package, namely liberalization, you are not going

to get anywhere. You can liberalize anytime, but if other things are not in place—such as an institutional framework, the protection of property rights, or political and macroeconomic stability—a sustainable progress will not occur. The package is really very difficult for the governments to deliver.

Some countries are making a lot of progress in moving out of agriculture and into industries. In the developed countries, most of the resources are in services. They are called industrial countries, but industries there absorb only a small fraction of the total labor employment and of the total physical capital. In some developing countries, you will also see over time that if there is quite a bit of progress, services expand more and more.

This is one way of looking at health: as a part of the economy. The economy has to make decisions, trade-offs between putting resources here, there, or somewhere else. It cannot do everything at the same time. Otherwise, the only group of unemployed people would be the economists themselves. There would be nothing to advise anybody about, if everything could be had.

There is another way of looking at the problem at hand. If we could aggregate the existing sectors in the economy, putting the agriculture and manufacturing together into goods and services and then dividing them into traded and nontraded, we would have four different combinations. Most of the goods would belong today to the category of tradables. Taking into account 50 years of successful trade negotiations and substantial reductions of transportation costs means that there exist practically very few goods that cannot, in principle, be traded. If you think about services, however, most of them until recently

have been non-traded. But now, liberalization of the international trading system and technological change make it possible to trade services more frequently. Even health services become, little by little, subject of international exchange. We are moving from the environment of a closed economy to that of an open economy. We are moving into a situation where both material goods and intangible services can be increasingly traded.

How can the shift from a closed to an open economy be analyzed? There exist traditional models that show what happens when the economy opens up. The Ricardian model proposes that countries have (relative) technological advantage in certain goods, so they specialize in those. But technological superiority may not be limited to the production of material goods. The Ricardian theory of comparative advantages should carry over to the sphere of production of services.

How about health services and goods related to health? One can argue that, generally speaking, developing countries do not have comparative advantages in health services or in goods related to health because so little resources were put into these areas. So, according to the Ricardian model, opening up would mean the kind of specialization where developing countries would be net importers of those goods or services.

Of course, there are alternative trade models focusing on other reasons for trade. The Heckscher-Ohlin model stresses, not technological differences, but the relative abundance of production factors. Various goods or services require in their production factors such as capital or labor in different proportions. Developed

countries have comparative advantages in goods and services that use relatively intensively physical capital, or human capital. Developing countries, on the other hand, specialize in other sectors, such as agriculture, and labor-intensive manufactured goods. This theory also predicts that the kind of patterns of trade that will emerge will put developing countries into the category of net importers of health and goods related to health.

Perhaps the kind of framework that is needed today is a framework that goes beyond perfect competition that is assumed in the Ricardian and Heckscher-Ohlin models referred to above. Non-competitive market structures are characteristic to a number of modern sectors. They are also frequently met in service industries.

Think about a one-commodity world consisting of a single developing country and a developed one. Initially, the two countries do not trade. Instead of perfect competition, assume that there is a monopoly operating domestically in each economy. Both of these monopolies can produce a good or service at a constant marginal cost. If left unconstrained, the monopolies will play with the market, exploit it, and drive the price up, not to the maximum, but to the level which maximizes their separate profit functions. The price that maximizes the profit in the developed country would tend to be higher than in the developing country. There is a greater but less elastic demand, and more advantage to be extracted.

Now think about those two markets as no longer being separated. Suppose that international negotiations have produced trade liberalization and freedom of establishment. As the

result, two monopolies can, if they wish, cross their national borders and provide services or sell goods abroad. What happens next? Here we do not have a unique answer. One possibility would be, for instance, for the developed country monopoly to be slightly more efficient. Then, its horizontal marginal cost curve would be slightly lower. That monopoly—if the obstacles to international transactions are removed—would overpower the monopoly in the developing country in a short time. If the two monopolists use price as a strategic variable, the monopoly from the developed country will take both markets, dominate both, and charge monopoly prices in both countries. That would be the outcome.

An alternative outcome would be for the two monopolies to collude. If they were to collude, then, of course, they would both gain. They would be subverting the market and taking advantage of their situation to the maximum.

But there is another possibility; namely, that they would engage in a war to fight for each other's territory using quantities as a strategic variable. In this case, prices would tend to come down, but not to a competitive level—for that, you need many producers that behave competitively. This is what would be happening: competition would encourage some kind of reduction in prices and, of course, benefits would accrue to the consumers. Still, that system would not replicate the equilibrium characteristic of perfect competition. So some competition is better than no competition at all, but not as good as perfect competition.

The pertinent questions to ask at this stage are: When policy makers transform the international environment

through deregulation, what kind of impact can this process have on the market structure in individual countries and globally? Will the market structure be more competitive or less competitive? A lot of the answers we need will depend precisely on this.

While developing this framework and thinking about the current situation of the global economy, let us go on to something I consider to be very important, namely, the process of globalization.

When I talked about the Ricardian model in which, say, Portugal produces wine, England produces clothes, and they trade and exchange, the process of production is highly integrated in each country and can be represented by a *single production block*. Factors of production are brought to one physical site, combined together to produce goods which in turn are transported to the markets, exported, consumed internally, whatever. Under this integrated technology things happen in one place, in one go.

Imagine however that the production process becomes fragmented over time and instead of one single production block, the process gets separated into *production block one* and *production block two*. Producers are more specialized now, they produce parts and components that then are combined together to produce the same output as before but with different, fragmented technology. What is important about this fragmented technology is that *production blocks one* and *two* do not function independently. They are connected through service links: transportation, insurance, telecommunications, quality control. It must be ensured that whatever is produced in *block one* comes at the right time, with the right

quality, and in the right quantity to *production block two* for production to flow smoothly. This process of fragmentation can go on and on, and become more and more complex. Some of these production blocks can split into industries and then combine into the final goods. The fragmentation of the production process means that production now can spread out geographically within the country, from one location to another. Or it can extend across international borders.

To be a part of a modern production network, it is not enough to produce something cheap; it is also important to have service links. You have to be connected, you have to have access. A country in, say, Africa can be the cheapest producer of one particular production block used widely across the world. But if that production requires a fax to arrive there every couple of hours and it doesn't arrive half of the time, nobody is going to bring that country into the production process, no matter what, no matter how efficient and cheap the labor may be there. That is very important, because this process of fragmentation applies even to research.

Let us consider research in the pharmaceutical sector. The process may start with the discovery of organic molecules, natural molecules, the creation of a bank of molecular data, and then selection of promising compounds. Various stages of research and development follow, then pre-clinical testing, clinical testing, and finally, approval. That process takes from 10 to 12 years. It costs from US\$ 200 to 300 million to launch a new drug, in a highly fragmented process which entails different stages. Interestingly enough, everyday we read in the newspapers that drug

companies are getting bigger and bigger as a result of mergers.

On the basis of the previous information, let us think of the market structure that will be likely to emerge in the world relatively free of restrictions. Would it be a single monopoly? Even though those companies get bigger and bigger, interestingly enough, the process of fragmentation means that if you are lucky—or, rather, efficient—if you know what to do, you can get into the process of producing a part of something. An efficient producer of a tiny segment or a component can become part of a global network.

According to a survey of recent developments, fragmentation of research becomes as widespread as fragmentation of production of goods. Even though the big pharmaceutical companies get ever bigger, 60% of new drugs are launched not by big companies, but by small firms. Today it is common to outsource to very small specialized firms various kinds of testing or R&D activities.

The main message should come out loud and clear. Even if you are small, you are not necessarily lost in the global economy, provided you can specialize and be efficient in something, so that benefits of being plugged into the production network can be exploited. However, besides being efficient an individual firm or a producer need to operate in an environment in which the domestic market is well connected to the outside world. Otherwise, a country (or an industry or an individual firm) is not likely to play a part in global production.

Although presently the role of the government is changing, this doesn't

mean that it is becoming less important. It may become even more important because it has to provide the environment, directly or indirectly, in which modern technology and modern production can endure.

Rethinking the issues here presented, in terms of efficiency and economic changes, one is left to ponder about this developing global economy. Hopefully, it will be a competitive economy that will bring down prices. Will this economy produce the goods, products, or drugs that people want?

We tend to think that in a world where companies keep getting larger, everything should be possible. Our knowledge expands as our research capabilities increase day by day. Regarding, for instance, pharmaceutical companies, in the last 20 years they have introduced 12,000 new compounds. Only 11 of those compounds were designed to fight tropical diseases. The World Health Organization reports that global expenditures on health exceed US\$ 56 billion a year. But less than 10% of this money is directed toward the diseases that afflict 90% of humanity. In spite of massive global resources invested in the fight against AIDS, we know not only that we are far away from the discovery of an effective solution, but also that the solution will not be of great benefit to developing countries, where most AIDS cases are. The cost will be, at least initially, too high for them.

Low income countries with economies based on agriculture spend around US\$ 22 a year per capita on health. This includes hospitals, drugs, everything. So, many drugs that the global pharmaceutical industry is working on at present will not be accessible to poor countries. My most important criticism of the global economy is, therefore, that it produces

very efficiently but it produces for the markets. If the markets are not there, it will not produce. This is to be lamented, but that is the way it is. For a drug company to develop a new drug, it must be sure that the revenue from this product is in excess of \$250 million a year. If the company cannot gross that much, it is not going to get involved in the production of that drug.

There will always be a whole range of diseases that should be tackled, but we know the markets are too small to encourage the resources. One of those diseases is malaria. In this global economy that is increasingly more market-oriented, the challenge for us is to think what to do if there are market failures. And the market failures in this particular case are that the economy does not produce goods for which there is a potential demand, or goods that are good.

One of the proposals that have been put forward would be to imitate the market, to create conditions that are encouraging to firms. For instance, public international financing of research and development on malaria, creation of a discovery prize, or creation of the system in which international organizations or governments would commit themselves to buy certain units of a particular drug over a period of time at a predetermined price.

Those are important things to think about. There is what we call the international public good, which the private economy, global or domestic, will not be able to deliver. This international good is primarily related to knowledge. A new challenge for policy makers is to create the conditions under which, when the market fails, the institutions, be they domestic or international, will be able to correct the market failures.
