

their labor. When a society becomes industrialized, barter is inadequate to bring about the exchange of goods and services, and so money is used as a tool to expedite the exchange. We can indicate this process by the following equation:

$$\text{GOODS \& SERVICES} \rightleftharpoons \text{MONEY} \rightleftharpoons \text{GOODS \& SERVICES}$$

It is important to note that the economic exchange process is not complete with the first step of exchanging goods for money, but only after the second step of exchanging the money for another economic good. If one individual or group of individuals exchanges goods or services for money, and retains or hoards part of this money, failing to exchange it for other goods and services, then an imbalance results. It means that others have production for which there is no market.

As we shall see shortly, this basic equation of economic exchange portrays the economics of trade between nations as fully as within a country. In the case of nations, however, if the export and import of goods and services does not balance, then money will flow into or out of the country and from this there are some important economic consequences.

From this equation it is obvious that trade in and of itself does not increase the amount of goods and services available. It merely brings about redistribution of the goods already produced. If a nation or a community wants a higher standard of living, it must either produce more or find a way to get part of somebody else's production.

PRODUCING A STANDARD OF LIVING

The standard of living of a society consists of the sum of the goods and services that are produced. We can picture the four factors of production and their relationship by the following equation:

$$\text{MMW} = \text{NR}(\text{HE} \times \text{T})^{\text{I}}$$

where: MMW=man's material welfare
 NR=Natural resources (land)
 HE=Human energy (labor)
 T=Tools (capital)
 I=Idea (entrepreneurship)

Analysis indicates that natural resources are a fixed quantity. Man may conserve them or utilize them more efficiently, but he cannot "create" them. Human energy increases only slowly and even then is balanced by an equal increase in consuming units. By contrast, the use of tools and ideas may increase rapidly and without limit. The use of tools permits the effective division of labor in a society. This reaches its ultimate in the modern, automated factory system where productivity can be very high. It is interesting to note that the factor "tools," or "capital" as the economist calls it, multiplies human energy. In the United States, we have substituted mechanical energy to the point where something over 98 percent of our total energy input is now mechanical. The extent to which tools are available in a society is proportional to the savings—stored-up human energy.