BUSINESS REVIEW

FEDERAL RESERVE BANK OF PHILADELPHIA

SEPTEMBER 1970

BUSINESS REVIEW is produced in the Department of Research. Ronald B. Williams is Art Director. The authors will be glad to receive comments on their articles.

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An Economic Solution to Pollution

by W. Lee Hoskins

When Adam cast aside that first apple core in the Garden of Eden, he could hardly have known that the tendency of future generations to emulate this act would ultimately lead to a serious problem for his twentieth century offspring. Yet millions of apple cores and megatons of other assorted refuse later, man finds himself straining the capacity of his skies, waterways, and lands as he forces them to assimilate the by-products of material progress and population explosion.

Man cannot entirely wipe out pollution. Nor should he try. A little pollution is a "good thing" from society's point of view, since the cost of returning the environment to its pristine purity may well require stone-age living conditions. Man, however, can choose the quality of environment or level of pollution he desires if he is willing to pay for it. Air is free; *clean* air is not. Although the economics of the problem will not be the sole consideration affecting man's choice of environmental quality, it certainly is a necessary ingredient in evaluating alternative measures for achieving various levels of pollution.

POLLUTION AND SCARCITY

An indomitable fact of life marking man's trek through time is scarcity. There are, and always have been, an unlimited number of competing uses to which man can devote his limited resources. Hence, even the wealthiest nation in the world cannot have all it wants of everything. Choices must be made. The pollution problem is eye-watering testimony to this pervasive and inescapable fact. A higher quality natural environment can be had only at the cost of something else, perhaps a different mix of goods and services.

Man takes the resources of the earth and converts them into products which yield him

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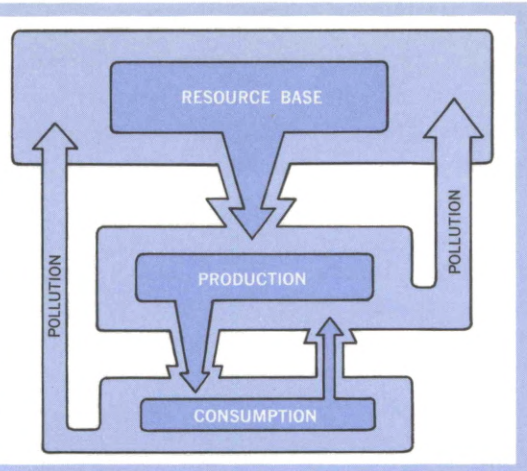
service. (See box.) Although he may change the form of the resources, he cannot destroy them. Resources simply do not depart from earth and its atmosphere during the processes of production and consumption. Some are stored in the form of products—houses, factories, cars—which yield services. (The U.S. economy, for example, accumulates 10 to 15 per cent of its annual material input in this fashion.)[1] A very small amount is recycled back into products. The greatest portion is returned to the environment, in its altered form, where it is stored while nature begins the task of breaking it down.

With the increases both in population and quantity of production, we are putting these "altered resources" or pollutants back into our skies, waterways, and lands at a rate so fast that they cannot be assimilated without creating increasingly harmful effects. The assimilative capacity of our natural environment is itself a scarce resource.

To our ancestors, material goods and the services they provided were hard to come by. Fresh air and clean water were not. Accordingly, they converted the abundant material resource-base into higher valued goods which made possible the development of a modern industrial nation of unparalleled wealth. Today, however, we are simply running out of costless places to store our junk. And one man's pollution is rapidly becoming another man's poison. The cost in the form of damaging effects—poorer public health, dead trees, and filthy buildings—of dumping our refuse on the environment is rising. Hence, while pollution always existed, it has only recently become a "national problem."

[1] Robert I. Aryes and Allen V. Kneese, "Production, Consumption, and Externalities," *American Economic Review* (June, 1969), p. 285.



The diagram depicts a simplified flow of material during the production-consumption process. The box at the top of the chain represents the resource base from which we draw our ingredients for production and ultimately consumption. The base includes all the atmosphere, water, and minerals of the earth. Resources are removed from the base and altered by the production process that changes them into goods which yield service to consumers.

During the production process, a considerable portion of the resources are returned to the base in altered form. These are industrial pollutants composed of such items as smoke, slag, trash, junked machines, and other waste products. Productive societies generally have fatter industrial pollutant flows. Resources that reach the consumer in the form of goods yield service.

Once consumers have extracted that service, the used goods are cast off in the form of auto exhaust, waste paper, junked appliance, and sewage. A small portion of these are recycled back into the production process (junked cars, for example). The remainder flows, as consumption pollutants, back to the resource base or natural environment. In poor but heavily populated countries, this pollutant flow causes most of the damages in the form of polluted waterways.

The system is essentially closed, except for the resources left on the moon by our space program. The increased size of the pollutant flow stacks up waste materials in our environment faster than they can be assimilated, thus imposing increasingly harmful effects upon inhabitants of the environment.

GETTING THE MOST FOR SOCIETY

The U. S. economy relies primarily on private incentives and consumer wants expressed through a competitive market process to settle problems posed by scarcity. The underlying notion behind this form of economic organization is simply that individuals in their role as consumers and producers attempt to achieve a more preferred position for themselves by putting their *privately* owned resources to uses most highly valued by *society* as a whole. That is, resources would be put to socially desirable uses and in the appropriate amounts. This notion works surprisingly well in a market-oriented economy when most of the cost and benefits associated with resource use are concentrated upon the person doing the producing or consuming. All the information needed to make the system work is provided by the often-maligned "market price."

Market Price: Provider of Information. The process works this way. Competitive prices are signals which direct the flow of resources to uses most highly valued by society as a whole. And consumers play the dominant role in determining which uses are most highly valued by bidding up the prices of goods they prefer more of relative to those they prefer less of. As a result, relative market prices reflect the taste and desires, or *values,* consumers attach to having additional units of each good.[2] This information about society's tastes and desires is essential, for it tells producers where to direct resources.

Profit-seeking producers are important cogs in the workings of the system. Noticing a change in relative market prices (or anticipating one), a sharp-eyed producer bids resources away from the lower valued uses and directs them to the production of goods for which consumers have expressed a desire. His incentive to do this is an increase in wealth. But, as production expands, a point will be reached where the additional resources are going to cost the entrepreneur more than they can add to his return. He will stop producing goods which use these resources before that point is reached, if he is interested in achieving the largest return possible. Hence, market prices provide producers with both the necessary *information* and *incentive* to insure that resources flow to uses most highly valued by society. And, as a consequence, any rearrangement of society's output would leave it worse off.[3]

Pollution: The Uncounted Cost. Unfortunately, market prices do not always accurately reflect the total costs of production and consumption to society. Why? One reason is that many important costs of using resources are not brought to bear on the individual making the consumption or production decision. As a result, the *private cost* associated with his use of resources differs from the *social cost.* It is this difference that gives rise to the pollution problem. For example, if the owner of a car had to pay the *full* cost of driving his car, including reparation for the damage he imposes on others in society by disposing of the gaseous wastes into the air,

[2] More specifically, a consumer, taking account of his own tastes and wealth, tries to get the most for his money. How does he do this? He does this by spending his money so that the last dollar spent on an additional unit of a particular good represents the same personal value to him as that of the last dollar spent on any other good. All consumers doing likewise, bid up the price of some goods which they prefer more relative to others which they prefer less. These relative market prices reflect the value society attaches to additional units. For example, if the price per pound of steak is twice that of hamburger, then the last pound of steak which an individual buys must be desired by him twice as much as the last pound of hamburger purchased.

[3] This statement takes as given the current distribution of wealth, competitive markets, and that individuals using resources bear all the consequences of their use.

he would likely drive less. Resources would then tend to flow into other modes of transportation, such as mass transit, as they rose in value relative to the automobile. But auto drivers dump exhaust fumes, without charge, into the air Since this residual affects other people, including the unborn, unfavorably, the social costs end up being greater than the private payments incurred by automobile owners.[4] People now drive cars more than they would if they had to pay the full cost of operating them. Hence, undesirably high levels of air pollution occur.

A key to lower levels of pollution is the removal of the wedge between private and social costs. One method of knocking this wedge loose is to cause individuals to bear most of the consequences associated with their use of resources. This can be done by expanding our market system to include environmental products. Another method, which characterizes present attempts at pollution control, is to prohibit or regulate certain uses of resources which lead to the divergence between social and private costs. The method chosen will determine how much we must ultimately pay for a cleaner environment and the degree to which we are successful.

PRESENT CONTROLS: AN INFORMATION GAP

Currently, lawmakers rely on government regulations. They have passed zoning restrictions which prohibit some uses of property in certain geographical areas and have set air and water pollution control standards in other locales. The tremendous problems associated with employing these direct controls make it clear why such laws have more often than not appeared to be unenforceable, uneconomical, and doomed to failure.

Present controls face two main problems. First, the level of pollution must be decided upon; second, techniques and incentives for achieving the goal must be implemented.

What Level of Pollution? Complete elimination of most types of pollution is impossible. The hobgoblin, scarcity, means that *cleaner* air or water can be had only by giving up something else. Outdoor recreation, fresh air, and longer lives are things people enjoy, but so are powerful cars, electricity for heating and lighting, and cigarettes. The problem is to find the socially desired mix of these goods. But, since clean air for example, has no market price to provide information about its value to society, pollution fighters have no guide as to the level of pollution to seek. It might be possible to ask people how much they are willing to give up or pay for cleaner air or water.[5] But everyone is for a much cleaner environment when only talk and not his wallet is involved. A truthful response may also be a scarce good.

The all-too-common chanting of facts, such as the amount of raw sewage dumped into rivers, is like crying in the wind. We need to know the gains to be had from reducing the discharge and what they cost. But gleaning this information is, in fact, a major problem of pollution control. On some of these costs, we can put dollar values. For example, if acid in our waterways reduces the operating life of boats and barges by 20 per cent, one portion of the cost of polluted rivers is 20 per cent of boat

[4] There would be no divergence between social and private costs if each producer and consumer compensated someone for *all* costs associated with their production or consumption.

[5] A Gallup poll did just that and found three out of four people interviewed willing to pay "something" to improve the environment. However, "something" to over half of them meant less than $10; 18 per cent would pay as much as $50; and only 4 per cent would pay $100 or more. *Business Week* (April 11, 1970), p. 73.

and barge expenditures. Closer to home are the additional expenditures on cleaning, laundering, and air conditioning that people incur as a consequence of polluted air. However, many other costs are more difficult to measure in dollar and cents terms—impairment of human health, wildlife and recreation loss, and everyday discomforts, such as smarting eyes. And these intangibles may be quite large relative to the measurable costs.

Of course, if the costs and gains—including those in the future—are known, a pollution control agency would not have to select an arbitrary level of reduction.[6] The appropriate level of pollution would be where the *additional* cost of lowering the level of pollution begins to surpass the *additional* gains from the lower level. While the rule itself is simple, it often seems to be left on the shelf when debate waxes hot on serious social issues. Nevertheless, control agencies must make decisions with this rule in mind.

A Problem of Information and Incentives. Once the decision is made as to what is an appropriate level of pollution, the control agency must find a way to implement and enforce the decision.[7] Regulation through direct controls is one solution, but it may be an expensive one. If an agency wants to reduce air pollution in a metropolitan area by 5 per cent, for example, it could simply require all sources to reduce pollution by 5 per cent. Such a rule would be, among other things, grossly inefficient, for the total cost of reducing *each* source by 5 per cent would be greater than the total cost of reducing the *overall* level by 5 per cent. For example, it may be cheaper to reduce emissions of certain factories by 80 per cent than to cut back auto emissions by 1 per cent. The economist's decision rule is that the last dollar spent on controlling each pollution source yield the same gain. To administer such a rule successfully, the control agency would have to have an enormous amount of facts about costs associated with controlling each source. Since obtaining this information is itself an expensive business, especially because it is always changing because of improved technology, the control agency would make its decisions with only rough estimates, giving up some portion of efficiency in the process.

Direct controls pose additional problems. For example, specific anti-pollution devices may be required or standards may be set allowing polluters to decide for themselves the cheapest method of meeting the standard. Neither method provides incentives to reduce pollution other than the threat of prosecution. In addition, both require constant inspections. Also the question of fairness arises. Why should automobile owners in North Dakota be forced to purchase manufacturer-installed control devices because the smog in Los Angeles is bad?

Another route might be to let the government (you and I) pay for keeping pollution down by building major treatment plants and subsidizing the cost. But this method would provide no incentive to reduce pollution; indeed, it would actually encourage it, since firms would pay nothing to dispose of unwanted by-products.

Finally, a pollution tax may be levied on polluters in order to achieve the desired level of pollution. The idea is that if an individual is charged for the cost of disposing of his junk, he tends to produce less of it. Now this alternative

[6] Such costs and gains can only be estimated. In addition, there is the problem of selecting the "right" discount rate to apply to future costs and gains.

[7] For a more detailed explanation of the problems associated with direct controls and cost estimation, see Larry E. Ruff, "The Economic Common Sense of Pollution," *Public Interest* (Spring, 1970), pp. 73-78.

has possibilities, since it can induce a desire to curb pollution.[8] But administrators of such a program also suffer from a lack of appropriate information, namely, who should be taxed and how much in order to achieve the chosen level of pollution.

Public decisionmakers faced with pollution control decisions can never be expected to duplicate the *quality* (although they seem able to equal the quantity) of resource valuation information contained in a market price. Consequently, they must make decisions about pollution control with low-quality information which provides them with only rough ideas about pollution costs and benefits. In addition, they face the problem of giving polluters incentive to cut back—a necessary ingredient if long-run success is to be achieved. However, the quality of information received, the incentive system, and the consequent decision about controlling pollution can be greatly improved depending on *how* government alters the rights to resource use or chooses to control pollution.

BACK TO THE PRICE MECHANISM

An alternative to the present policies and techniques of controlling pollution which often appear to be less effective than desired, is the extension of the market system to include environmental products, such as clean air and water. Expansion of the market system to deal with pollution requires the definition of rights to use environmental resources and the provision of a method for exchanging such rights.

[8] A gasoline tax may result in less gasoline being purchased and, hence, may reduce air pollution. But no incentives are provided to gasoline manufacturers to reduce the pollutants in their products (although a tax on lead in gasoline may provide such incentives). Nor do car owners have incentive to install control devices. Furthermore, the same level of air pollution may be achieved at less cost by muzzling another source.

"Everyone's Property is No One's Property." Pollution most frequently occurs or is conveyed through air, rivers, lakes, oceans, and commonly owned lands, such as public parks and streets. In most cases, *rights* to use these resources are held by all of us in common or are simply unspecified by law. When rights to resources are vague or held in common, the rule is "first come, first served." A person has less incentive to maintain the purity of a lake or stream when he does not have the right to capture the value from doing so. Water in a private lake tends to be put to its highest valued uses (including those in the future) when the owner stands to gain. If the owner can capture that value by selling the lake, he has an incentive to protect the quality of the water. Unfortunately, no such incentive exists for our commonly owned air, water, and land. As a result, these resources are not being put to uses most highly valued by society—they are "overconsumed" (polluted), while other goods are "overproduced". One means of coping with this problem is to specify salable property rights in our commonly owned resources.

Selling rights to resource use provides a built-in mechanism for bringing any "side effects" associated with resource use home to the user's roost. For example, a homeowner's property is salable, so he stands to gain in the form of increased property value from favorably impressing other people by planting pansies or painting the house. In fact, he is *induced* to provide them. These side effects are "internalized" or brought to bear on his decision on how to care for the property. Conversely, beer cans and old tires scattered about an owner's property are also "internalized", and they are reflected in a lower property value. The fact that the rights to goods or property can be sold or

rented forces owners to take account of the harmful or beneficial effects on others associated with using the goods or at least be aware of the gain foregone by not doing so. An important function of property rights or the rights to use resources is that of giving people incentive to "internalize" these side effects.

Substituting individual rights to resource use for common ownership has been a common practice. For example, the overstocking of grazing land was greatly reduced by replacing common land ownership with assigned rights to use the land. Today, common rights to land use consist primarily of parks and roads which incidentally suffer from a form of pollution—congestion.

Common ownership of air and water have remained intact because the cost of specifying rights to their use and then buying and selling them may have been greater than the expected gain. Now because of the increasing damage of pollution, the situation seems to be reversed.[9] In fact, Congress is currently considering a proposal to implement a system of effluent charges which would reduce some common ownership rights in water. The proposal would reduce the bundle of common rights associated with streams and lakes by requiring purchase of the right to use water as a disposal system. The big advantage of specifying rights in common property is that the price system and human nature can be harnessed to help bring pollution under control in an efficient and fair manner.

This does not mean that government, with pollution control standards, has *no* role to play. Indeed, only government can create and enforce rights. Moreover, some types of pollution currently may be too costly to be solved by delineating property rights, so control standards may be the best alternative. But, by reducing the amount of common property rights so that the price system can resolve conflicts in resource use, the areas in which control standards must be applied can be greatly reduced.

For Sale: Rights to Pollute. There are a number of ways to employ a price-based control mechanism to reduce pollution. In most cases, they involve the sale of a right to use resources. (See box.) One way would be to allow the control agency to set prices on pollution, such as ten cents per pound for industrial wastes discharged into a waterway or 20 cents per unit of sulfur dioxide emitted into the air. Of course, the price in principle should reflect the costs to society of the extra units discharged. However, any positive price would tend to reduce pollution. The more dangerous to society (more costly) the additional pollutants are, the higher the prices charged. Each polluter would be free to discharge any amount of waste so long as he paid the price. Polluters, acting in their own self-interest, would then seek to reduce their

[9] If property rights could be *costlessly* exchanged and enforced, there would be no divergence between social and private costs, and undesirably high levels of pollution would not exist. An important circumstance that keeps pollution from being "internalized," and hence reduced, is that the cost of enforcing and exchanging rights to use property is greater than the gain from doing so.

Just think of the cost involved in safeguarding your home from noise pollution, for example. Each passing airplane and loud car damages the physical attributes of your property and may cause it to decrease in value. (Notice the loss in market value of homes when an airport or auto race track is put into operation nearby.) Yet it would be a costly business to detect, catch, and bargain with every plane and car owner who bombarded your home with noise. Because of this, noise-makers are not induced to take account of the cost imposed on others when producing noise even if they could cheaply muffle it. The moral of the story is that the more expensive it is to enforce the laws pertaining to property rights, the more such rights will be violated. When enforcement and exchange costs are high, the end result is that the private cost of operating noisy airplanes or cars does not reflect accurately the cost to society. If homeowners could cheaply enforce and exchange rights, less noise would be produced by passing cars and airplanes, and prices of homes would more accurately reflect their value to society.

A POLLUTION MARKET?

Let's put a price on pollution. As a starting point, the pollution control agency for a particular *region* would calculate the tons of wastes dumped into the atmosphere and water during the previous year. Since some wastes cause more damage than others, an "equivalent ton table" must be drawn up. The control agency would then print up *Rights* to pollute based on the number of equivalent tons emitted in previous years and require that polluters who wish to use the atmosphere or waterways to dispose of wastes to purchase the appropriate number of Rights. Population growth and increases in the number of plants operating in the region would drive the price of the Rights up over time. The higher price would provide added incentive to cut down on pollution. For example, if a car owner (driving a particular model that, on the average, emits one equivalent ton of pollution per year) is faced with higher priced pollution Rights, he may choose to change to a model with a lower emission rating, stop driving, or modify his car with a device that will provide a lower emission rating.

Besides providing strong incentives to reduce pollution by imposing its *full* cost on the polluter and the reduction in the quantity of information necessitated by direct controls, this system would offer a means of choosing the desirable level of pollution for the region. If people desire a lower level of pollution and are willing to pay for it with higher priced pollution Rights, they can make their feelings known by voting. The control agency could be required to allow the public to vote on the equivalent tons of pollutants to be released into the environment that year. A smaller number of tons would mean higher prices for Pollution Rights. One advantage of this method over stronger direct controls is that the costs are explicit, and the higher priced Rights can be directly related to the vote for a lower level of pollution.

This market system also offers conservation groups, anti-pollution associations, and individuals the chance to fight pollution by purchasing Rights and holding them off the market. This would have a twofold effect: (1) the amount of wastes dumped into the region would be less by the amount of Rights purchased; and (2) the price for the remaining Rights would be higher, thus providing additional incentives to reduce pollution (which may result in the closing of plants that are heavy polluters).

A price-based system of controls attacks a major problem of pollution abatement: lack of power by the regional agency. Getting municipalities to join and agree to a regional pollution control plan is often difficult, if not impossible. The fact that the pricing system of control can generate a sizable pool of loot to be divided among the participants can be a persuasive inducement for getting together. The workings of such an alternative for controlling water pollution are presented in detail by J. H. Dales, *Pollution, Property and Price* (Toronto: University of Toronto Press, 1968), pp. 77-97.

discharge up to the point where additional reduction costs more than the pollution fee.

This form of pollution control has a number of advantages over direct requirements or standards. Incentives to cut down on pollution and to develop new methods for doing so are built-in, and the operation of the plants or factories are not disrupted by inspectors checking to see if a certain device is installed and operating. The control agency needs no information about individual plants other than the amount of pollutants emitted. However, the control agency would have to juggle the price or fee charged until the desired level of pollution is achieved. The problem of the appropriate level of pollution would, unfortunately, remain.

A Little Here, A Little There. It seems unlikely that a full-fledged pricing system is going to spring forth one morning from the quagmire of 90 separate Federal environmental programs and untolled number of state and local pollution regulations. More likely is a step-by-step adoption of the pricing technique by already existing agencies and departments. The pricing method has long been used by local governments to reduce common property rights to city streets by selling rights to space via parking meters. A number of other possible applications come to mind.

The automobile may be a good starting place, since cars are associated with several pollution problems, such as air contamination and junk disposal. Most states have motor vehicle departments which could tack a pollution price or fee onto the yearly registration change. The fee could vary depending on the model, horsepower, or location of owner's residence, and control devices installed. The accumulation of junked autos could be reduced by requiring all car owners to put up a deposit fee to be held by the states and paid to junk dealers upon recycling of the scrapped car.

Packaging also has caused some concern. The *amount* of packaging might be reduced by simply charging the full price of disposing of this refuse. The *type* of packaging can be influenced by charging more for items that are hard to dispose of, such as aluminum cans and plastic containers. However, it may be more efficient to tax manufacturers rather than charge consumers. Higher disposal charges might lead to increased use of the returnable bottle.

The oil pollution problem could also be reduced with a pricing scheme—a free market price. Some economists have argued that if oil import quotas were removed, if depletion allowances were reduced, and if monopolistic restriction on petroleum output conducted by individual state conservation commissions were stopped, the price of oil in the United States would most likely plummet, and much offshore drilling would become uneconomical. In addition, several laws presently in existence tend to reduce common property rights in the ocean by attempting to impose the damage costs on those responsible for the oil pollution. However, the expense of enforcing the laws is prohibitive.

Potentially harmful insecticides and chemical fertilizers that fly off with birds or run off with water might be dealt with by some form of excise tax on the chemicals. The tax would make the user bear some of the external costs of pollution, and, therefore, he may use less of these products.

CONCLUSION

The basic question we face today is not so much whether the price system can control many types of pollution, but, rather, are we willing to pay for a cleaner environment? If we are, the means employed to achieve lower pollution levels will have considerable impact on how far we will go and how much we will ultimately pay. The pricing system has in the past proved to be a useful and efficient method of dealing with the vast majority of scarcity problems in our society. And there is little doubt that it can become increasingly important in resolving the pollution issue, which is basically a problem of scarcity, if given the chance. That chance will not be forthcoming as long as lawmakers and others continue to focus the main portion of their attention on the noneconomic aspects of the problem, such as who to blame and the extent of the problem. The alarm has been sounded. It is time to implement measures that stand a good chance of success over the long haul. Price-based control mechanisims are certainly leading candidates.

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Lags, Fine Tuning, and Rules of Monetary Policy[1]

by Mark H. Willes

One of man's basic drives is the desire to control his own destiny. He wants to be free "to do his thing" without hindrance from nature or other men. Since he spends so much of his time making a living, he is naturally concerned about the economy in which he lives and works. One of his most difficult challenges has been to try to overcome fluctuations in economic activity. A depressed economy forces people to be idle who want to work. An inflated economy, like a misguided Robin Hood, capriciously robs income and wealth from some and gives it to others.

Monetary policy is one of the main weapons enlisted in the fight against economic wiggles. When the economy zigs, policy is supposed to make offsetting zags so that fluctuations are short and small.

Of course, things have not always worked out exactly that way, not because policymakers have not tried, but sometimes perhaps because they have tried too hard. By attempting to iron out a few of the smaller economic wobbles, they may have helped cause some even larger ones. No one can be sure, but there is mounting evidence which suggests that if the monetary authorities are to make their maximum contribution to the reduction of economic fluctuations, they will have to be more restrained by the fact that their ability to control those fluctuations has some limits.

THE PURITAN ETHIC

To see why this is so, it is helpful to take a brief and selective look at recent history. During much of the decade of the 1950's, when the

[1] The analysis underlying this article and many of the specific comments and conclusions made throughout apply to fiscal policy as well as monetary policy. Fiscal policy is not discussed explicitly, however, because it has some unique aspects that would run the risk of obscuring the main points of the analysis.

economy bumped along from one recession to the next (if you were a Democrat) or from one expansion to the next (if you were a Republican), many people felt that recessions were not necessarily a bad thing. Nobody wanted a depression of the magnitude experienced in the 30's, but reflecting concern for rising prices that characterized much of the decade, a "modest" recession was thought to be good for the economic soul. The argument, greatly simplified, went something like this:

In the later stages of business expansions, the economic system becomes flabby. Demand is strong, and producers find it easy to sell their products or services, even if they raise prices. There is little incentive to watch costs. On the side of labor, workers know that demand is high, and jobs are plentiful. Consequently, they are not quite as energetic as they could be and don't hesitate to press for large wage increases. When prices rise, both business and labor take actions to avoid a loss in real income and wealth. As they jockey for position, resources are misallocated, and even greater price increases occur.

A recession, so the argument went, is necessary to stop all of this. By making managers uncertain about their markets and workers concerned about their jobs, a recession is the cold-turkey treatment needed to weed out inefficient firms and make labor more productive. Moreover, it forces everyone to channel his efforts in a useful way rather than squandering time and resources trying to respond to or avoid the effects of inflation. In sum, a recession can tone up the economic system, squeeze out its excesses, and return it to the healthy, productive, and efficient state necessary for long-run growth.

NO MORE BLOODLETTING

As the 50's wore on, however, the public became increasingly concerned about unemployment and the other aches of recessions, especially since they seemed to bear down unevenly on different groups. To many, restoring the economy to health by a recession began to be viewed as akin to the practice of healing by bloodletting. Consequently, tolerance for recessions diminished greatly. The feeling was that policymakers should be ready to meet the economic enemy at every turn. Unemployment should be fought as vigorously as inflation.

The rest of the story, stripped of its fine points, is now well-known. Monetary policy was eased early, and the 1960-61 recession was the least severe one in over a decade.[2] Then a combination of steady monetary policy and prudent fiscal policy contrived with the private sectors of the economy to produce over four years of balanced and sustained growth. Prices were essentially stable, and unemployment dropped almost continuously. Business cycles, with their booms and busts, were dead. Economic fine tuning had consigned them to relics of the past.

WHERE DID ALL THE STABILITY GO?

Or had it? The first test came in 1965. Exploding expenditures for Vietnam were superimposed upon burgeoning domestic demands for goods and services. Fiscal policy seemed immobilized, but the Fed moved decisively to cut down excess demand and by the summer of 1966, things were so tight that the term "credit crunch" was coined. But the Fed had done its job. It had met inflation head-on and won. Or

[2] Statements about easing or tightening of monetary policy refer only to intended changes in the thrust of policy as perceived by policymakers. The choice of appropriate indicators of policy is an important but conceptually separate issue from that of the timing of policy changes, which is the focus of this article.

at least that was the feeling, for by the fall of '66, the monetary authorities moved to ease policy, not only to back away from the "crunch" but also to head off the recession forecasters felt sure would follow.

Monetary policy moved so quickly and decisively that the recession appeared to be nipped in the bud. The slowdown of 1966-67 was so short and shallow that it became known as the "mini-recession," a designation no self-respecting recession of the past could countenance.

All of this was pretty heady stuff. "Fine tuning" became a household term. Even though economists could not agree on exactly what it meant, the man on the street and his representatives in Congress knew, and that was all that mattered. Expectations were high.

The only cloud on the horizon was the dust raised by sellers as they rushed to jack up prices. The Fed moved to tighten money again. But when Congress increased taxes in 1968, it seemed clear that monetary policy should be eased. Fine tuning called for restraint to halt price increases, but a tight fiscal policy added to a tight monetary policy raised the threat of overkill. Consequently, again in 1968, the monetary authorities pushed policy in the direction of ease.

Officials soon recognized, however, that the change in policy was premature. Underlying demands were much stronger than expected, and price rises continued at an accelerating rate. So again the Fed turned down the spigot, and through most of 1969, it followed a policy of restraint.

THAT UNEASY FEELING

The decade of the 1960's started with a firm resolve to reduce economic fluctuations on both the up and down sides. And whether by design or happenstance, the early years of the decade were characterized by generally steady monetary policy and generally steady growth in the economy as well. The decade ended with the same resolve to moderate economic fluctuations on both the up and down sides, but the second half of the period was characterized by sharp distortions away from a balanced economic growth path and by *five* major changes in the intended direction of monetary policy. And the changes were of significant magnitude. Between 1965 and 1969, the Treasury bill rate jumped around by as much as two percentage points in any given year and had gone from 4 per cent up to 8 per cent by the end of the period. Perhaps more significantly, quarterly changes in the money stock ranged from −3 per cent to +8 per cent at annual rates, with fluctuations of this size occurring in more than one year. Fluctuations in other monetary aggregates were equally large.

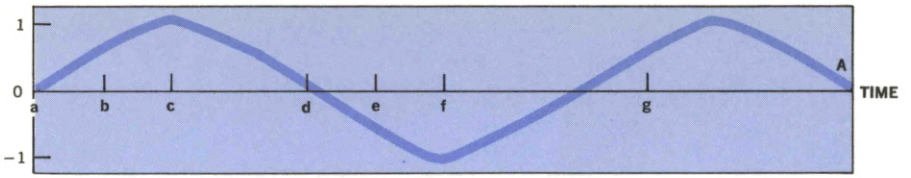
Of course, these sharp changes in monetary policy were designed to moderate distortions in economic activity. But by the end of 1969, many inside as well as outside the Federal Reserve System could not avoid the gnawing feeling that perhaps changes in monetary policy may have helped aggravate rather than reduce the economic fluctuations that were of concern to everyone. Clearly, "fine tuning" had not worked as well as many had hoped. It was easy to blame fiscal policy, or business and labor leaders, or somebody else. But doubts lingered. Laudible as the objectives were, perhaps attempts to fine tune had helped aggravate the very conditions they were designed to ameliorate.

GOOD INTENTIONS PAVE THE ROAD TO . . . .

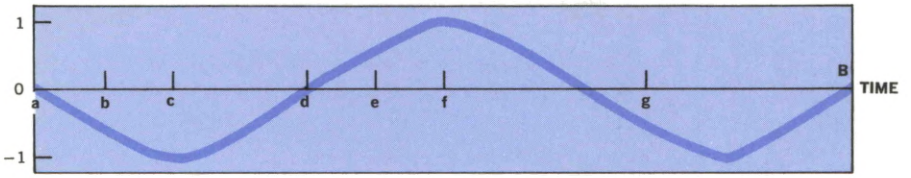
These doubts may have some basis. It is difficult to say exactly how different things would have

CHART 1

NATIONAL INCOME RESULTING FROM NONPOLICY FACTORS



NATIONAL INCOME RESULTING FROM MONETARY POLICY



NATIONAL INCOME WHEN POLICY AND NONPOLICY EFFECTS ARE ADDED (A + B)

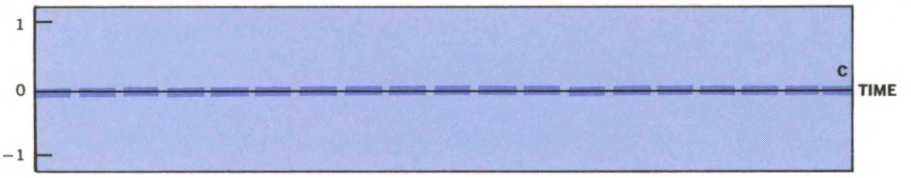
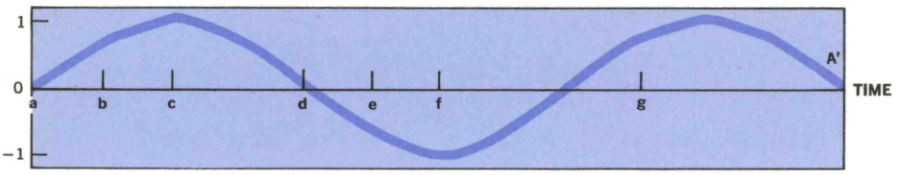
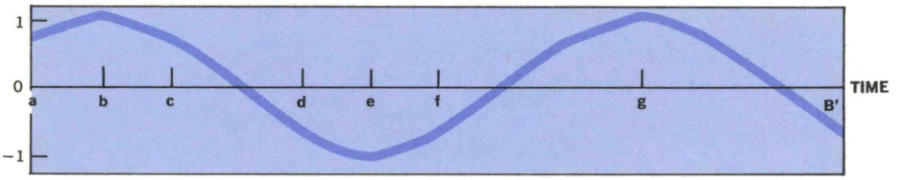


CHART 2

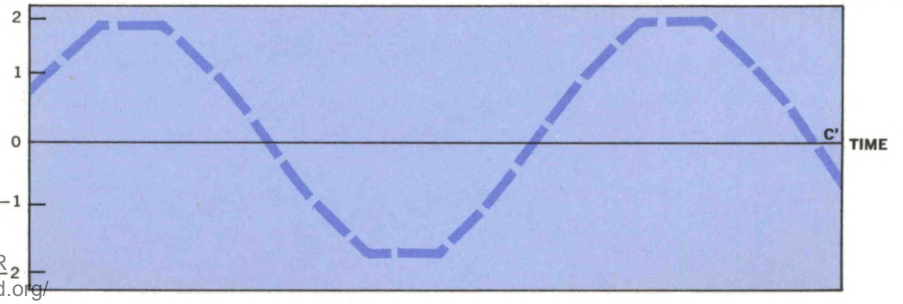
NATIONAL INCOME RESULTING FROM NONPOLICY FACTORS



NATIONAL INCOME RESULTING FROM MONETARY POLICY



NATIONAL INCOME WHEN POLICY AND NONPOLICY EFFECTS ARE ADDED (A' + B')



been if monetary policy had followed another course. It can be demonstrated, however, that under certain conditions, changes in monetary policy will enlarge rather than reduce economic fluctuations.

Suppose, for example, the objective of monetary policy is to smooth cyclical fluctuations in national income.[3] Series A in Chart 1 represents the business cycles (with the long-term growth trend taken out) that the economy would experience if no offsetting changes in monetary policy were made (for example, if monetary policy followed a fixed rule and had the money stock grow at a constant rate).

Now assume that monetary policy is changed in such a way that its effects subtract from or add to national income as shown in series B of Chart 1. In this case, monetary policy would achieve its objective completely. Each increase or decline in national income resulting from all other factors except monetary policy is exactly offset by a decline or increase in national income resulting from the effects of monetary policy. Consequently, when both policy and nonpolicy effects are combined, there are no fluctuations in income as shown by series C in Chart 1. In this case, the economy would be on the stable (growth) path that everyone wants.

An entirely different possibility is shown in Chart 2. There series A′ is the same as series A in Chart 1. Series B′, however, which represents the effects on income of monetary policy, has been shifted over to the right.[4] That is, the turning points in B′ *lag* behind the turning points in A′. Consequently, there are periods when both series are adding to national income at the same time (for example, between points *a* and *b*) and other periods when both series are subtracting from national income at the same time (for example, between points *d* and *e*). When the two series are added together, the result is series C′ which has larger fluctuations than either series individually. This means that changes in income resulting from changes in monetary policy made the fluctuations in income larger than they would have been if the economy had been left alone and no "offsetting" policy changes had been made (series A′).

Lags between policy changes and their effects on income could be caused by several factors.[5] Policymakers may not immediately recognize the need for a change in policy. More importantly, banks and other institutions and the financial markets in general may take time to adjust their borrowing and lending behavior to changes in Fed policy once these changes are made. Finally, and perhaps most significantly, businessmen and individuals may take time to adjust their spending decisions in response to changes in the monetary environment. These initial adjustments will lead to still further adjustments as spending goes up or down, and months may lapse before all effects have worked themselves out.

Most observers believe that the monetary authorities quickly recognize the need for a change in policy. In the past, the Federal Reserve has usually recognized major shifts in the direction of economic activity within three months, and the lag may be even less now. Most

[3] The analysis holds regardless of what particular economic series or combination of series (for example, unemployment and prices) the monetary authorities try to smooth. Also, the conclusions are not affected by the fact that all series are adjusted for trend in order to simplify the treatment.

[4] For example, the trough at point *c* in Chart 1 is at point *e* in Chart 2; the peak at point *f* in Chart 1 is at point *g* in Chart 2.

[5] See Mark H. Willes, "Lags in Monetary and Fiscal Policy," *Business Review*, Federal Reserve Bank of Philadelphia, March, 1968.

analysts also believe that financial institutions and markets adjust rapidly to changes in monetary policy, although some estimates suggest that the adjustment process drags out over many weeks. There is less agreement on how long it takes businessmen and consumers to adjust to changes in financial conditions, but there is general agreement that, at best, the adjustment process is long. The shortest estimates made so far suggest this lag is at least six months, and most estimates show the lag to be nine months or longer.

When you put all of the evidence together, it appears that the effects of monetary policy may lag behind other changes in income by many months. The longer this lag, the greater the chance that offsetting changes in monetary policy will increase rather than dampen economic fluctuations. We have developed an analytical model which gives some idea of just how short the lags must be if policy is to have the *potential* to reduce fluctuations in the economy around its long-run growth path.[6]

The results are fairly striking. If the lags of monetary policy are anywhere near as long as most estimates indicate, perhaps policy changes should only be used to try to stabilize longer run fluctuations in economic activity. Monetary policy should not be used to offset short fluctuations (perhaps anything less than three or four years long) unless forecasting can be improved to the point where policy changes can be made early enough to offset significant proportions of the (outside) lags of policy.[7] Even then, the possibility of perverse expectational effects might caution against stabilization actions which are too aggressive.

No one likes recessions, and few still think they are necessary to keep the economy in shape. But given our current state of knowledge and the lags of monetary policy, it might be impossible to avoid short, mild recessions (or inflations) through the exercise of offsetting changes in monetary policy. Attempts to interfere might only make things worse. In other words, long periods of slack, such as existed in the early 60's, and long periods of excess demand, such as we had in the last half of the 60's, would be fair game for monetary policy, but shorter fluctuations might not.

Of course, the particular results of our analysis may be distorted by the assumptions on which it is based. However, our results have

[6] In our model, we make no assumptions about the specific channels through which monetary policy influences the economy. Consequently, the results of the model can be applied to many different views of how the economy works and can be used to evaluate the estimates of policy lags made in many different ways. While the model is too technical to be presented here, its nature can be described quite simply. It shows how to convert various estimates of the lags of monetary policy into a series like B′ in Chart 2. It also shows how to calculate, for these various estimates of policy lags, a statistic which measures how much in or out of phase the implied B′ is with A′. This statistic can then be put into a standard formula which tells how much the fluctuations in A′ are reduced or increased by the addition of the fluctuations in B′. For a complete description of the model, see Mark H. Willes, "The Scope of Countercyclical Monetary Policy," *Journal of Money, Credit, and Banking,* forthcoming.

[7] For example, our analysis shows that if each business cycle or economic fluctuation (expansion and contraction together) is two years in length, and if the total lags of monetary policy take six months or more to work themselves out (where the lag in this case can be shown to be the sum of the inside lag plus the time it takes a policy shock to achieve 50 per cent of its total effects on income), offsetting changes in monetary policy could well aggravate rather than reduce those fluctuations. Our analysis also suggests that if the lags of monetary policy are two quarters long, the authorities are not likely to be able to reduce fluctuations (the variance) in income by even 25 per cent unless each total fluctuation (from peak to peak) extends over a period of 3½ years. If the lags are three quarters, to receive the same reduction in variance would require that each total fluctuation extend over a period of more than 6 years. Again for 3-quarter lags, if each fluctuation extended over a period of only 3½ years, no reduction in fluctuations could be achieved, and for fluctuations of even shorter duration, their magnitude would actually be increased.

stood up under a number of different tests and are consistent with results obtained by other investigators. Consequently, it could be unfortunate to ignore them, for they point out how good countercyclical intentions can be converted into undesirable actions if the lags of policy are too long.

RULE VS. RULE

If countercyclical monetary policy under some circumstances can aggravate rather than reduce economic fluctuations, does that mean the monetary authorities ought to adopt some kind of monetary rule? There are many kinds of rules, and the monetary authorities already generally follow some kind of a decision rule, either implicitly or explicitly, for that is the way they bring historical experience and a sense of priorities to bear on decisions they make. Policymakers do not give up discretion when they decide to follow a rule, for they must exercise great discretion in deciding which rule to follow and when it should be changed.

The real question, therefore, is not whether the monetary authorities should adopt a rule in deciding how to conduct monetary policy, but rather *which* rule should be chosen and under what circumstances should it be broken?[8] So far, most of the monetary rules suggested by economists have been "simple" ones, and policymakers have rejected them in favor of more complex but implicit decision rules of their own. There might be some advantages in making these implicit rules more explicit, for they could then be tested and perhaps modified more easily as additional knowledge is obtained.

Of course, the problem all along has been the difficulty of choosing the best or even a good rule to follow. And while our analysis points out some dangers of which policymakers should be aware, it falls far short of providing a workable blueprint to guide policy actions. For example, our analysis suggests that while monetary policy can play a significant role in moderating long-run fluctuations in the economy, it ought not try to offset many short-run changes in economic activity. But how do policymakers distinguish between short fluctuations that ought to be left alone and longer ones that could be moderated by appropriate action? If they wait too long to identify the nature of the movement, they may lose the chance to take the necessary steps to correct it.

Another problem in the choice of the best rule relates to the selection of appropriate intermediate targets of policy. The monetary authorities realize the dangers of focusing exclusively on interest rates or money market conditions as indicators of, or targets for, policy actions. Most economists in and out of the System would vote for primary use of some monetary aggregate like bank credit or the money stock. But even over periods as long as a quarter, different monetary aggregates can move in divergent directions. Under what conditions should each be used?

Even if the monetary authorities could focus on one aggregate and follow a rule which said that this aggregate should grow at a constant rate, difficulties would remain. Policymakers would still have to choose the time period over which to measure the growth in the aggregate. Because of the problem of lags, attempts to control the money stock or any other aggregate too

[8] Rules can be simple—for example, "Easy money during economic contractions and tighten money during expansions," or "Have the money stock grow at a fixed rate." Conversely, rules can be complex, like "Reduce the rate of growth in the money stock when national income rises more than x per cent, unless the unemployment rate is above y per cent, or the Treasury bill rate is over z per cent; and increase the rate of growth in the money stock when national income rises less than m per cent, unless the unemployment rate is less than n per cent, or the Treasury bill rate is under p per cent."

finely could have growing and unnecessary side effects on financial markets.[9]

A FINAL CHOICE?

The dilemma for policymakers, then, is this. We are not able to specify exactly how and when a change in monetary policy will influence our large, complex economy. We do know, however, that the effects of policy typically come only after a lag, and that lag may be quite long. This raises the possibility that actions taken to offset cyclical fluctuations may actually make them worse. One implication of this might be that policymakers should return to the Puritan ethic of allowing recessions (and inflations) of the short and moderate variety to run their course.

Policymakers, however, live in a world where public and political pressures and their own inclinations demand ever-higher standards of economic performance. If the public were more aware that there are limits to what monetary policy can do, and if buffers could be erected to protect "the disadvantaged" against the worst ravages of economic ups and downs, the public might have greater tolerance for mild fluctuations and might not press for actions that could be ill-conceived in the long run. However, any lasting relief from that approach is unlikely. It is of the nature of people to want to do better. Consequently, the only real hope for the future lies in a relentless search for knowledge about how the economy works and continued attempts to design new and better strategies for the conduct of monetary policy.

[9] Because there are lags in the response of banks and other participants in the money market to System intervention in the market, there is some minimum time period over which a monetary aggregate ought to be controlled. Attempts to control it over a shorter period will be unnecessarily disruptive in that ever-larger purchases and sales of securities with ever-larger fluctuations in market conditions and rates would be required to hold the aggregate on its desired path. Our analysis suggests that eight weeks would seem to be a minimum control period, and longer periods might be even better.

In recent issues of the *Review*, we have published articles on the balance of payments and the international monetary system. The following article, originally written as one of a collection of essays in honor of Karl R. Bopp, highlights some of the issues discussed in our earlier articles and raises some provocative questions about where we go from here.

Capital Movements and Balance-of-Payments Adjustment

Robert V. Roosa*

When Karl Bopp[1] was giving me some of my early instruction in central banking, he once stunned me with this thought: no policymaker ever has enough theoretical analysis available for the job he is doing; look out for the one who thinks he has. Now, some twenty-odd years later, as a testimonial to the persisting validity of that thought, I venture to suggest that much of the conventional analysis of imbalances in payments flows among nations rests on a distressingly incomplete theoretical base. While neither I nor anyone else to my knowledge can offer a more inclusive and satisfactory theory of balance-of-payments adjustment, there may be some gain in floodlighting the gaps.

My own conviction is that the classical conception of the causes of imbalance in a nation's external accounts—on which so many assured prescriptions have been written—presumes an unrealistically simple structure of the determinants of international payments. Although discreetly avoiding explicit articulation of their premises, the traditionalists (including many in that fraternity of international bankers to which I belong) imply that the bulk of international transactions consists of trade in goods, and that such trade in turn represents a sizable proportion of each country's domestic product. That is why they can urge with assured conviction repetitively similar designs for the balance-of-payments programs of any countries, large or small, developed or developing, regimented or free. In essence, the formula has been: when in deficit, deflate until equilibrium is reached; for

* Partner, Brown Bros. Harriman & Company. This essay was selected from *Men, Money and Policy: Essays in Honor of Karl R. Bopp*, David P. Eastburn, editor, published in limited edition by the Federal Reserve Bank of Philadelphia.

[1] Karl R. Bopp, now retired, was President of the Federal Reserve Bank of Philadelphia, 1958-1970.

countries in surplus, do nothing. Appropriate action by the deficit countries, it has been thought, will in time restore a more nearly even balance in the accounts of the surplus countries as well. My concern is not that this formula is altogether wrong; indeed, much that it implied may still be relevant, but for the decade of the 70's and beyond, I fear, it is woefully incomplete.

The more significant missing elements in this simple structure are, of course, capital flows, debt servicing, and governmental transfers. They have not been ignored in the customary balance-of-payments diagnosis, but they have generally been pushed aside as residuals, fitting into whatever place the trade accounts would allow. And quite consistently, many countries have long maintained controls over their capital accounts to assure that they would be accommodated to the flows of trade. Indeed, the Articles of the International Monetary Fund were designed in 1944 to recognize this position. The convertibility to be sought for currencies was only for current-account transactions (Article VIII), and paralleling this objective, the IMF was to encourage unrestricted freedom for the movement of goods in international trade (as it has done through the General Agreement on Tariffs and Trade). Restrictions on capital movements were condoned so long as they did not become direct impediments to trade.

Under the Bretton Woods system after 1944, it was only the United States, the country whose currency was treated interchangeably with gold as an international unit of account, which undertook an implied obligation to avoid capital controls. Even that role for the United States was, at the beginning, self-imposed; it did not represent an agreed requisite for the functioning of the new system. Yet by the end of the decade of the 50's, there was also a spreading belief among the newly convertible (Article VIII) countries that freedom for capital movements was also an appropriate objective for other countries, particularly larger ones, whenever they reached a suitable stage of economic maturity. Their balance-of-payments programs, it was frequently suggested, should be judged not only by their effect on trade, but also by the impetus such programs gave toward greater freedom for inbound and outbound capital flows. This change of attitude was a by-product of the exhilaration accompanying the achievement of Article VIII convertibility by most leading countries in 1959. But underneath, the old premise was unchanged, for the unstated assumption still was that only trade really mattered. The emphasis was on free trade, to be sure, but the criterion of balance-of-payments policy was still to promote trade surpluses. Once successful in that, countries would then find, it was suggested, that they could also allow capital to flow freely.

This was a doctrine for the more developed countries, and perhaps only for some of the larger among them, but the less developed were not to be left out. With strong trade surpluses and freedom for capital outflow in several of the developed countries, private investment and Government aid could provide for the excess of imports that less advanced countries would need for their development.

The misfortune is that this simple, indeed elegantly symmetrical, system—which has been the conceptual basis for so many resolute proposals—has not existed in even the crudest approximation since the early postwar years when the United States stood alone on the one side as a net capital exporter and the rest of the world was on the other. Through the decade of the 60's, as some of the more developed countries edged closer, at least in potentiality, to the older pattern (though not the dimensions) of the

United States, the United States in turn seemed to be edging into a new pattern as well.[2] Net transfers of capital from the industrialized countries to less developed countries, while rising modestly in absolute amounts, actually declined as a proportion of the capital formation occurring either in the developed countries or in the developing countries.

Despite these underlying changes, the prescriptions for national action, whenever one country or another slipped out of economic viability with the rest of the world, were still for the most part the same. Moreover, because of the continuing heavy emphasis on goods in trade as the primary moving force in balance-of-payments adjustment, a disconcerting tendency to resort to direct limitations on imports or to unusual subsidies for exports—albeit with protestations of temporary expediency—began to appear alongside the classical emphasis on deflation by the deficit countries. Meanwhile, there was almost universal dismay when the United States began gingerly placing limitations on the free outflow of capital, even though it did make suitable obeisance to the "temporary" nature of its succession of new measures.

Having participated in the early phases of the United States' fall from grace, and having anguished over each new step with diligent concern for the need to return promptly to the conditions of freedom for flows of goods and capital, I am beginning now to wonder whether I fully grasped the significance of what we were doing at the time, and of the causes for the action we were initiating. Indeed, I wonder now whether anyone's understanding of the complex of forces at work is yet sufficient to warrant the kind of assurance many of us have as to the proper pattern of policy to be pursued and of the objectives toward which we should return. Most of my questions seem to come back to a central theme: that capital movements—including both short and long maturities, and direct investment as well as portfolio purchases and sales—may no longer be considered mere residuals of the trade accounts, but instead may often have an independent propelling force of their own. Debt servicing and Government expenditures abroad are in a way subsets of this generalization concerning capital movements, but they also have become independent rather than dependent variables.

Along with this apparent change have come other critical changes in the admissible scope for variation in the domestic economic policies of nations. Neither recession, nor unemployment, nor price declines can be permitted on any substantial scale. The result is that variations in economic policy to achieve domestic stability and external viability, country by country, can for the most part affect only differences in the pace of advance in economic activity, or in its composition, not a substantial or sustained decline. Thus, the range for deliberate influences upon the outflow or inflow of resources through generalized policies working in a deflationary direction to spur exports and check imports must necessarily be much narrower than was implied by conventional theories of balance-of-payments adjustment.

The outcome, then, it seems to me, can be summed up in this dilemma: at the same time that capital movements (and their subsets) are

[2] Cf. my article "The American Share in the Stream of International Payments," *The Annals* (July, 1969), p. 21: "The United States position in the world economy has been changing fundamentally over recent years. The traditional large surplus accumulated through foreign trade disappeared in 1968. Gross capital inflows became as large as the proceeds of exports in that year. And the dollar declined in use as a reserve currency among central banks while its use expanded in private transactions outside the United States."

becoming more nearly independently determined and thus cannot be regarded as passive offsets to the major swings occurring in a nation's trade position, the traditional methods for adjusting the trade accounts themselves are becoming weaker and more circumscribed. The traditional conception of balance-of-payments equilibrium and of the path towards restoring it once a country has moved into deficit or surplus has come apart. Is it little wonder then, in the face of such momentous change in the entire structure of international flows, that the international payments system which serves such flows should itself have been going through a series of convulsions during most of the decade of the 60's?

Without pretending to have a theory for knitting all of these disparate pieces together, I can perhaps help in clearing the way for others who may attempt that task by identifying a number of the problems which seem to me to have been created. And for those not content to wait for the theory, perhaps I can suggest a few of the approaches that may, after further critical analysis by others, prove helpful in meeting some of these problems or in modifying some of their more disturbing effects. The following pages will then be divided between "New Problems" and "New Approaches." And I hasten to interject that, of course, nothing is every totally "new," and that my intention is to stress new emphasis rather than a new incarnation.

NEW PROBLEMS

The new problems which arise outside the boundaries of the old theory all have their roots in major institutional changes that have occurred since World War II. They can best be catalogued as changes related to long-term capital flows; to short-term flows; to Governmental transfers; and to debt servicing. Running across these four kinds of changes, two other ways of singling out the principal problems may also be helpful: the changing function and behavior of interest rates as a part of the adjustment process and the still changing but special position of the United States.

Long-Term Capital Flows. The remarkable increase in capital requirements and capital formation over the two decades from 1947 to 1967 has not only produced a virtual mutation in the scale of worldwide economic activity, but also has generated flows of long-term capital among nations on an unprecedented scale. Direct investment through the multinational corporation and portfolio investment across frontiers through a host of new instruments—debentures, convertibles, and equities, denominated in Euro-dollars, or units of account, or other Euro-currencies—have, both in multiplicity of directions and in total size, completely dwarfed anything experienced before World War II. As capital has sought every open doorway to free movement, the possibility for a neat and natural balancing of any country's capital outflows with its own trading position has become more and more remote.

In earlier times, when the typical pattern was for long-term capital to flow from the more developed countries to countries in a dependent or colonial status, there was, in the nature of the relationship, a built-in link between the flows of capital and of goods and services. In turn, the receiving countries, whether these were the United States in the early 19th century or Brazil or India later on, paid a return to the long-term outside investor which could be largely reinvested in the host country. Consequently, the chances were rather slight that a serious divergence would develop for the capital-

exporting countries between the flow of goods across their frontiers and the actual export of long-term capital.

In the world of the latter half of the twentieth century, however, autonomously generated outflows of longer term capital are becoming a larger and larger element in the balance of payments of many of the developed countries. Moreover, the volume of this capital flowing to other developed countries is at least as large as that flowing to the less developed countries. It thus becomes almost inevitable that this segment of the balance-of-payments accounts will no longer passively adapt itself to a dominating pattern imposed by the flow of goods in trade.

Short-Term Capital Flows. As current-account transactions were being freed and payments on current account were becoming fully convertible during the later 1950's, a parallel development was introducing a comparable degree of internationalization in the flows of short-term capital among nations. To be sure, most countries, including many of the most fully developed in Europe, still maintained relatively tight control over identifiable long-term capital movements as a buttress for their effort to restore current-account convertibility. But the mere necessity to assure ready short-term financing for a growing volume of current-account transactions, dispersed among a larger variety of trading countries, created an urgent demand for the use of a single currency as an international transactions vehicle. The dollar met much of that demand. As this need expanded during the 60's, it was, in the best spirit of energetic enterprise, paralleled by a rapid spreading of branches of American banks overseas.

Under competitive influences, not only the branches of American banks but also the offices of most of the leading banks in other countires began to accept and service dollar-denominated deposits, regardless of where the branch or bank might be domiciled. And almost as if fatalistically determined, the Federal Reserve's Regulation Q, by placing a relatively low ceiling on the rates of interest payable on time deposits in the United States, encouraged American banks to develop their dollar-denominated deposit business abroad. At the same time, these American branches were being called upon increasingly to finance the working capital requirements of overseas corporations, particularly the multinational corporations headquartered in the United States which wanted to rely upon the banking techniques with which they were familiar.

Out of all this emerged the Euro-dollar market—a market which by 1969 could be variously estimated at $25 billion to $35 billion in magnitude, depending upon the extent to which any statistician felt able to remove certain elements of double counting from sequences of deposits pyramided upon a single underlying account. The resulting market was highly sensitive to marginal shifts in demand or supply and was truly international in character, though buffeted at times by those whims of the foreign-exchange markets that might create doubts concerning the established parity of a weaker currency or create hopes concerning the prospects for possible revaluation of a stronger currency.

In this setting, reliance on traditional methods for promoting balance-of-payments adjustment became almost inevitably self-defeating. When Germany, for example, with a strong economy, relatively stable prices, and a somewhat undervalued exchange rate, began to fear internal inflation, the indicated response was to tighten modestly on credit availability. Yet in the presence of a large and volatile Euro-dollar market, the initial effect of an increase in German inter-

est rates was to draw additional funds into Germany, enlarging the credit base and providing an additional problem for monetary authorities aiming to assure some degree of overall restraint. In time, of course, this situation degenerated further. Interest rates were raised; in the absence of other adequate control limitations, additional funds flowed in; and expectations became greater that Germany would find it necessary, in order to maintain the desired degree of domestic price stability, to adjust the parity of the Deutsche mark upward.

In different circumstances, the United Kingdom had to undergo in quite another way the effects of the contradictory influences of trade flows and short-term capital movements. While much of the explanation for persistent British deficits, as I have argued elsewhere,[3] was attributable to the maintenance of enormous Governmental expenditures overseas as an inheritance of the obligations of pre-World War II empire, the simple position as seen on traditional lines was that of insufficient exports in relation to the rising volume of imports. For this situation, the prescription should have been, as, in fact, intermittently it proved to be, that of severe domestic restraint in order to limit price increases at home, check the rise of incomes, release home production for export, and reduce import demand.

What happened instead was that from time to time, as domestic interest rates rose higher and higher in the United Kingdom under the pressures of internal credit restraint, funds were attracted temporarily from abroad. Their arrival seemed both to lessen the pinch of restraint at home and to improve the British reserves, with the result of temporarily lulling British opinion until additional reserve losses on trade and Government account revived doubts again. And then, as fears of exchange-rate devaluation became predominant, the same short-term funds, and more, found ways—despite the continuance of exchange controls and a very high premium for transfers into securities purchases abroad—to flow out again, thereby making the later position of the British balance of payments even worse on an overall basis. To be sure, throughout this period, there was also essential validity in the implications of the conventional view that Britain should readjust by restraining. But because this had to occur in an environment characterized by large flows of volatile short-term funds, even the appropriate implementation of a traditional action program was disrupted.

Government Flows. The world before World War II had seen, of course, large and varied overseas commitments by many of the governments of leading countries, but there was no precedent for the scale of international aid—both military and economic—undertaken by the United States(and, in time, by several other countries) in the post-World War II period. Through most of the decade of the 50's, as the bulk of these international transfers on Government account were either affected by the United States, or cleared without substantial balance-of-payments distortions by means of the European Payments Union, there was no challenge to the traditional concept of balance-of-payments adjustment. But by the end of the 1950's, both the United States and the United Kingdom—which had by then become the leading deficit countries and remained so throughout the 1960's—were sending abroad through economic and military aid and, through expenditures in support of their troops overseas, amounts which

[3] "Where is Britain Heading?" *Foreign Affairs* (April, 1968), especially pp. 505-506.

annually far exceeded the size of their own balance-of-payments deficits. And there were good reasons, defensible in terms of world order and security, for maintaining such overseas expenditures.

One early reaction, as the deficits themselves continued, was to attempt to "tie" more and more of these overseas disbursements to direct shipments of goods by the donor country. The record of that tying, and of the many ways through which its intention was frustrated while its spirit was criticized, has been too often reported to need repetition here.[4] The record of various "offset" agreements to cover in part the balance-of-payments cost of British and American troops stationed in Western Germany is probably equally well-known. Moreover, in the face of persisting deficits, there was an intuitive validity in the arguments advanced for forcing the amount of these overseas aid and military commitments to conform to whatever magnitudes could be permitted by the principal elements, in combination, of a donor country's balance of payments. Without arguing over the principles, or the costs, however, the mere citing of this record is enough to emphasize the nature of the new dilemma. All leading countries must, almost regardless of the current status of the other elements of their balance of payments, if they are not to abdicate the responsibility of leadership, undertake some commitments to assist the economic advance, even if not the military defense, of many of the less developed areas of the world. And those commitments, however they may be trimmed from time to time to reflect long-run changes in a donor country's basic economic position, will have to be determined at least in part from year to year by independent considerations. By their nature and because of their critical importance for other prime objectives, they cannot be left to vary purely as balancing residuals of the trade accounts of leading countries.

Debt Servicing. While the leading countries have, both directly and through various multilateral agencies, been extending Government assistance to many of the developing countries, and while the great multinational corporations have been adding impressively to their own direct investments in these countries, the recipient countries have been encountering new problems of their own. The magnitude of their requirements for outside resources, as they have attempted to telescope into decades a scale of progress that had earlier required centuries, has involved imports of capital on a tremendous scale. Not only has much of this capital come on terms requiring regular amortization after an initial period, but much of it has also carried sizable rates of interest.

As a result, by the later 1960's, the annual requirements for external debt service in most of the less developed countries were about as large as the total volume of new capital arriving. Indeed, because of the debt-servicing obligation, many of the less developed countries were able only to earn with their enlarged capital base enough to pay the interest and amortization due on that capital.[5] This was a circular flow that could eventually spell virtual stagnation as far as the advance of domestic living standards was concerned.

The expedient of interest subsidies or a moratorium on repayments did not offer a fully satisfactory way out. For measures of this kind,

[4] Compare the conclusions in the report of the Pearson Commission, *Partners in Development* (Praeger: New York, 1969), pp. 172-177.

[5] Cf. *Partners in Development, op. cit.*, pp. 74 ff.

understandably proposed in order to reduce the transfer burden across the frontiers of the developing countries, could also seriously misguide the patterns of capital and resource allocation for the future. The alternative of attempting to apply the traditional analysis to these less developed countries, by expecting them to deflate in order to increase the attractiveness of exports while reducing imports, was on its face unacceptable except for brief periods of temporary correction.

Interest Rates. As each of the problem areas just described was coming into clearer visibility, some of its effects were also being etched across the experience of many countries in another way. For it began to appear that with prices often free to vary up and down only from an upward trend line, and with employment to be kept virtually full, the rates of interest paid for short- or long-term funds in various countries would have to become a much more important variable for implementing overall economic policy.

In terms of the balance of payments, given the narrow range within which adjustments could occur in the trade position even if traditional prescriptions were followed, greater reliance for policy purposes might have to be placed on changes in underlying domestic credit availability and thus on variations in rates of interest. Ways might have to be found to increase the size and flexibility of offsetting shifts in capital flows, to take the place of what had been larger swings in the trade balance, or to compensate for what had now become an intractable minimum of disbursements abroad by governments. Particularly during the decade of the 60's, the potentialities for relying on variations in credit availability and interest rates to influence capital flows among nations have had to be much more extensively explored.

Statistical verification is extremely hazardous in matters of this kind. In attempting to make some check on my own marketplace observations, however, one of my colleagues has tried several different measures. One approach, mentioned here only as an illustration, has been to examine the relative impact of exports and of interest-rate differentials on the outflow of short-term capital from the United States over these years. His results thus far, always conditioned by the fact that correlation does not mean causation, are quite striking. The difference between the two periods 1961-1964 and 1965-1968 is so great that, even after appropriate allowance is made for vagaries and variations in the data representing the underlying phenomena being measured, one general conclusion can scarcely be avoided. The correlation between exports and outflows of short-term funds declined sharply, to become almost trivial in the latter period. At the same time, the correlation between the United States-United Kingdom interest-rate spread and variations in the outflows of short-term funds from the United States increased significantly by every test attempted.[6]

Yet it has begun to appear that even interest-rate flexibility and the underlying variations of credit availability which induce rate changes have limits. In part this comes from the perverse pattern indicated by the references to Germany and the United Kingdom above. In part it also comes because the impact of sizable changes in current interest rates to affect external flows may have gravely distorting effects upon domestic capital flows in national economies whose institutions are geared to relatively slow changing rates of return. Moreover, the existence of

[6] The supporting analysis by Richard Fischer would require all of the space allotted to this paper for adequate presentation. His findings, after further testing, will be published separately.

the nonnational Euro-dollar market has provided a vehicle through which an intensification of credit restraint, for domestic as well as for external reasons, will, in a market as large as that of the United States, be speedily transmitted into the markets of many other countries whether or not their own immediate external position requires reserve drains (or reserve gains) of the dimensions that result.

No doubt many countries affected by the tightening of the Euro-dollar market during the later half of the 1960's have overstated the seriousness of the impact, partly because they have not yet experienced the impact long enough to develop the techniques for offsetting that impact through appropriate central bank action. Nonetheless, after recognizing all of these qualifications, the fact remains that the international transmission of short-term capital movements has become a highly volatile influence upon the foreign-exchange reserves and the external overall balance-of-payments position of most of the leading countries, and, indeed, on that of many others. Because these flows cannot be presumed to fit comfortably into place as mere residuals in the complex balance-of-payments adjustment among nations—since they do not simply run parallel with trade—something more is needed, in theoretical analysis and in operating techniques, if the adjustment process is to function effectively.

The Special Position of the United States. Throughout the decade of the 60's, there has been an ambivalence among the critics of the United States balance-of-payments performance. Our deficits have been continually criticized; our efforts to correct them, particularly when the traditional formulae of deflation were being applied, have brought anguished complaints. Yet these two approaches need be neither surprising nor inconsistent. They flow from four major aspects of the United States position which, in their combined effect, distinguish us from all other countries—and distinguish us enough to require a separate addendum to, if not a completely separate version of, any comprehensive theoretical formulation of an appropriate process of balance-of-payments adjustment within the world economy.

First, the United States is large, accounting for nearly one-third of all production and capital formation in the world, although for much less than one-sixth of all trade. Second, the United States dollar is far and away the most widely used transactions currency in international commerce, and it now provides the principal common medium for the Euro-currency market. Third, the United States has spawned a widely diversified complex of multinational corporations that is unique in scale and performance across the world. Fourth, as political leader of the free world, the United States has undertaken external commitments, both military and economic, that together far exceed the external expenditures for these purposes of any other nation, not only in gross amounts, but also as a proportion of gross national product.

How can the balance of payments of such a country be expected to conform to the same pattern, and correct its aberrations by resort to the same measures, as those indicated by the traditional norms? Such an attempt was made, nonetheless, during the early years of the 60's. Even though the United States was already running a sizable trade and current-account surplus at that time, dollar outflows to the Euro-currency markets, capital outflows on portfolio as well as direct investment account, and seemingly intractable Government outlays overseas brought about a net deficit position. The United States

reacted by trying to raise productivity more rapidly, in turn holding prices relatively steady as domestic incomes and employment rose. The result, up through 1964, was a resounding rise in the surplus on trade and current account, but as capital outflows and Government payments continued rising, the net deficit shrank only slowly.

After 1965, with the stepping-up of Government expenditure at home and abroad to meet the Vietnam commitment, a price and income inflation got under way. Imports rose much more rapidly than exports. By 1968, the trade surplus was gone; the current-account surplus was reduced by three-quarters; and only a sequence of tightening controls over net capital outflows made possible some further reduction of the overall deficit. In 1969, a severely restrictive (deflationary) monetary and fiscal policy came into play, and perverse though it seems, the deficit skyrocketed. But just as paradoxically, because the domestic restraint made Eurodollars even more attractive to banks in the United States than to holders abroad, the dollar was in greater overall demand, and its current technical position in the foreign-exchange markets was stronger than at almost any other time in the decade.

Such, in stark oversimplification, is the strange record of the United States balance of payments and the dollar through the 60's. Toward the close, a classical tight-money policy, aiming at deflation, brought a massive inflow of short-term funds. Statistically, the deficit zoomed; in the markets, the dollar was strong, yet the balance of trade did nothing. Moreover, fragmentary evidence, too tentative for presentation here, was beginning to suggest that the trade balance might not be capable of substantial improvement. Data suggested that as long as incomes rose, the United States economy, in its present form, would continue to draw in a more-than-proportional rise of imports—that the relevant elasticity determining purchases of goods abroad was income change in the United States, and that even if relative price stability could be attained, imports would go on rising at about the same pace.[7] Since no economic policy for the United States could contemplate static incomes over time, the chances of regaining a trade surplus sufficient to carry most of the other United States overseas disbursements on capital and Government account were beginning to seem remote indeed.

Some way would have to be found, it would appear, for the United States at least, if not for other countries, to affect changes in overall capital and Government outflows, in net terms, as a response to general measures of economic policy, if our external accounts were ever really to balance. Perhaps by conventional standards, the United States would have to become a habitual renegade, barely able to keep its trade accounts in balance, with a modest surplus on current account, with an *entrepôt* role for vast flows of capital both in and out, with a more or less regular increase in the short-term dollar liabilities used for transactions purposes around the world, and with Government disbursements tailored to fit whatever proved to be the residual of all these other elements, after some allowance for increases over time in monetary reserves.

NEW APPROACHES

The arresting challenge presented by the array of "new problems" just described is to find a comprehensive new theory that can envelop all

[7] H. S. Houthakker and Stephen P. Magee, "Income and Price Elasticities in World Trade," *Review of Economics and Statistics* (May, 1969), pp. 111-125.

of them. Until that challenge is met—and I will insist here, without pausing for the argument, that the theoretical structure of a "floating" exchange-rate system is no answer—the approaches taken will have to be eclectic. Perhaps as they are followed through, a new and comprehensive theory will emerge. Meanwhile, there is one proposition, it seems to me, that cannot be avoided under any approach: in the aggregate, the accounts of any solvent country must balance, on the basis of transactions willingly undertaken and of balances willingly held, in accordance with generally accepted standards of performance. The search now should be for those additional parts of an equilibrating mechanism that will enable each country to achieve its own viability with less interruption or strain in its all-round economic performance.

What is needed, then, if the new problems have to be confronted individually, rather than in one new all-embracing system, is an airing of various possible approaches to each of the problem areas. The hope can be that wider discussion and debate will produce a consensus of reasonable acceptability, at least for improved handling of some of them. The beginning of such an effort will be sketched here for six possible approaches, not with any pretense at completeness, not with the conviction of advocacy, but in the hope of stimulating critical elaboration. The six are: (1) general influences on long-term capital flows; (2) specific influences on long flows; (3) short-term money flows; (4) Government flows; (5) interrelations between interest rates and exchange rates; and (6) the United States potential as an *entrepôt* for world capital mobility. In all six, of course, attention should be directed to gross flows, both inward and outward, and not merely to the critical net position.

General Influences on Long-Term Capital Flows. Ordinarily, the prerequisite for sustained and substantial outflows of long-term capital from a country is the continuation of a surplus on trade and current account. Yet for decades, even centuries, a by-product of this emphasis on surpluses has been the development of a mercantilist mentality, with emphasis focusing on the accumulation of reserves. To the extent that an overriding desire for additional reserves has been a deterrent to the massive outflow of long-term capital, the recent completion of arrangements for Special Drawing Rights in the International Monetary Fund should serve as a major corrective influence.

During the course of the debate preceding agreement on the SDR's, there was spreading recognition of the inherent risks in rivalry for acquisition of a severely limited aggregate of usable monetary reserves. A built-in deflationary bias was beginning to distort the functioning of the international payments system and drive individual nations, large and small, into undesirable protective or restrictive measures aimed at improving the current-account position in order to acquire a larger share of a relatively constant total of primary reserves. From 1970 onward, however, substantial annual increments to the supply of primary reserves will become available in the form of SDR's.

Henceforth, with each country receiving an annual increment to its reserves through direct allocation of SDR's, the pressures of reserve accumulation will be somewhat lessened. Many individual countries will still seek to earn more, but the strain imposed by this effort will not be so great when the total of reserves is continually growing. In turn, countries may find it easier to use some part of their resources and their external earnings in the normal extending of longer

term capital commitments. The SDR's may thus provide lubrication for a system that had been "seizing up." Indeed, it is through the release of other resources, much more than through any direct siphoning of additional SDR's themselves into the less developed countries, that the system may be "freed up" for much more meaningful flows of long-term capital from the developed to the developing countries over the years ahead.

Thus what may prove to be one of the most significant "new approaches" for encouraging equilibrating capital flows during the next decade, particularly long-term flows from developed countries in surplus to the developing countries, is already under way. To be sure, the potential which the SDR's may represent, in terms of greater freedom for the exporting of long-term capital, is only a prerequisite for such flows and not an assurance that the flows will occur. However, by reducing the preoccupation of developed countries with reserve accumulations, the new arrangements should greatly encourage capital flows from surplus countries to developing countries in deficit.

Direct Influences on Long-Term Flows. Most countries, recently including the United States, have had to resort, at least at times, to specific governmental controls over one or more components of their long-term capital outflows. Despite the undoubted advantage of widespread freedom for the optimum diffusion of direct investment around the globe, for example, or for the uninhibited investment of funds in various types of portfolio assets anywhere, complications have developed. As the scale and diversity of these capital flows have grown, almost unavoidably a bunching of excesses has occurred in one country or another, threatening to push its immediate balance of payments into deficit, or actually doing so.

So far as direct investment is concerned, the installation of operating facilities in other countries cannot practicably be varied from year to year in response to current changes in the balance-of-payments position of the country in which the head office is domiciled. Moreover, attempts to control the aggregate of direct investment flows from the home country are likely to be frustrated, if they continue very long, by the ability of established international corporations to pursue most of their objectives by reinvesting earnings that rise abroad, instead of repatriating them.

Without disturbing the orderly evolution of a firm's foreign investment program, however, there is a short-run potential for regulatory devices to induce the multinational corporation to raise some part of its funds in the countries whose balance-of-payments position is currently strong. One of the fortunate results of the rapid growth of the Euro-dollar market has been the emergence of a truly European-wide, in fact almost free-world-wide, international money and capital market to which such demands can be diverted. Paralleling this development, partly for reasons of imitation and partly under the pressure of growing competition, more active markets have also begun to emerge within several of the other leading countries. The problem is how to direct some of the capital requirements of the multinational corporations towards the savings available in surplus countries without also exceeding the aggregate of the surpluses available in these countries themselves.

No single technique, nor combination of several, can do more than help towards achieving more evenly distributed results. One approach, of some limited usefulness, can be to work with

the host countries to space out direct investment inflows. Most of them, both developed and developing, already maintain controls over investment within their borders by firms domiciled or headquartered outside. To fit in, by agreement with other countries, some consideration for the sources of outside funds should not, as a temporary approach at times, be out of the question.

Another approach, particularly for instances in which the capital inflow depends in part upon insurance facilities of various kinds, is to affect a degree of variation in the initiation of investment projects by using the leverage available to the creditor nation (or international agency) which extends the guarantees. Regrettably, but perhaps inescapably, there has been an increasing propensity on the part of less developed countries for nationalization of concerns owned outside their borders. Investment in many of the less developed parts of the world is thus becoming increasingly dependent upon the obtaining of some kind of insurance guarantee from the home country, and as a result, the potential for purposive variation from year to year to reflect variations in balance-of-payments availabilities has become considerable.

Resort by the home country to compulsory controls over capital exports or earnings repatriation on the part of international corporations may also from time to time prove inescapable and, at least on a temporary basis, may be moderately effective in shielding some countries from an unbearably heavy concentration of long-term capital outflows.

With respect to curbing outflows to acquire portfolio investments, preference should, one would think, be for those types of limitation that most nearly reflect the functioning of market processes. That was the intention of the designers of the interest-equalization tax in the United States. To be sure, for a number of years, that tax was regarded simply as an absolute prohibition and very little business was transacted on the basis of payment of the tax. However, with the passage of time, more and more investors in the United States have discovered that fruitful opportunities for portfolio investment can be found abroad, even after payment of the tax, although to be sure, the magnitude of these opportunities has been much smaller than it would have been without the tax. The success of several mutual funds in the equity market in Japan late in the 1960's illustrates, moreover, the potential that remains for purely market considerations within the framework of the tax. Therefore, it may be reasonable to conclude that the variable use of instruments such as the interest-equalization tax by one country or another, at particular times, may be a helpful method of regulating, without totally interrupting, the outflow of funds for portfolio investment.

United States' experience since 1965 illustrates still another dimension of potential influence, in this case, upon inflows of capital. The Foreign Investors Tax Act, as mentioned again shortly, opened up the possibility of not only improving, but also varying, the inducements for long-term capital to flow into the United States or to remain here.

Still another possibility is suggested by the more or less *ad hoc* approach that the United States has used in screening the borrowing of various international financial institutions in the United States market. As the scale of lending activity by the IBRD or the various regional development banks becomes greater—as it undoubtedly should and will—the scope of their borrowing operations becomes correspondingly

larger. The potential which these borrowings contain for variation from year to year, in the extent to which one market or another is tapped, offers another meaningful method for distributing over time the balance-of-payments burden of the transfers likely to follow the placing of such securities in any given country.

Indeed, a case can be made for extending this approach from an *ad hoc* to a systematic arrangement. One such possibility would be for a group of leading countries to make a firm commitment to one or more of the international lending institutions, undertaking to provide a fixed amount of resources each year for a period of, say, five years. By agreement, the initial distribution of shares among the participating countries could be established on some independent criterion, such as the gross national products of each, possibly modified in some measure by the proportion of gross national product devoted to international trade or represented by some other grouping of international transactions. With a quota for each country's contribution over the five-year period agreed upon, the group of countries could then provide for variation from year to year in the actual contribution made by each within its quota. Recognition could in this way be given to the recent balance-of-payments position of each of the participating contributors—perhaps that of a year or two earlier in order to allow for the lag in reliable statistical data.

Provision would no doubt have to be made that every country must fulfill its quota within the five-year period. However, it might also be understood that any country in sustained balance-of-payments deficit or suffering a series of unpredictable misfortunes could satisfy its requirement by borrowing from others before the end of the five-year agreed interval. In this way, it would simply carry over into the next five-year period a somewhat larger charge against its own resources, to be met across its own exchanges.

Short Money Flows. The most conspicuous causes of aggravation in balance-of-payments difficulties or of foreign-exchange strains through the decade of the 60's was the volatile movement of short-term funds in large amounts. For the most part, these movements were motivated by rumors or expectations concerning possible changes in exchange rates.

With the completion of the French franc and Deutsche mark currency changes in 1969, one might have hoped that sufficient realignment had occurred to provide a reasonable assurance of continuity in most exchange-rate parities for some time in the future. Unfortunately, that would be an illusory point of view. The economic progress of nations cannot be in lockstep unison, neither in the performance of their domestic economies, nor in their changing relative capabilities to expand exports or imports of goods or of capital. As these differential rates of change are reflected in performance, some changes in exchange rates will from time to time be almost inevitable. That is why the discussion of exchange-rate questions became so fervent and widespread as the 60's were drawing to a close.

Whether or not any major change may ultimately be introduced into the currency parity system under the aegis of the International Monetary Fund, one possibility which has attracted particular attention could be pursued further without requiring any change in IMF procedures. This is the suggestion that exchange-rate changes, when the need for them becomes reasonably clear, should be made with somewhat greater frequency, and in somewhat smaller

amounts, than was considered customary or appropriate during the first decade of convertibility, beginning in 1959. Should that approach become accepted, neither the potentialities for gain, nor the uncertainties of prolonged delay, could be so great, nor could they have as much impact on movements of short-term funds as they did during the decade of the 60's.

In addition, following the United States initiative in developing its own $10 billion "ring of swaps" during the 60's, many of the leading countries have developed arrangements for making short-term transfers of sudden inflows of reserves back to the country from which they had flowed. For conditions in which the normal reversal of swap lines within one year could not be readily fulfilled, additional techniques have been developed. These provide for the debtor country to extend the credit for two or three or more years by issuing to the creditor a security denominated in the creditor's currency. Varying provisions for redeemability, in order to assure central banking liquidity, have been introduced.

In some instances, this intermediate-term instrument was used, in effect, as a transferable means of shifting reserves as an offset to short-term capital flows from one country to another outside the United States. A country holding such claims on the United States might, when losing reserves, redeem the claims; the United States at the same time could issue a corresponding amount of similar securities to the country receiving much of the money in transit, denominated in that country's currency. The net effect would be a return of dollars from the country receiving them to the country losing them. This occurred, for example, when there were heavy movements of funds from Italy to Germany late in 1963 and early in 1964. Italy redeemed United States bonds, denominated in lire, and the United States, in turn, issued new bonds to the Bundesbank, denominated in Deutsche mark.

While neither the swaps nor the foreign currency bonds provides a totally adequate offset to the impact of speculative flows of short-term funds, they have served an essential purpose and should occupy an important, perhaps an increasing, place alongside the facilities of the IMF itself in the roster of routine instruments available for use in minimizing the balance-of-payments disruption related to short-term money flows. But, of course, expectations concerning exchange-rate changes were not the only factor in such "hot money" flows. Another factor has been the influence of interest-rate differentials among the short-term markets of leading countries. These will be discussed further below.

Government Flows. As already suggested, perhaps the most important single area for deliberate variation in flows across the exchanges lies in the transactions carried out by governments themselves. The hope would be that governments could develop within their regular overseas payments a capability comparable to that of the so-called "built in" or automatic stabilizers that help to promote stability in the domestic economy.

The general format of one such approach has already been suggested in outlining the possibility for variation among countries in the contributions that each might make towards an agreed annual collective contribution of resources to the international development banks. Similar arrangements might very well be considered for consortia arranged among leading countries for the extending of other kinds of direct aid. Clearly, to the extent that aid, whether through loans or through grants, can be extended on a multilateral basis, the potentialities become much greater for variation from

year to year in the burden placed upon one contributing country or another.

There are still two other ways in which, preferably through multilateral forms of agreement, some more or less automatic variation in balance-of-payments burden could be accomplished. One would follow from a more general recognition that individual governments, even of developed countries, can appropriately borrow abroad to accomplish particular purposes at times when the need for continuity in a program conflicts with the immediate balance-of-payments position of the particular country. Or, in cases in which government accounts themselves are not involved, there would also be a possibility, at times of balance-of-payments strain at home, of extending guarantees or inducements to private concerns engaged in investment abroad, in order to encourage borrowing in other markets, possibly denominated in other currencies.

Perhaps the zone of greatest interest, however, is also that which, from the point of view of the less developed countries, is that of greatest need. This is the question of debt servicing emphasized earlier in the outline of "new problems." A considerable part of the receipts of many of the leading countries in any given year now comes from the return of amortization payments (and, in many instances, the receipt of very high interest payments) from loans made earlier to many of the less developed countries. To some extent, through consultation among the leading countries, there would seem to be scope for outright renegotiation of some of these terms in order to minimize the future burden of past indebtedness. Even where this is not practicable, the possibility for postponing such payments for several years at a time offers an important opportunity for extending balance-of-payments relief to the less developed countries, while spacing out the inflow of hard currency in the accounts of creditor countries during periods when they are already enjoying balance-of-payments gains. To the extent that postponement would be contemplated by private lenders domiciled in strong creditor countries, the postponement might have to be paralleled by either guarantees or actual government "takeouts," with recourse as to ultimate credit risk. For any of these approaches, the most promising procedure would seem to be for a multilateral undertaking, worked out under the aegis, for example, of the Development Assistance Committee of the OECD or of the IBRD.

Interrelations between Interest Rates and Exchange Rates. As indicated earlier, interest-rate comparisons among financial markets, and between the Euro-dollar market and any other given market, seem to have become much more important factors in causing short-term money flows during the late 60's than the characteristic patterns of trade financing. Indeed, we have seen that at times a perverse relationship developed between domestic interest rates and the balance-of-payments results intended by the authorities when introducing either a restrictive or an easing monetary policy. The same experience has also suggested, however, that as long as some uncertainty remains concerning the actual exchange rate likely to be in effect in the marketplace when foreign short-term investment is unwound, another dimension can be at work to help minimize any unwanted effects of interest-rate spreads. That is, the gain from an interest-rate differential must be adjusted for the cost of forward cover.

The possibility consequently exists at times

to induce or deter short-term money flows by narrowing or by widening the margin of forward discount or premium on the currency in question. To be sure, the scope is not unlimited for variation in such forward rates, but the Articles of the International Monetary Fund do not lay down any mandatory limits. Consequently, there have been times when, even though no imminent crisis was threatening, the discount in one direction or the premium in another might rise to as much as 3 or 4 per cent in the forward market. Just as a discount would offset some of the attraction of higher interest rates and probably diminish the flow of funds into a currency, so a forward premium might encourage flows in the other direction.

For some time, a number of central banks have been reluctant to nudge forward rates upward or downward as a conscious instrument of policy. However, as one experiment after another was attempted during the decade of the 60's, the practice began to acquire some degree of acceptability. To be sure, heavy forward purchases of sterling by the Bank of England for many months before the devaluation of November, 1967 did eventually prove rather costly when the parity was in fact changed, but this experience might well turn out to be the "exception to prove the rule." Particularly if parity changes are to be made in smaller amounts and somewhat more frequently, the potential burden on central banks or their governments can be reduced, while the scope for meaningful variation in cost of forward cover, over the 3 or 4 per cent range, for example, would still exist.

One other important possibility has been discussed in recent months. That would be to provide for a widening of the band around the exchange parity. While some have suggested a widening on both sides of parity, the case may perhaps be stronger for a widening on the up side. Surely, as far as reluctance to change parity is concerned, it is readily demonstrable that revaluations occur less readily than devaluations. Out of the last 100 changes in exchange-rate parities, only three had been appreciations prior to the German move near the end of 1969. Yet possibly the greatest distorting influence upon short-term money flows, particularly when a mixture of interest-rate and exchange-rate uncertainties were involved, has occurred because of the pull of funds into a currency which was clearly undervalued. If there were a range, with a wider band, above parity, for the spot rate to move up as much as 2 or 3 per cent, while the forward might move correspondingly above that, the potential for deterring speculative inflows could be very great. Many of the more extreme swings of short-term money flows of the 1960's might have been averted, or held to much smaller figures, if this approach could have been followed.

The United States as an Entrepôt for Capital Mobility. If some of the questions already raised concerning the United States should prove to be valid, the prospects for this powerful nation to go on contributing directly to development in other nations primarily by means of a substantial trade surplus appear doubtful. There should, of course, be room for other kinds of contributions through other elements in the current account, perhaps notably through the deferral or forgiveness of some debt service. Moreover, interest and royalty and other "invisible" earnings derived from other developed countries should provide considerable support for this country's external commitments. Nonetheless, taking all these together, the scope for United States activity overseas would appear severely

limited in relation to the aspirations and demands likely to arise.

One very important additional source of future capital outflows may come through attracting more capital inflows through a greater development of the United States role as an *entrepôt* capital market. There is little doubt that the highly developed facilities of this country's capital markets and the skills of its many participants who now operate actively abroad through the Euro-currency markets can effectively place much larger amounts of funds than can be raised in the domestic United States market. Conversely, one of the greatest shortcomings, even now, among most of the other rapidly advancing developed nations is that they do not have the capital market facilities for effectively putting their own savings to use outside their own economies. The opportunity still exists, consequently, despite all that has already been accomplished during the 60's, for the United States to move more aggressively into the role of intermediary, drawing in nearly as much capital from outside as it distributes. That was a part of the philosophy underlying the Foreign Investors Tax Act of 1966. Although not intended as a variable influence on inflows of foreign capital to the American markets, its role in increasing the volume of these inflows can be of immeasurable help toward achieving, over the years, a closer approach to balance in the United States external accounts.

* * * * *

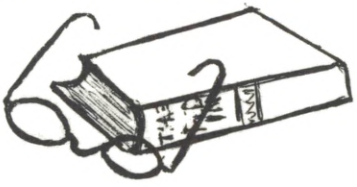
There is much more to be said, of course, on this approach, as on all of the others so briefly touched upon in these comments. But my aim has not been to present a fully detailed brief. Instead, in the spirit of open inquiry that has been the epitome of Karl Bopp's career, my hope has been to present enough circumstantial evidence to raise a presumption of doubt concerning the traditional identification between the trade balance and the total balance of payments. Having raised the doubt, and indicated that capital flows and government transfers have become critically important, independent influences on the balance-of-payments positions of many countries, I have gone on to suggest some approaches for coping with these influences, alongside the flows of goods in trade, as part of a comprehensive process of balance-of-payments adjustment. From all of this, at least one conclusion seems to emerge, in confirmation of the counsel that Karl Bopp gave me years ago—there are still many more problems than answers in the formulation of appropriate adjustment policies.

The Fed in Print

A quarterly index of subjects covered in Federal Reserve Bank Reviews appears on these pages. It includes the April, May, and June issues published in 1970. Previous material for the year was analyzed in the June issue. We invite your comments and suggestions on the coverage and form of this project.

If you wish to send for any of this material please write the *issuing bank*. Addresses of the Federal Reserve Banks appear on page 43.

Doris Zimmermann, Librarian



DEFENDING THE DOLLAR

In previous issues of this *Review*, we have published articles on the balance of payments, foreign-exchange and Euro-dollar markets, and the international monetary system. These articles, intended for the general reader rather than the expert in international economics, are now available in a single booklet entitled *Defending the Dollar*. Copies may be obtained from the Bank and Public Services Department, Federal Reserve Bank of Philadelphia, Philadelphia, Pennsylvania 19101.

FEDERAL RESERVE BANKS

(Alphabetically by Cities)

Federal Reserve Bank of Atlanta
Federal Reserve Station
Atlanta, Georgia 30303

Federal Reserve Bank of Boston
30 Pearl Street
Boston, Massachusetts 02106

Federal Reserve Bank of Chicago
Box 834
Chicago, Illinois 60690

Federal Reserve Bank of Cleveland
P.O. Box 6387
Cleveland, Ohio 44101

Federal Reserve Bank of Dallas
Station K
Dallas, Texas 75222

Federal Reserve Bank of Kansas City
Federal Reserve P. O. Station
Kansas City, Missouri 64106

Federal Reserve Bank of Minneapolis
Minneapolis, Minnesota 55440

Federal Reserve Bank of New York
Federal Reserve P. O. Station
New York, New York 10045

Federal Reserve Bank of Philadelphia
925 Chestnut Street
Philadelphia, Pennsylvania 19101

Federal Reserve Bank of Richmond
Richmond, Virginia 23213

Federal Reserve Bank of St. Louis
P.O. Box 442
St. Louis, Missouri 63166

Federal Reserve Bank of San Francisco
San Francisco, California 94120

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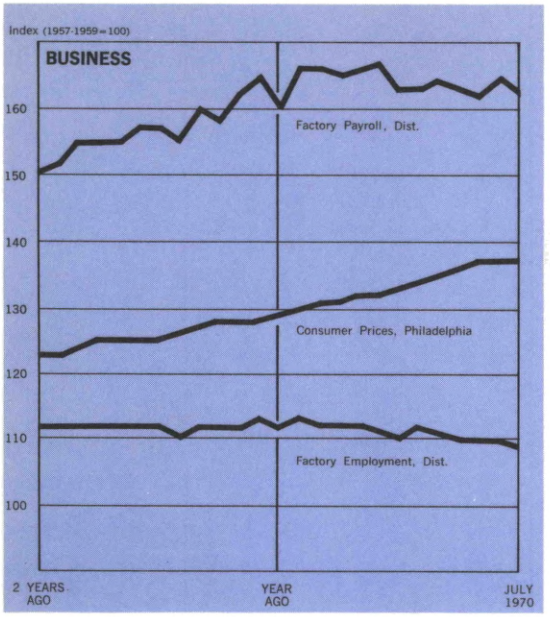
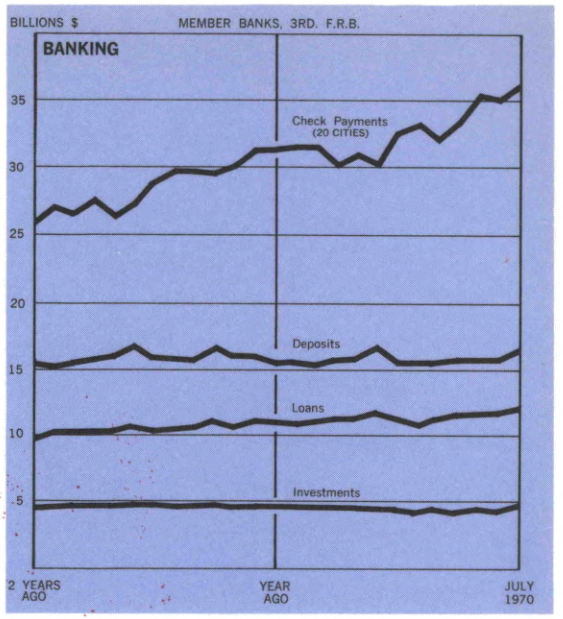
FOR THE RECORD...





SUMMARY

	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	June 1970 from		6 mos. 1970 from	June 1970 from		5 mos. 1970 from
	mo. ago	year ago	year ago	mo. ago	year ago	year ago
MANUFACTURING						
Production	....	....	....	− 6	− 4	− 2
Electric power consumed	− 2	+ 2	+ 3	....	....	....
Man-hours, total*	− 2	− 4	− 3	....	....	....
Employment, total	− 1	− 3	− 2	....	....	....
Wage income*	− 1	+ 2	+ 2	....	....	....
CONSTRUCTION**	−33	−30	+26	− 6	0	+ 1
COAL PRODUCTION	−20	+ 4	− 2	−27	+ 7	+ 6
BANKING						
(All member banks)						
Deposits	+ 2	+ 4	− 1	+ 2	+ 4	0
Loans	+ 1	+ 7	+ 6	+ 1	+ 3	+ 6
Investments	+ 1	− 3	− 7	+ 2	+ 2	− 4
U.S. Govt. securities	+ 2	− 5	−12	+ 5	− 3	−10
Other	+ 1	− 1	− 4	0	+ 5	0
Check payments***	+ 2†	+14†	+13†	+ 1	+11	+11
PRICES						
Wholesale	....	....	....	+ 1	+ 4	+ 4
Consumer	0†	+ 6†	+ 7†	0	+ 6	+ 6

*Production workers only
**Value of contracts
***Adjusted for seasonal variation

†15 SMSA's
‡Philadelphia

LOCAL CHANGES

Standard Metropolitan Statistical Areas*	Manufacturing				Banking			
	Employment		Payrolls		Check Payments**		Total Deposits***	
	Per cent change June 1970 from		Per cent change June 1970 from		Per cent change June 1970 from		Per cent change June 1970 from	
	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago
Wilmington	0	+ 3	− 6	+ 4	+ 3	+12	+ 1	+ 2
Atlantic City	....	....	....	....	− 1	+ 7	+10	+16
Trenton	0	− 2	− 1	+ 6	+11	+27	+ 5	+20
Altoona	− 1	− 1	− 3	0	+ 4	+ 3	0	+ 6
Harrisburg	− 1	− 3	+ 1	+ 4	0	+15	− 1	+43
Johnstown	− 2	− 4	− 6	− 9	+ 5	+15	+ 2	+ 8
Lancaster	0	− 1	0	+ 6	+ 8	+16	+ 1	− 7
Lehigh Valley	− 2	− 1	− 2	+ 1	+ 2	+ 1	+ 1	+ 8
Philadelphia	− 1	− 6	0	− 2	+ 2	+15	+ 4	+ 5
Reading	− 3	− 6	− 4	+ 5	0	+ 8	+ 2	+ 8
Scranton	− 2	− 9	− 5	− 8	− 1	+ 2	+ 1	+ 9
Wilkes-Barre	+ 1	− 4	+ 4	+ 1	+ 4	+ 6	+ 1	+ 1
York	0	+ 2	− 1	+ 4	+ 5	+ 8	0	− 6

*Not restricted to corporate limits of cities but covers areas of one or more counties.
**All commercial banks. Adjusted for seasonal variation.
***Member banks only. Last Wednesday of the month.