FORECASTING AND POLICYMAKING:
SOME LESSONS FROM EXPERIENCE

PRESSURES IN THE POWERHOUSE

INCOME MAINTENANCE PROGRAMS:
SPENDING THE BENEFITS

APRIL 1971
Forecasting and Policymaking: Some Lessons From Experience

... Given the shortfall in forecasting information, a more restrained approach to discretionary monetary policy may be necessary.

Pressures in the Powerhouse

... Galloping demand set against slower-paced supply suggest the power industry will face continuing challenges.

Income Maintenance Programs: Spending the Benefits

... Poor families spend their incomes on a wide variety of goods and would likely spend increased income as any other family might.
It is greatly tempting for me to assume the role of a policymaker here today and exhort you all as economists to produce better forecasts. Certainly, policymakers realize now, more than ever before, how dependent they are on good forecasts. And, certainly, policy in recent years would have been much sounder had economists supplied policymakers with better forecasts.

But having participated in both kinds of activities, I am convinced that as much can be gained by considering also what might be accomplished by better policymaking. Not that policymakers should necessarily try to make the forecaster's life any easier, but better policies can make for better forecasts, which can make for better policies. For better or worse, all of us—forecasters and policymakers—are in the same boat; our futures rise and fall together.

With this in mind, I should like to make a few comments on policymaking over the past decade or so, especially as it relates to monetary policy. The point will be to see if we can find anything in this experience that can help forecasters and policymakers to be of greater use to each other in the future.

Three elements of policymaking have been especially important in recent years. These are the following:

1. The value judgments which policymakers have brought to bear in trading off social costs of unemployment against social costs of inflation.
2. The role which monetary policy has played vis-a-vis other ways of stabilizing the economy, especially fiscal policy.
3. The degree of precision—or fine tuning—which policymakers have tried to achieve in their results.

I propose to touch quickly on the first two and spend most of my time on the third, inasmuch as that one poses perhaps the greatest challenge for forecasters. Then, in
conclusion, I shall try to indicate what ac-
tions policymakers might take with respect
to each of these three points and some im-
lications of these actions for forecasters.

VALUE JUDGMENTS

Despite their very real worries about in-
flation, I believe it is fair to say that policy-
makers in the past decade or so have been
increasingly concerned about the social im-
pact, especially on disadvantaged groups, of
unemployment. This concern has caused
them to move more gradually—and probably
less effectively—to deal with inflation than
otherwise would have been the case.

No one can say this value judgment is
"right" or "wrong," but it has tended to lead
forecasters to some conclusions that have
greatly complicated problems for policy-
makers. For the typical forecaster has in-
terpreted this judgment as imparting an
inflationary bias to the economy for the
indefinite future. To the extent his principals
act on the basis of this forecast, they make
it self-fulfilling. And to the extent it is ful-
filled, it is reinforced in the next round of
forecasts. The policymaker then finds him-
self facing the very difficult dilemma of
permitting this spiral of expectation and
actuality to accelerate or of taking extraor-
dinary measures to bring it to a halt.

ROLE OF MONETARY POLICY

A second broad lesson from policymaking
over the past decade or so is that fiscal policy
is still an uncertain and unreliable tool. By
this I mean we can not be certain that Gov-
ernment will use fiscal policy in a sufficiently
timely and flexible way to be of much help
in stabilizing the economy. As a result,
monetary policy has been made more diffi-
cult and has assumed a larger role than it
should have.

This development, too, has had ramifica-
tions for forecasters. For if the Fed delays
taking effective steps in hopes that fiscal ac-
tion may be forthcoming (as happened in
recent years), forecasters may have to cal-
culate the probabilities that such action will
not, in fact, be forthcoming. And if monetary
policy bears a larger burden of restraint than
it should, forecasters—who, after all, are not
so much concerned with what happens to
total GNP as with the outlook for particular
markets—will have to take special pains to
calculate likely effects on certain parts of the
economy—like financial markets, housing,
and state and local governments.

"FINE TUNING"

A third element of policymaking has been
the search for greater precision in results. This is perhaps most popularly summed up
in the term "fine tuning." More broadly, it
reflects the ever-rising standards of per-
formance which the public demands of the
economy and of policymakers. In my view,
this is an irreversible trend, and much as we
might long for the days when margins of
error were larger and standards lower, forces
are moving us inexorably in the other direc-
tion.

This search for precision poses a severe
problem for both the policymaker and the
forecaster. As I look back over the last 15
years or so, I believe the gap between what
policymakers require from forecasters to
make decisions and what forecasters are
able to deliver has expanded rather than
diminished. I further believe that increased
cognizance of this growing gap has had a
major impact on the course of monetary
policy over the past year. So, a close look at
this gap between what policymakers need
and what forecasters provide may give us
some important clues about the future direc-
tion of Federal Reserve policy actions.

Consider for a moment the policymaking
climate that prevailed in the 1950’s. Then we
were content to avoid depressions but were
willing to accept recessions as necessary to
control inflation. This position required little
explicit forecasting on the part of the Federal
Reserve. The Fed evaluated current data about aggregate demand, employment, and prices to determine if the economy was operating satisfactorily. Much more direct attention was paid to the actual course of economic events than to the projected path of the economy. If policymakers became convinced that a turning point in the economy had occurred, then they changed policy.

In this kind of environment, what did policymakers require of forecasters? Because routine instability was taken for granted, forecasters did not really have to prognosticate turning points. It was good enough—for policymakers and forecasters alike—to identify turning points as they occurred or not long thereafter. And a reading of the record indicates that forecasters were pretty successful at supplying this kind of information.

But as the '50's wore on and we headed into the 1960's, the public began to question routine instability as an acceptable way to operate an economy. Tolerance, especially for recessions and unemployment, began to diminish rapidly. A recession for the nation as a whole still meant depression levels of unemployment for some groups in society—particularly blacks and teenagers. Hence, the effort to fine tune.

And it did look as though the effort was paying off. After two recessions in four years (1957-61), the economy purred along for much of the early '60's. Monetary and fiscal policies seemed to be providing just the right amount of stimulus to spur economic growth and reduce unemployment, but without igniting inflation. The business cycle, as far as the public was concerned, was about to be consigned to the museum of things past, and economists were riding high on this new wave of accomplishment.

It is now clear, of course, that the early 1960's was not a true test of whether forecasters could actually bear the new burdens which fine tuning placed upon them. Policymakers really did not have to worry about out-wobbling the wiggles between 1961-65. The basic problem was one of reducing a very large amount of excess capacity in the economy.

But all of this changed in the latter part of the 1960's. The economy was now bumping along the ceiling of prosperity, inflation was a real threat, and unemployment was increasingly unacceptable. The public had come to accept the idea that the economy could be adjusted without the pain and bloodletting of the '50's. Policymakers were under the gun, and so turned to forecasters for the necessary information.

What kinds of information did the policymakers need to fine tune successfully? Unlike the 1950's, when they needed basically to recognize only changes in direction of the economy, they now needed, in addition, precise information about the magnitude of change and when the change would take place. Moreover, they needed to know how much counter-cyclical impact policy changes would have on the economy and precisely when the impact of these changes would occur.

Now this is no small order. If we have learned anything about the economy in recent years, we have learned that it is much more complicated than we had thought. Internally, we have found that its interconnections are quite loose. Externally, we have found that it is not well-insulated from unpredictable shocks such as wars and strikes.

In addition, we have become much more sensitive to lags. We do not have a push-button economy in which more money instantly brings more jobs. In fact, lags between policy change and impact on the world of sales, jobs, and prices have proved variable and unpredictable. Fine tuning required an ability to predict these lags and to be able to forecast far enough ahead to compensate for them.

I think it is safe to say that, despite improved data and more sophisticated tech-
niques, forecasters, so far at least, have not been able to deliver the kind of information policymakers need to fine tune the economy.

CONCLUSIONS

We find ourselves, as a result of the lessons of the past decade or so, in this position:

1. Forecasters interpret value judgments of policymakers as giving the economy an inflationary bias. In doing so, they create further problems for policymakers.

2. The unreliability of fiscal action and over-reliance on monetary policy create problems in gauging the timing and sectoral impacts of changes in policy.

3. Efforts to fine tune, although responsive to pressures in society, pose an extremely difficult challenge to both forecasters and policymakers—a challenge which neither is able to meet given the current state of the art.

What are the implications of all this for policymaking? The policymaker will have to do something convincing about inflation before the forecaster can remove the inflation factor from his predictions. He will have to achieve better balance between monetary and fiscal policy and move more decisively to deal with structural problems in society if problems of timing and sectoral impacts of policy are to be reduced. And he will have to reconsider how best to meet the public’s demand for top performance without engaging in fine tuning operations that actually may destabilize the economy.

These, of course, are all very difficult things to do. Fortunately, they all move in the same direction and reinforce each other. The only way to persuade forecasters to remove the inflation component from their predictions is for policymakers to demonstrate that value judgments about inflation and unemployment look to the long run as well as the short run. The social costs of unemployment cannot be avoided in the long run by permitting inflation to go unrestrained now. The Federal Reserve has already provided ample liquidity. In my view, the Fed should avoid moving rapidly to stimulate the economy further; inflation is still too deeply rooted.

At the same time, policymakers should not give up on fiscal policy. Fiscal policy is still a potent tool, and, despite all our disillusionments and disappointments, policymakers should keep trying to master it. The period immediately ahead might, in fact, prove an ideal time to restore fiscal policy as a flexible tool. Monetary policy has supplied abundant funds; if the economy lags behind expectations, it may well be appropriate to take fiscal action to reinforce that already taken on the monetary front.

In the longer run, both monetary and fiscal policy can be made much more effective if steps are begun now to deal with structural problems in our society. Income maintenance and more comprehensive unemployment compensation are needed to protect disadvantaged groups against economic slowdowns which policymakers may have to produce in fighting inflation. Training and education can better prepare those groups for the shocks of economic change.

Finally, policymakers will have to figure out how best to meet the objectives of fine tuning without attempting more than they are capable of. It is tempting, of course, to give up on discretionary monetary policy altogether. If fine tuning aggravates rather than reduces economic fluctuations, one argument goes, then we ought to forget it and adopt some kind of rule, such as a fixed rate of growth in the money stock.

I am not prepared to take this step, but I do believe experience now suggests a more restrained approach to discretionary monetary policy. The kind of extremes that prevailed between 1965-69 is clearly not
warranted given the shortfall in forecasting information.

Current Fed policy reflects a workable compromise between too much discretionary action and too little. For more than a year now, the Fed has pursued a path of moderation. It has sought to provide enough funds to sustain the recovery without fanning the flames of inflation. The Fed has resisted the temptation of deviating too far from a rate of monetary expansion that is not sustainable over long periods of time; yet, it has not hesitated to deviate from the course for short periods of time when this seems advisable, as, for example, during the Penn Central episode. An overall policy of moderation may not yield precisely the pace of recovery in '71 that some might prefer, or that, theoretically, fine tuning could deliver if we had the knowledge to fine tune, but moderation will go a long way towards avoiding actions this year that we would regret in '72, '73, and '74.

Where does all this leave the forecaster? If policymakers do a better job, his task will be made easier in some respects. He should be able to make better forecasts. But policymakers will need still better forecasts if they are to meet the rising standards expected of them.

The policymaker and the forecaster will be even more dependent on each other in the '70's than they were in the '60's. But the relationship should be more comfortable and realistic because of the experience we have both been through. With policymakers more realistic about the kinds of information forecasters can reasonably provide, perhaps we can do a better job of stabilizing the economy in the next decade than we have done in the past five years.
It happened on November 9, 1965. Suddenly, 30 million people in the New York and New England area found themselves in utter darkness and in awkward immobility because everything electric went dead—a reminder that civilization is suspended on a slim copper wire.

What happened was that an outlying Ontario power plant, confronted with an overload, had an attack of tic douloureux or something, and the spasm cascaded over miles of wire to metropolitan New York. Hours passed before full service was restored in all areas affected. That was the beginning of power outages.

In June, 1967, a similar, though shorter and milder, blackout occurred in eastern Pennsylvania and nearby areas. Probably most surprised and dismayed were the people caged in elevators stopped dead between floors.

Sometimes the weather plays queer tricks. In September, 1970, some generators in this area were undergoing preventive maintenance and repair as part of the regular program for building reliability into the service. At the same time, there were forced outages of a number of large units on the interconnected power systems. Then, the hottest September heat wave in 75 years descended upon us. People scurried to turn on their air-conditioners. To accommodate the sudden upsurge in demand, the electric utilities went on the air asking customers not to use unnecessary appliances. The companies also "shaved" voltage and resorted to limited "load shedding"—shutting off power here and there for short periods.

GALLOPING DEMAND

Demand for electricity has been growing at a phenomenal pace, especially in the household market. The average family has at least 20 of the more than 200 different kinds of plug-ins, and new appliances are constantly becoming available. Foremost among the devices causing abnormal peak loads for the electric utilities is what might
be called a space luxuriater—the summertime air-conditioner.

Sales of air-conditioners and installations of central air-conditioning have surpassed all expectations during the past five years. These devices are bad actors—idle most of the year, then clamoring for kilowatts when thermometers hit the 90's. For numerous power companies, their Christmas peak loads are now topped by their summertime peaks.

During such climatic extremes, power shortages make the front page, but delays in keeping productive capacity in step with demand have been afoot for some time. Today, a reserve capacity of 20 per cent has become the accepted goal of good operating practice. According to the Federal Power Commission, 1969 summer reserves of 22 major systems throughout the country were less than 10 per cent, and 39 out of 181 major systems faced winter with less than 10 per cent reserves.

Sidewalk superintendents are quick to blame the electric companies for not having built enough capacity—"Oh wad some power the giftie gie us." Not generally appreciated are some of the peculiarities of the industry, such as its changing technology, the length of time required to build a plant, and the lengthening of environmental delays.

INDUSTRY INTRINSICALITIES

Why should a big, fast-growing, technically sophisticated industry, on the homestretch of its centennial, be unable to keep up with demand for its product when most other industries are forever coaxing their customers to buy more? Part of the answer lies in the peculiar nature of the industry, and part in a witch's brew of troubles served up to it.

Size and Structure. The electric industry consists of about 3,500 systems with a capital investment of something over $100 billion, a generating capacity of almost 300,000 megawatts (a megawatt equals 1,000 kilowatts), 300,000 miles of transmission lines, and an output of well over a trillion kilowatt-hours of electricity.

On the basis of ownership, the 3,500 systems fall into four classes. Fewest in number but largest in size are about 480 investor-owned systems. Although they are only 13 per cent of the total number of systems, they account for 75 per cent of the plant investment, installed capacity, electricity generated, and sales to ultimate consumers. The investor-owned systems are what most people have in mind as the "electric utility industry."

The remaining 87 per cent of the power system is a hodgepodge of (a) cooperatives, distributors of purchased electricity in rural areas; (b) over 2,000 publicly owned (non-federal) systems—state, county, and municipal; and (c) Federal systems, such as TVA, that do not sell power at retail to households but to investor-owned utilities, cooperatives, and to notoriously heavy power-consuming industries, such as aluminum manufacturers.

Heavy Capital Investment. The most outstanding characteristic of the industry is the colossal capital requirement. One reason the industry needs so much capital is its split-level technology. First, the natural energy in fossil fuel—whether coal, oil, or gas—must be converted into steam; and second, the steam must be translated into electricity. The entire process calls for huge boilers, turbines, condensers, generators, and auxiliary equipment. These are all high-cost items, and by the time they are housed, harnessed, and harmonized into a smoothly running power plant, the total outlay adds up to a very large sum. For example, construction of two oil-fired 400,000-kilowatt units would cost well over $100 million at
current prices for labor and material, and construction of two 1,100,000-kilowatt nuclear units would run in excess of $500 million.

Hitherto, the trend towards bigger and bigger generators has magnified capital investment in any one machine. The 300-megawatt generators of the 1950's were superseded by the 600- to 800-megawatts of the 1960's, and now the orders of the day are the monsters of 1000 megawatts or more, the gigawatters. The drive toward giantism is a quest for smaller unit cost of production, but when a gigawatt generator such as New York City's "Big Allis" conks out, out goes a sizable percentage of the company's capacity.

Sources of power other than fossil fuels likewise require huge amounts of capital to make electricity. In a nuclear power plant, a nuclear reactor takes the place of a fossil-fuel boiler to produce the steam, and all types of reactors carry big price tags. A hydroelectric plant, operated by falling water driving turbines which spin the generators, requires purchase of a large tract of land and construction of a dam to impound the water. And another installation lavish in capital requirement, though low in unit cost, is the pumped-storage hydroelectric plant—an installation using idle power-producing capacity in slack periods to pump water up to a reservoir on a plateau for conversion to kilowatts, hydroelectrically, in times of peak demand. There just are no bargains in this business.

Most other industries carry an inventory of finished goods to supply the trade; but kilowatts must be produced as demanded, and that calls not only for spare capacity to meet the peaks but also for additional investment in high-voltage transmission lines and low-voltage distribution lines. Of the industry's $13 billion estimated capital expenditures for 1971, about half is for generation, a fifth for transmission, and a fourth for final distribution.

INDUSTRY EXTRINSICALITIES

High-cost Money. To the burden of ever-bigger price tags on new equipment and ever-rising costs of construction has been added the onus of rapidly increasing interest rates. Much of the industry's new capital funds are obtained by the sale of common and preferred stock and from retained earnings. The rest is borrowed, mostly in the bond market.

Accompanying the balance sheet of almost any electric utility is a long list of long-term bonds outstanding. Typically, the list begins with the series, bearing the 2-3/4 per cent coupon rate, issued 20 or 30 years ago and maturing within the next few years. As the list lengthens, the interest rate goes up and up, often to the accompaniment of larger borrowings. The list may end with the 8 to 9 per cent series due around the year 2000 or later. High-cost money makes for higher cost kilowatt hours.

Nuclear Venture. Bituminous coal and oil are still the predominant central-station fuels, although coal is being displaced by oil in the struggle to reduce emission of impurities into the air. However, commercial operation in 1957 of the country's first nuclear power plant at Shippingport, Pennsylvania, stimulated widespread interest in nuclear fuel. Here's why. Whereas the conventional coal-burning plant of modern design burns seven-tenths of a pound of fuel to produce one kilowatt-hour of electricity, seven-tenths of a pound of uranium fissioned in a nuclear reactor produces 2,000,000 kilowatt-hours of electricity. No wonder utilities went nuclear enthusiastically despite the high cost of constructing the new plants. From 1963 through 1967, no less than 60 nuclear units were ordered by the utilities.

The stampede overwhelmed the equipment manufacturers. Deliveries were delayed. Boilermakers had a hard time meeting the rigid specifications for the gigantic pressure vessels of atomic reactors. And there
were further delays in ironing out the difficulties that are inherent in a new technology. Accustomed to about a four-year lead time required to build a fossil-fuel plant, electric companies now find that about seven years must be allowed to erect a nuclear plant.

"O Cursed Spite!" Even fossil-fuel plants ran into a variety of technical troubles and operating problems. In western Pennsylvania, for example, where coal-burning, mine-mouth plants were built, delays and later operating and down times were caused by twisted turbine blades, clinker clogging, and a boiler explosion. These plants house very big equipment—900-megawatt units. This bigness may be part of the trouble, for things colossal are likely to be favorite haunts of gremlins.

So it was that construction of new facilities and replacement of old facilities fell behind schedule. Meanwhile, demand for electricity continued to grow. Faced with shrinking reserve capacity, some utilities resorted to the purchase of peaking equipment, such as internal combustion turbine generators. Smaller than conventional units, these generators can be installed in a hurry and at not-too-great capital outlay. These units of 20,000- to 25,000-kilowatt capacity are more expensive to operate than big generators, but they serve well as standby troops to help in emergency peaks.

**Fuel Shortages.** Coal-burning plants usually have a coal pile two to three months high as a hedge against contingencies such as a coal strike or a rail strike. Recently, however, coal piles have been drawn down—some to as little as 10 to 15 days' supply.

Today's coal scarcity, according to some critics, is the result of failure to develop new mines owing to the utility industry's romancing with nuclear power. Could be, but there are plenty of other, more palpable, reasons: wildcat strikes in the coal industry; diversion of a large part of coal production to export markets, notably Japan; shortage of railway cars to haul coal and big tie-ups of cars at seaports awaiting ships to pick up the coal for export; and the shift from high-sulfur to low-sulfur coal to minimize atmospheric pollution. These developments are reflected in the much higher prices the utilities have to pay for coal.

Ordinarily, rising coal prices might accelerate a shift to residual fuel oil, especially by those electric utilities along the Atlantic Seaboard that are so favorably located for imports from abroad. Unfortunately, fuel-oil prices also are rising, and for a variety of reasons: curtailment of oil production in Libya by government edict; prolonged close-down of a key Middle East oil pipeline by Syria; and blockage of the Suez Canal. Without access to the Suez, Middle East oil must be shipped all the way around Africa. That route is six times longer. Consequently, shifts are being made from residual fuel oil to crude oil in order to broaden the sources of supply.

**Environmental Problems.** When it comes to atmospheric pollution, motor vehicles are the biggest offenders because they contribute an estimated three-fifths of the pollutants. Central-station power plants which burn fossil fuels are responsible for only one-seventh of the air pollution. But they are easy targets for criticism because they are big sitting ducks, and they are said to be responsible for nearly half the man-made emissions of sulfur oxides. Sulfur oxides may form sulfuric acid in moist air—not the best thing to inhale.

Sulfur is an unwelcome ingredient of fossil fuels. Unfortunately, most of our low-sulfur coal mines are west of the Mississippi River, and about two-thirds of the coal mined east of the Mississippi cannot meet present allowable limits of sulfur (not over 1 per cent). Moreover, practically none of it will be able to meet the more restrictive standard (0.37 per cent) some states are requiring by the
end of 1971. The result will be higher priced coal, and some boilers will need expensive alterations before they can burn low-sulfur coal. Some residual oils from abroad, notably from Africa, are low enough in sulfur content to be used in steam electric power plants. Natural gas is the cleanest of fossil fuels but is not available on the Eastern Seaboard in sufficient quantity to be used for power generation.

Then, there is concern about thermal pollution of water. Whatever heat a fuel-burning power plant does not convert into electricity is discharged as heat into the environment. Many steam electric plants use the once-through cooling system by which the cooling water, taken from a river or lake, passes through the power plant and is returned at a higher temperature to its source. Because heat discharge from a nuclear plant tends to run still higher, mechanical draft cooling towers are built to keep the returned waters within safe temperatures for the protection of fish and other marine life.

EXPECTATIONS

The electric utility industry has been doubling its output every ten years, and the Federal Power Commission expects that rate of growth will continue through the 1990’s. In other words, by 1990, a mere 19 years hence, the country’s peak demand for electricity could be over a billion kilowatts. Satisfying so great a demand might call for construction of 40 new hydroelectric installations, 50 new pumped-storage units, 90 fossil-fired plants, 165 nuclear steam-electric plants, and 200,000 additional miles of transmission lines. Such an expansion would require considerable technical, economic, environmental, and social engineering.

The technical aspects are not insuperable. Whether nuclear-produced power, now turning out about 2 per cent of utility-generated electricity, will rise to 40 per cent within two decades, as forecasted, depends largely on the rate of progress in development of the breeder reactor. Although no one can guarantee the timetable, the promise of an endlessly regenerative source of power is enough incentive to bring about its ultimate adoption.

Little, if any, foresight is required to predict how the changing economics of power production will affect the consumer. The days of declining prices for kilowattage are over. The utilities are hard-pressed with rising costs from all sources, and the public utility commissions are flooded with requests for higher rates.

Growing public concern for our environment has already resulted in Federal, state, and local legislation establishing standards of varying degrees of severity with respect to air pollution. Whatever the premiums of low-sulfur fuel or the costs of reducing the sulfur from high-sulfur fuel to tolerable levels, conversion is an expense of production that must be recovered in the selling price of the product.

What may yet turn out to be the hardest part of the job of trying to close the gap in the race between trotting expansion of capacity and galloping growth of demand is the difficulty of plant siting and transmission-line routing.

Utilities are encountering increasing difficulty in obtaining sites for new plants. No matter what site is chosen, certain groups or individuals object, for various reasons. A fossil-fired plant might contaminate the air. A nuclear plant might spring a leak. A hydroelectric or pumped-storage plant puts too much land under water and mars the scenery. Whatever the real or fancied reasons, a company’s expansion plans may be blocked for a long time. Meanwhile, existing equipment ages, demand grows, and reserve capacity evaporates.

Objections to transmission lines are made sometimes on the grounds of aesthetics, more often perhaps on the grounds that people along the proposed route of a high-
voltage line prefer the company to build it somewhere else. A nice problem in telesis—the utilization of resources and technology for the common good.

In the present state of technology, it is impossible to meet the peaks of demand without building more power plants and more transmission lines. So, until some electrical wizard invents a fireless and fissionless electricity cooker and wireless transmitter, people will have to make a choice—to accept the economic and social costs of expanding capacity or to sit occasionally before their blacked-out television screens.

**AMERICA’S PIONEER POWER POOL**

Two power companies serving adjacent territories have a network of transmission and distribution lines that can easily be joined, and, if they are interconnected, the territories can be served more reliably than formerly, when each power system operated independently. The first such interconnection in the country was the Pennsylvania-New Jersey-Maryland Interconnection (PJM). Although over the years it has expanded in number of systems and in size of the territory served, this interconnection had its beginning in the late 1920's, when it started with three companies.

Today, PJM integrates the power-producing and delivery resources of 12 companies serving 20 million people in a 48,000 square-mile area including the Third Federal Reserve District. The companies involved and their respective areas are shown in the diagram. The transmission grid of high-voltage lines laces together over 300 central-station generators and about 100 smaller standby units used to help meet peak loads. Moreover, PJM has interconnections with nearby power pools.

Near Valley Forge is the PJM Control Center, the brain that does the hearing, seeing, thinking, and talking, so that the 12 companies operate as one. In the control room, a large display board shows the major transmission lines, much as a road map shows major highways. To the right of the display board, recorders tell how much electricity is being produced, where, and what power is flowing in and out of PJM. Then there are three dispatching positions manned around the clock. One deals primarily with generation, another with transmission, and the third, supervisory dispatching. Each station has digital television with constantly changing computer information flashing on the screen.

Power "orchestration" is derived from the inter-tie. Greater reliability is attained because a shortage in one area can be alleviated by summoning instant help from another section of the grid (and such backup aid is multiplied by inter-ties between power pools). Improved efficiency is secured as the changing load of the entire system can at all times be met by utilization of the least costly combination of plants, fossil fuel, nuclear, pumped storage, and run-of-river. Greater economy of large-scale operation is obtained by use of a small number of large units instead of a large number of small units. Money savings accrue by more orderly programs for major maintenance through coordinated scheduling. Better use of money can also be achieved by strategic placement of generation and transmission facilities.
The present system of aiding poor families is under close scrutiny. Many critics have argued that programs such as welfare and unemployment insurance put excessive burdens on state and local governments in terms of costs and administrative responsibility. Others have pointed out that the current system provides little or no help to many low-income families. While not all agree on the purpose and methods of these programs, the tide of reform is very strong and is gaining new momentum.

One proposal for change that has received much attention is the suggestion that the Federal Government put a floor under the income of all families. The idea, formulated as a negative income tax or guaranteed income, has been recommended by a Presidential Commission¹ and has been incorporated in current welfare reform proposals (see box). One of the most important advantages of the plan is that it provides a built-in work incentive. As earnings increase, the family would lose only part of the income supplement until a maximum income were reached.² The income maintenance plan has another important feature: it allows recipients the freedom to spend the payment as they wish. The underlying concept is that the family itself, rather than government officials, knows best how to budget its income.


² The work incentive issue is the primary question in the minds of many people. Some are fearful that an income maintenance program will encourage people to rely entirely on the benefits rather than on their own work for support. There is little evidence on the extent to which there would be substantial reductions in work effort. Some studies indicate that this may be a troublesome question. See President's Commission on Income Maintenance Programs, "Labor Supply of Low-Income Workers," Technical Studies (Washington: G.P.O., 1969). But preliminary evidence from an experiment conducted by the Office of Economic Opportunity indicates that work effort did not decline among those receiving experimental income support payments. See Office of Economic Opportunity, Preliminary Results of the New Jersey Graduated Work Incentive Experiment (Washington: G.P.O., 1970).
FAMILY ASSISTANCE PLAN

The reform of the present welfare system first proposed by President Nixon in August, 1969, has been labeled the Family Assistance Plan. It includes the following features:

... Benefits. A family of four with a yearly income of less than $1,000 would receive $1,600 per year.

... Work Incentive. Instead of forfeiting the benefits by working, a household head could earn $720 without any loss of benefits and would lose only 50 cents of payment per dollar earned above that amount. Assistance would not be cut off until income reached $3,290.

... Persons Affected. An estimated 12 million persons would be added to the number currently on welfare.

... Costs. Cost to the Federal Government would increase by $4.2 billion annually. All states would realize some savings; wealthier states would save as much as 10 per cent of their current welfare costs.

... Other Programs. Aid to Dependent Children would be eliminated. Food stamps would be continued.

Yet, when income maintenance is discussed, one of the most frequent questions raised is whether the poor will “waste” the money they receive from the program. No one knows for sure what would happen. But the current spending habits of low-income families indicate that they spend their income on a wide variety of goods, much like their more affluent neighbors, and would be likely to spend any additional income in a manner which would improve their well-being. Thus, it seems that one of the major goals of the system of public aid—increasing standards of living of the poor—would be achieved by income maintenance. And, the aim might be attained while maintaining personal freedom.

A BUDGET MARKED BY VARIETY

Contrary to widely held beliefs, the poor spend their income in much the same way as their wealthier counterparts, with family characteristics such as size and age playing an important role in the budgeting process. Those differences which do exist suggest that the poor spend more than other families on what are generally considered necessities.

The average low-income family, like other consumers, spends on a wide range of goods and services. Chart 1 shows the proportion of total income which poor and higher income groups spend on each item. The largest item in the typical poor family's budget is housing, which takes up over a third of the total. Food expenditures rank second in importance at over a quarter of the total. Adding in clothing expenditures, these three items—the so-called “basics”—comprise 68 per cent of the total budget. This figure is larger than the proportion of total expenditures devoted to basics by the average consumer (63 per cent).

The remainder of the budget is divided rather evenly among other items. Transportation constitutes 12 per cent of total spending. Expenditures for medical care, personal care, reading, recreation and education, and tobacco and alcoholic beverages each represent less than one-tenth of the budget.

Of course, it can be misleading to treat the poor as a single group. Each low-income

---

3 All the results presented in this study are derived from broad survey data collected by the Bureau of Labor Statistics and the U.S. Department of Agriculture. Consumer Expenditures and Income: Survey of Consumer Expenditures, 1960-1961, supplements 3A and 2, no. 237-93, May, 1966. All data presented in this article are derived from the results of the survey on consumption by item and income class.
family budgets its money a different way. One family might feel it is better off spending more on housing, while another might want to spend more on food. The inability of present programs to meet such diverse patterns is one of the major criticisms aimed at them. There is, however, one group among low-income families which does pose a unique policy problem—the temporarily poor.

The Temporarily Poor. If all families with low reported incomes were given income maintenance payments, two kinds of reactions might be expected. Families that are "chronically poor" would view the income supplement as a large, permanent increase in income. They would translate the new income into permanently higher levels of consumption by drawing on savings or by borrowing. The other theory, the permanent income hypothesis, stated by Milton Friedman, claims that consumption is related to the family's permanent income, defined as the expected normal, or average, income level over one's lifetime. "Transitory" income changes should not affect consumption except through their effect on expected permanent income. See J. Duesenberry, Income, Savings, and the Theory of Consumer Behavior (Cambridge, Mass.: Harvard University Press, 1949), and M. Friedman, A Theory of the Consumption Function (Princeton: Princeton University Press, 1957).

---

CHART 1
LOW-INCOME FAMILIES SPEND MUCH AS THEIR HIGHER INCOME COUNTERPARTS DO

Per Cent of the Total Budget

35%
30%
25%
20%
15%
10%
5%

Housing
Food
Transportation
Clothing
Medical Care
Reading, Recreation, Education
Tobacco and Alcoholic Beverages
Personal Care
Other

Average, All Low-Income Families
Average of All Families with Incomes Greater Than $5000

---

4 There are at least two different economic theories which can be used to explain consumption patterns and the changes in them which might result from an income maintenance scheme. One theory, articulated by James Duesenberry, is that consumption is related to one's highest "peak income"; consumers tend to increase consumption with income but find it difficult to reduce it. If current income should fall, families would then attempt to maintain their high levels of consumption by drawing on savings or by borrowing. The other theory, the permanent income hypothesis, stated by Milton Friedman, claims that consumption is related to the family's permanent income, defined as the expected normal, or average, income level over one's lifetime. "Transitory" income changes should not affect consumption except through their effect on expected permanent income. See J. Duesenberry, Income, Savings, and the Theory of Consumer Behavior (Cambridge, Mass.: Harvard University Press, 1949), and M. Friedman, A Theory of the Consumption Function (Princeton: Princeton University Press, 1957).
TABLE 1
TEMPORARILY POOR FAMILIES MAINTAIN CONSUMPTION LEVELS BY BORROWING OR BY USING SAVINGS

<table>
<thead>
<tr>
<th></th>
<th>Permanently Low-income Families</th>
<th>Temporarily Low-income Families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Consumption</td>
<td>$1,128</td>
<td>$2,708</td>
</tr>
<tr>
<td>Money Income after Taxes</td>
<td>$669</td>
<td>$-357</td>
</tr>
<tr>
<td>Reduced assets and</td>
<td>$-172</td>
<td>$-2,853</td>
</tr>
<tr>
<td>Increased liabilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

spending and well-being. On the other hand, recipients who are "temporarily poor" still would be maintaining previous levels and patterns of consumption by drawing upon their wealth or credit. They, therefore, would use a large part of any income maintenance payment to pay off, or to avoid incurring, debts, rather than to raise their physical standard of living.5

The spending habits of these two groups are shown in Tables 1 and 2.6 The tempo-

rarily poor have a lower current income (actually reporting losses), but spend well over twice as much as those classified as permanently poor. The way in which the temporarily poor spend (Table 2) reflects the fact that they are not under the budget pressure normally associated with low income and can spend in a way that they did when they had a higher income. The share devoted to food by those who appear to be only temporarily poor, for example, is much more in line with families with higher standards of living—while a hefty 43 per cent of the budget of the families classified as permanently poor is earmarked for food. Like higher income groups, those who are only temporarily poor devote larger portions of their budget to clothing and transportation. Consequently, many families who are only temporarily poor appear to successfully maintain consumption patterns and

TABLE 2
TEMPORARILY POOR FAMILIES MAINTAIN A PATTERN OF CONSUMPTION MUCH LIKE CONSUMERS WITH HIGHER INCOMES

<table>
<thead>
<tr>
<th>Major Budget Items</th>
<th>Permanently Low-income Families</th>
<th>Temporarily Low-income Families</th>
<th>Average of all Families with Income Greater than $5,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>43%</td>
<td>25%</td>
<td>24%</td>
</tr>
<tr>
<td>Housing</td>
<td>31</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td>Clothing</td>
<td>6</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Transportation</td>
<td>5</td>
<td>11</td>
<td>15</td>
</tr>
</tbody>
</table>
standards which they had enjoyed in better times. Income maintenance would help them to keep up their standards of living in times of low earned income, making it less necessary to borrow or draw down assets. It is, of course, a matter of choice for policymakers to decide whether they wish to include these families in such a program.

Large and Small Families. Characteristics such as family size, age, and composition cause differences in spending patterns among the poor. These variations, most would agree, should be served by a government program and would be efficiently handled by letting the family choose the items it needs most. Chart 2 shows the differences in spending patterns of two very diverse kinds of families—childless families and families with children. Families with no children spend in a manner which reflects the fact that, generally, they are old and small. These families spend less than the average low-income family on housing, clothing, and transportation. Because they are childless, they may be able to economize on these items more readily than families with children can. However, medical care expenses for small families loom relatively large, again reflecting the advanced average age of the members.

In contrast, younger households with children spend more on clothing than does the average poor family. Food expenditures of large low-income families are also much greater than average, while housing expenditures are substantially smaller. A possible explanation is that the budget of this group is quite tight, and it may be easier to cut back on shelter than on food. Spending on personal care is also more important in large young families.

SPENDING THE SUPPLEMENT

Most poor families, therefore, seem to spend their income on a wide variety of goods. The evidence suggests that they are likely to spend any increase in income, such
as an income maintenance payment, just as any family might. Further, a family would be likely to spend a supplement in a way which reflects the number and age of its members, as well as its tastes and aspirations.

The largest chunk of increased buying for the average poor family probably would be for housing (see Chart 3). While the increased amount earmarked for housing—a little over one quarter of the total—might not seem large, these increments are likely

7 The concept used by economists to describe the relationship between a change in consumption and a change in income is the marginal propensity to consume. This concept is defined as the proportion of the change in total income which is spent on any item or group of items. To estimate these changes, it is assumed that if a family moves from any income class to a higher one, it will spend its income in much the same way as families presently in that higher income class. To make this approach reasonable, calculations are made only within homogeneous family types with similar economic characteristics. For instance, the proportional change in food expenditures for a single-child family is obtained by subtracting the amount spent by families in the $2,000 to $2,999 income class from that spent by the $1,000 to $1,999 income class and dividing by the total change in expenditures.
to cause substantial improvements in the standard of living of recipients. As shown in the Appendix, the total housing budget of the poor is typically very tight. The additional spending, therefore, would be devoted to things lacking in many homes, such as household goods and appliances.

Food expenditures (22 per cent) and transportation spending (19 per cent) are also likely to represent substantial portions of the increase in total buying. Food is of vital importance to the physical well-being of the family. Consequently, increased expenditures in this area could noticeably improve the nutritional content of the diet and, hence, family health. Transportation spending probably would be devoted primarily to automobile purchase and maintenance (see Appendix).

Clothing would command about 10 per cent of the increased spending for the average family. The rest of the extra money probably would be about equally divided among personal care, medical care, reading, recreation and education, and tobacco and alcoholic beverages. On the average, none of these items would account for more than 10 per cent of the payment.

Low-income families with different characteristics would follow their individual preferences by spending their payments in very different ways. Moreover, even families with similar characteristics would spend differently, depending on their initial level of income. As shown in Chart 4, one-parent families with the very lowest income would spend much more on housing and clothing than would the typical poor family, but less on major items such as food and transportation. However, the average one-parent family in the range of $3,000 to $4,000 would emphasize food and transportation rather
than housing and clothing. Reading, recreation, and education expenses would also increase as income rose.

The probable change in buying patterns of young families with small children also would have a character of its own (see Chart 5). For these families with very low incomes, food purchases would probably be quite low, as would new housing expenditures. For this type of family with more initial income, housing and transportation would command a more-than-average share of additional expenditures.

Variations in how families would spend are not important in themselves. What is striking is that the evidence suggests all families would use the payment to meet a wide variety of basic needs—and these desires differ among potential recipients.

CONCLUSIONS

Present spending habits among low-income families indicate that income maintenance payments would be likely to further society's goal of assuring an acceptable standard of living for all Americans. Possibly, payments would be squandered or wasted as a first reaction. There seems to be no reason to believe, however, that once a plan became a normal, accepted fact, recipients would act differently than they, nor than their higher income counterparts, now do. Although some potential recipients might merely maintain previous standards of living with the income maintenance payment, most families would, in fact, experience real gains in well-being. The basis of this conclusion is the fact that most recipients would increase spending on vital areas of the budget which presently suffer from the small total income these families have to spend.

In short, the evidence indicates that an income maintenance plan would stand a good chance of fulfilling its primary aim: to raise the standards of living of the poor. The plan offers hope of comprehensively in-
creasing the well-being of broad categories of low-income families while, at the same time, allowing for diversity in the way families spend their incomes. This would be achieved with a minimum of bureaucracy and cost, and a premium on personal freedom.

APPENDIX: EXPENDITURES AND WELL-BEING AMONG LOW-INCOME FAMILIES

The broad estimates given in the text of the manner in which low-income families would spend their income are suggestive, but they are not sufficient in themselves to tell whether the major aim of an income maintenance program—improving the standards of living of the poor—would be achieved. It is possible, however, to get a better notion of what the results might be by comparing the amounts spent on food to absolute standards of adequacy to see if improvements in nutrition would take place. Similarly, other major items in the budget may be examined in more detail to see exactly what kinds and amounts of goods and services the increased funds will buy and what this suggests about likely changes in standards of living.

Food. The proportion of the increment in income devoted to food (about 20 per cent for most families) would not be large. An income maintenance payment to a family of $1600 over and above their current income would result in a projected increase of $352 in spending for food. If the typical poor household now has a nutritionally inadequate diet, this small increase, however, could pay big dividends in family well-being. Both direct and indirect evidence indicate that, given the tightness of their budget, the amount of expenditures which low-income families choose to devote to food is inadequate. As shown in the following Table, the poor family spends very little, absolutely, on food in terms of both family and per capita expenditures.

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Yearly Average Expenditure on Food</th>
<th>Per Capita Food Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>$ 607</td>
<td>$334</td>
</tr>
<tr>
<td>3.0</td>
<td>745</td>
<td>248</td>
</tr>
<tr>
<td>3.3</td>
<td>728</td>
<td>219</td>
</tr>
<tr>
<td>4.5</td>
<td>1,004</td>
<td>223</td>
</tr>
<tr>
<td>5.5</td>
<td>963</td>
<td>175</td>
</tr>
</tbody>
</table>

Thus, even though poor families spend proportionally more on food than do other families, the absolute amount is small enough to raise serious questions of the adequacy of their diet. Although it is difficult to place a money value on the nutritional adequacy of food expenditures, attempts have been made to provide quantifiable standards.\(^1\)

The estimated necessary expenditure for a "low-cost" food budget for a family of two is $764 and $1,290 for a family of four.\(^2\) Since the average expenditure of many poor groups seems to be lower than these standards, there appear to be inadequacies in low-income family expenditures. For poor families spending below average amounts on food, there are almost certainly inadequacies. Therefore, more spending on food would be fairly certain to improve nutrition among these families.

Housing. While an income maintenance program alone cannot be expected to solve

\(^1\) One of the most serious difficulties arises because expenditures are related to family size and composition in a manner which is not fully understood. Further, standards of nutritional adequacy in terms of vitamin content are not exactly determined. The U.S. Department of Agriculture has, nevertheless, derived several "food plans" to serve as guides for estimating food adequacy for low-income families. The "low-cost plan" allows for a minimum of waste and "considerable" skill in preparation. The calorie margin is 5 to 10 per cent above the requirements formulated by the National Research Council.

the housing problems of the poor, real gains in standards of living, nevertheless, would occur as more spending were devoted to goods which make life easier. Such gains would result because, even among poor families, there are substantial differences in the way in which they spend their housing dollars—differences crucially related to how much they have to spend.

As can be seen in Table 3, although the total portion of the budget devoted to housing services is about the same for low-income families as for the average of all families, the composition is quite different. The poor spend proportionately less than the average family on shelter, household operations, and household equipment, but more on such nondiscretionary items as fuel, lighting, and water. Although spending on these nondiscretionary items is important for all poor families, its prominence decreases as income increases. As can be seen in Table 4, relatively more families can afford to buy household goods (and the average expenditures are higher) as income increases among the poor. Thus, it appears that poor families with higher incomes have not only better living quarters, but also more possessions in their rooms. An income maintenance plan would be likely to put more labor-saving appliances and basic furniture into the homes of the poor.

**Transportation.** Transportation expenses command the third largest part of the budget of low-income families. Therefore, exactly what types of services the poor now obtain for their transportation dollar and how, in detail, extra dollars might be spent are important. The major portion of the average transportation budget of the poor goes into automobile purchase and operation. The amount spent on automobiles increases as income rises among potential recipients. The evidence indicates that around 60 per cent of all poor people own cars, and about a quarter have a new vehicle. By the time families reach the $3,000 to $3,999 income range, they are just as likely to own a car as the average American family.

---

**TABLE 3**

FUEL, LIGHTING, AND WATER TAKE UP A LARGER PROPORTION OF THE TOTAL BUDGET OF POOR FAMILIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Less than $1,000*</th>
<th>$1,000-$1,999</th>
<th>$2,000-$2,999</th>
<th>$3,000-$3,999</th>
<th>All Incomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelter</td>
<td>11.4%</td>
<td>11.0%</td>
<td>11.9%</td>
<td>12.3%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Fuel, Lighting, Water</td>
<td>7.6</td>
<td>7.1</td>
<td>6.3</td>
<td>5.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Household Operations</td>
<td>4.6</td>
<td>4.4</td>
<td>4.8</td>
<td>5.3</td>
<td>5.5</td>
</tr>
<tr>
<td>Household Equipment</td>
<td>4.8</td>
<td>4.9</td>
<td>4.7</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Housing Expenditures as</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share of Total Budget</td>
<td>28.4%</td>
<td>27.4%</td>
<td>27.7%</td>
<td>28.2%</td>
<td>28.5%</td>
</tr>
</tbody>
</table>

*Annual income after taxes.
Table 4

As income rises, more household goods are purchased

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Less Than $1,000</th>
<th>$1,000-$1,999</th>
<th>$2,000-$2,999</th>
<th>$3,000-$3,999</th>
<th>All Incomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Textiles</td>
<td>$5.80</td>
<td>$9.30</td>
<td>$15.30</td>
<td>$21.50</td>
<td>$33.20</td>
</tr>
<tr>
<td>Furniture</td>
<td>$6.20</td>
<td>$15.40</td>
<td>$28.30</td>
<td>$54.10</td>
<td>$76.20</td>
</tr>
<tr>
<td>Major Appliances</td>
<td>$18.80</td>
<td>$19.50</td>
<td>$33.50</td>
<td>$50.30</td>
<td>$68.50</td>
</tr>
<tr>
<td>Housewares</td>
<td>$1.90</td>
<td>$3.50</td>
<td>$6.90</td>
<td>$10.20</td>
<td>$13.60</td>
</tr>
</tbody>
</table>

*Annual income after taxes.

Over one-fifth of the families within this same income range typically purchased a car during the year. This is a figure quite close to the national average. By comparison, only 3 per cent of the lowest class among the poor were car buyers.

These trends are reflected in average expenditures for transportation (see Table 5). The amount spent on the purchase and the operation of automobiles increases rapidly as income goes up. All categories are, however, well below the national average. As might be expected, expenditures on public transportation are relatively important for most low-income groups. The amounts devoted to this item indicate that, while the average proportion of the budget devoted to public transportation for all families is only 4 per cent, the two lowest income classes devoted 8.6 and 10.8 per cent respectively to this area. An income maintenance scheme, therefore, can be expected to be used by most families to increase their mobility by investing in automobile transportation and relying less on public transportation.

Health Care. Since health care expenditures are of vital importance to all families, any contribution which income maintenance payments could make to increasing such spending would improve family health. Obviously, the amount spent on medical expenditures is related to family composition. For instance, Chart 2 shows that the small family, low-income group, which includes many elderly couples, spends more on health care than other types of families do. As shown in the following Table, there is a direct relationship between income and the amount spent

Table 5

Automobile purchases and operation absorb the largest part of increased transportation spending

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Less Than $1,000</th>
<th>$1,000-$1,999</th>
<th>$2,000-$2,999</th>
<th>$3,000-$3,999</th>
<th>All Incomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of automobile</td>
<td>$17.30</td>
<td>$37.80</td>
<td>$84.30</td>
<td>$180.90</td>
<td>$299.30</td>
</tr>
<tr>
<td>Operation of automobile</td>
<td>49.80</td>
<td>75.20</td>
<td>166.60</td>
<td>284.50</td>
<td>393.50</td>
</tr>
<tr>
<td>Public transportation in home city</td>
<td>7.30</td>
<td>15.00</td>
<td>22.90</td>
<td>24.80</td>
<td>28.40</td>
</tr>
<tr>
<td>Other</td>
<td>11.10</td>
<td>11.40</td>
<td>20.20</td>
<td>29.40</td>
<td>48.70</td>
</tr>
<tr>
<td>Total Annual Transportation Expenditures</td>
<td>$85.50</td>
<td>$139.40</td>
<td>$294.00</td>
<td>$519.60</td>
<td>$769.90</td>
</tr>
</tbody>
</table>

*Annual income after taxes.
on health care (as well as the amount spent per capita) in low-income groups:

<table>
<thead>
<tr>
<th>Income After Taxes</th>
<th>Reported Health Care Expenditures</th>
<th>Average Health Care Expenditures Per Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $1000</td>
<td>$193</td>
<td>$53</td>
</tr>
<tr>
<td>$1000 - 1999</td>
<td>155</td>
<td>51</td>
</tr>
<tr>
<td>$2000 - 2999</td>
<td>206</td>
<td>56</td>
</tr>
<tr>
<td>$3000 - 3999</td>
<td>264</td>
<td>82</td>
</tr>
</tbody>
</table>

Income maintenance payments, therefore, may provide more flexibility in the overall budget of the poor so that they will be able to spend much larger amounts in this vital area.

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 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.
## For the Record...

### Business

<table>
<thead>
<tr>
<th>Index (1957-1959=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUSINESS</strong></td>
</tr>
<tr>
<td>160</td>
</tr>
<tr>
<td>150</td>
</tr>
<tr>
<td>140</td>
</tr>
<tr>
<td>130</td>
</tr>
<tr>
<td>120</td>
</tr>
<tr>
<td>110</td>
</tr>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

- **Factory Payroll, Dist.**
- **Consumer Prices, Philadelphia**

### Banking

- **Check Payments (20 Cities)**
- **Deposits**
- **Loans**
- **Investments**

### Summary

#### Third Federal Reserve District

<table>
<thead>
<tr>
<th>MANUFACTURING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent change</td>
</tr>
<tr>
<td>From February 1971</td>
</tr>
<tr>
<td>Per cent change</td>
</tr>
<tr>
<td>From February 1971</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Electric power consumed</td>
</tr>
<tr>
<td>Man-hours, total*</td>
</tr>
<tr>
<td>Employment, total</td>
</tr>
<tr>
<td>Wage income*</td>
</tr>
<tr>
<td>CONSTRUCTION**</td>
</tr>
<tr>
<td>COAL PRODUCTION</td>
</tr>
</tbody>
</table>

#### United States

<table>
<thead>
<tr>
<th>MANUFACTURING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent change</td>
</tr>
<tr>
<td>From February 1971</td>
</tr>
<tr>
<td>Per cent change</td>
</tr>
<tr>
<td>From February 1971</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Production</td>
</tr>
<tr>
<td>Electric power consumed</td>
</tr>
<tr>
<td>Man-hours, total*</td>
</tr>
<tr>
<td>Employment, total</td>
</tr>
<tr>
<td>Wage income*</td>
</tr>
<tr>
<td>CONSTRUCTION**</td>
</tr>
<tr>
<td>COAL PRODUCTION</td>
</tr>
</tbody>
</table>

### Local Changes

#### Standard Metropolitan Statistical Areas*

<table>
<thead>
<tr>
<th>LOCAL CHANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment Payrolls Check Payments** Total Deposits***</td>
</tr>
<tr>
<td>Per cent change Per cent change Per cent change Per cent change</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Wilmington</td>
</tr>
<tr>
<td>Atlantic City</td>
</tr>
<tr>
<td>Trenton</td>
</tr>
<tr>
<td>Altoona</td>
</tr>
<tr>
<td>Harrisburg</td>
</tr>
<tr>
<td>Johnstown</td>
</tr>
<tr>
<td>Lancaster</td>
</tr>
<tr>
<td>Lehigh Valley</td>
</tr>
<tr>
<td>Philadelphia</td>
</tr>
<tr>
<td>Reading</td>
</tr>
<tr>
<td>Scranton</td>
</tr>
<tr>
<td>Wilkes-Barre</td>
</tr>
<tr>
<td>York</td>
</tr>
</tbody>
</table>

### Notes

- *Production workers only
- **Value of contracts
- ***Adjusted for seasonal variation
- 15 SMSA's
- Philadelphia
- 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.