

# **Voice**

**of the Federal Reserve Bank of Dallas**  
**El Paso • Houston • San Antonio**

**February 1978**

- 1     Southwestern Steel Producers Meet Foreign Competition**
- 9     Member Bank Salary Surveys Available**
- 10    Review of 1977**
- 12    How the Federal Reserve Creates and Destroys Currency**
- 14    Amendments to Regulations M and Q**
- 16    Gains in Median Family Incomes Offset by Inflation and  
      Higher Taxes**
- 18    Consumer Protection Legislation Being Studied**

## Miller to Succeed Burns as Chairman of the Fed



G. William Miller, President Carter's recently designated Federal Reserve Board Chairman, said his goals as Chairman would be reducing the nation's rate of inflation and unemployment and solving the membership problem faced by the Federal Reserve.

The 52-year-old chairman and chief executive officer of Textron Inc., headquartered in Providence, Rhode Island, said he hoped to play "a leadership role in continuing" the policies of Arthur Burns.

On the issue of inflation, Miller said that the problem should be attacked simultaneously with unemployment and he feels that both problems can be reduced at the same time.

Concerning declining Federal Reserve membership, Miller said that this has been a concern of his as a director of the Federal Reserve Bank of Boston and would be a priority of his as Fed Chairman.

Born in Sapulpa, Oklahoma, Miller holds a B.S. degree from the U.S. Coast Guard Academy and a J.D. degree from the University of California School of Law at Berkeley. He practiced law with Cravath, Swaine & Moore, New York City, from 1952 to 1956, when he joined Textron. He served as assistant secretary, vice president, and president of Textron and was made chief executive officer in 1968 and chairman in 1974.

Miller has been a director of the Federal Reserve Bank of Boston since January 1971. In addition to being a member of the Business Council and the Business Roundtable, he is chairman of the Conference Board, the National Alliance of Businessmen, and the President's Committee for HIRE (veterans' employment).

Miller was chairman of the U.S. Industrial Payroll Savings Bond Committee during 1977, was a member of the National Council on the Humanities from 1966 to 1967, and served as the first chairman of the Industry Advisory Council (Plans for Progress) of the President's Committee on Equal Employment Opportunity from 1963 to 1965.

# Southwestern Steel Producers Meet Foreign Competition

By Edward L. McClelland

Global steelmaking capacity and production have been outpacing demand, primarily because the world economy has been slow to recover from recession. And foreign steel producers have looked to the U.S. market as an outlet for a greater share of their production. This country's economic recovery has been stronger than recoveries of other nations, and this has caused the U.S. market to be relatively attractive to foreign producers of steel even though the U.S. steel industry has been operating far below capacity. The volume of U.S. steel imports rose to about 19 million tons in 1977—equal to about a fifth of U.S. production and up from 12 million tons in 1975. Last year's imports surpassed the two previous peaks in 1968 and 1971, when approximately 18 million tons of foreign steel were shipped to this country.

Since 1958 the United States has been a growing net importer of steel. Foreign steel producers, led by Japan, have made major inroads into the U.S. market. The big advantages of foreign producers are their lower wage rates and advanced steel-making technology. The difference between wage rates of some other major producing nations and the United States continues to widen, and most foreign steel producers are operating relatively more modern plants and equipment than the U.S. industry.

Government policy also favors foreign steel-makers. Foreign governments attempt to allocate production so as to ensure efficient use of plants and prevent excess capacity. Unused capacity in such capital-intensive industries as steel causes

average total costs of production to increase sharply.

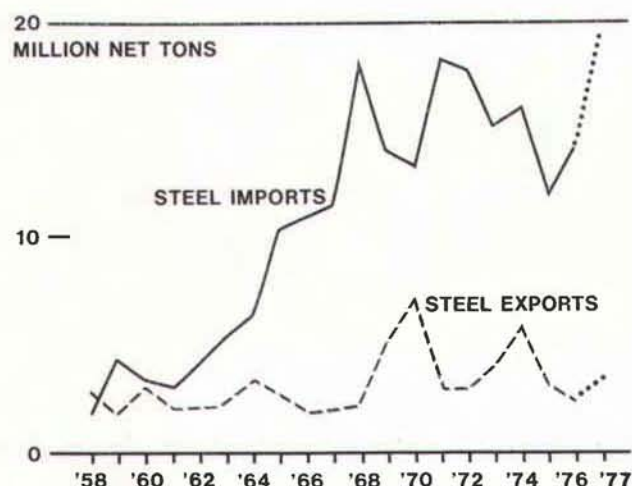
Nowhere has the rising tide of steel imports been more dramatic than at Gulf Coast ports. A third of all U.S. steel imports come into the Gulf Coast—more than any other region. In 1972-74, a little more than a fifth of all imports came through Gulf Coast ports. The sharp increase mainly reflects the robust southwestern economy.

Despite the fast rise in imports, the southwestern steel industry has continued to expand. Many of the region's steel producers, although small compared with the large integrated producers elsewhere in the country, have highly efficient plants that are located close to their major customers—the fast-growing oil, construction, and agricultural industries. With both production and transportation costs minimized, steel goods produced in the area can be priced competitively with imports.

## Foreign competition picks up

Prices of imported steel have come under close scrutiny to determine if foreign producers are dumping part of their output in the U.S. market. The Antidumping Act of 1921 defines dumping as the sale of a product in another country for less than the home market price in order to gain an advantage in competition with other foreign suppliers. But the definition of dumping was broadened by the Trade Act of 1974 as the sale of a product in the U.S. market at less than its full production cost.

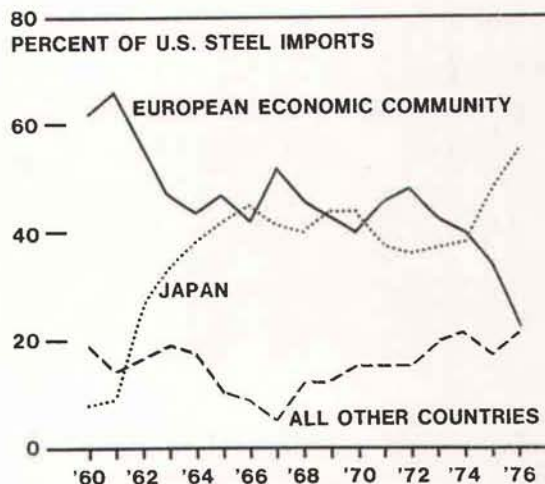
U.S. steel imports have risen to a record level. . .



1977 estimated.

SOURCES: American Iron and Steel Institute.  
U.S. Department of Commerce.  
Federal Reserve Bank of Dallas.

. . . and shipments from Japan account for the biggest share of the growth



**This country's economic recovery has been stronger than recoveries of other nations, and this has caused the U.S. market to be relatively attractive to foreign producers of steel even though the U.S. steel industry has been operating far below capacity.**

This broader definition is important because it is easier for U.S. steelmakers to estimate full production costs of their foreign competitors than to determine the home market prices of steel products. Moreover, home market prices may at times be below production costs. Domestic producers have filed complaints with the U.S. Treasury Department, and last month Japanese steelmakers were found guilty of dumping plate steel in the U.S. market.

But unfair pricing practices notwithstanding, such countries as Japan, West Germany, France, and Italy make steel more cheaply than U.S. producers. Their advantage rests on the fact that the steel industry uses relatively unskilled labor and relatively low-level technology. And as the United States develops more skilled labor and advanced technologies in new industries, its disadvantage in steel production may continue to widen.

The level of skilled labor required for steelmaking is not as high as for some other manufacturing industries. For example, only about 7 percent of all workers in the U.S. steel industry are skilled labor—engineers, scientists, managers, and other professionals. That is substantially smaller than, say, the 25-percent share of skilled labor in the aircraft and the 23-percent share in office machinery—two manufacturing industries in which the United States has an advantage over other countries.

Because of relatively abundant supplies of unskilled labor abroad, wage rates of foreign steelworkers average less than in the United States. In 1975, for example, the wage rate per man-hour in the U.S. steel industry was about \$11.03. That compared with \$8.41 in West Germany and \$4.88 in Japan.

Technology is also an important determinant of production costs. And foreign steel producers have been investing in new steel technologies faster than their American counterparts. Entering the product life cycle of steel later, with a small production capacity, many foreign producers have started operations with the most modern plants and equipment, mainly through licensing agreements with more advanced countries. This is a very significant factor in an industry where investments are long-lived and changes in existing plants and equipment are implemented slowly. Steel-producing nations caught with a substantial inventory of older unamortized plants and equipment find it difficult to maintain their competitive positions.

The biggest innovation in large-scale steel production in the postwar period has been the basic oxygen furnace (BOF), which is more efficient than the older open-hearth furnace in making steel from iron ore. The Japanese adopted the BOF as the mainstay of their industry in the 1950's. Although every country has been shifting over to BOF's, the share of U.S. steel produced in BOF's—at 63 percent—is smaller than for some of our major competitors—80 percent for Japan, 72 percent for West Germany, and 68 percent for France.

Continuous casting is another innovation that has also sharply reduced the cost of producing steel. By this process, molten steel is cast directly into such semifinished and finished goods as slabs, billets, and bars. And some conventional stages of steel production—such as pouring molten steel into ingots, reheating the ingots, and then rolling the ingots into finished products—are eliminated. Continuous casting, therefore, reduces the need and costs for equipment, energy, and labor.

Again, the United States lags many competing nations in producing steel through continuous casting. For example, in 1976 nearly 11 percent of total U.S. output of raw steel was continuously cast, compared with 35 percent in Japan, 29 percent in West Germany, and 18 percent in France.

The investment in new technology has sharply reduced the number of man-hours required to produce a ton of steel. Among foreign manufacturers,

the reduction has been sharpest in Japan—our biggest competitor. In 1964, for example, about 25.5 man-hours were required in Japan to produce a ton of steel, 22.2 hours in West Germany, and 13.1 hours in the United States. But in 1975, only 9.2 man-hours were required in Japan, 12.8 hours in West Germany, and 10.9 hours in the United States.

Coupled with the existing wage rates, the advantage in employment costs per net ton of output that the Japanese had over U.S. producers widened from nearly \$42 a ton in 1964 to about \$76 in 1975. But because of relatively faster increases in wage rates in West Germany since 1970, the advantage in employment costs for that country over the United States narrowed from nearly \$22 a ton in 1964 to just over \$13 in 1975.

The United States also appears to have used up its relatively inexpensive iron ore. This country was at one time self-sufficient in iron ore production, but about a third of its total requirements are now imported. Coal remains abundant, but in the wake of the Arab oil embargo, coal prices—as well as the prices of other fuels—have risen sharply. Steel scrap also remains in plentiful supply, and that is partly due to the Japanese, who have reduced their requirements for scrap and increased their consumption of iron ore. The cost of basic raw materials to make a ton of steel—iron ore, scrap, and energy—has nearly tripled in the United States since 1960.

Japan has been able to hold down increases in raw material costs even though it imports all of its iron ore, 80 percent of its coking coal, and much of its scrap. In fact, since 1960, costs of materials to Japanese producers have increased only about 50 percent. The main reason for this relatively small increase is that the Japanese negotiated long-term contracts for their imports. And those contracts have insulated Japanese producers from the sharp rise in energy prices since the Arab oil embargo and from higher iron ore prices.

While Japan and other foreign producers have cost advantages in labor and raw materials, the U.S. industry has a lower cost of capital. In 1976, for example, the United States had an advantage over Japanese producers of about \$13.50 per net ton of finished steel. Because interest rates are lower in this country and the debt-equity ratio for the U.S. industry is 1 to 3, compared with 5 to 1 in Japan, the cost of debt capital per ton is significantly lower in the United States. The cost of equity capital per ton, on the other hand, is a bit

higher for U.S. industry, mainly as a result of the smaller degree of financial leveraging.

Another reason foreign producers can make steel more cheaply than U.S. producers is that some governments have established economic policies to coordinate production in such basic industries as steelmaking. Perhaps in no other country has industrialization developed more rapidly through coordinated efforts than in Japan. Chosen by the government as one of five key industries—coal, fertilizer, electric power, steel, and shipbuilding—on which to center postwar reconstruction, the Japanese steel industry has grown rapidly through the concerted efforts of several governmental agencies. The Ministry of International Trade and Industry plays the central role of allocating production, preventing a buildup of excess capacity, and ensuring efficient use of plants. At the same time, export sales are made

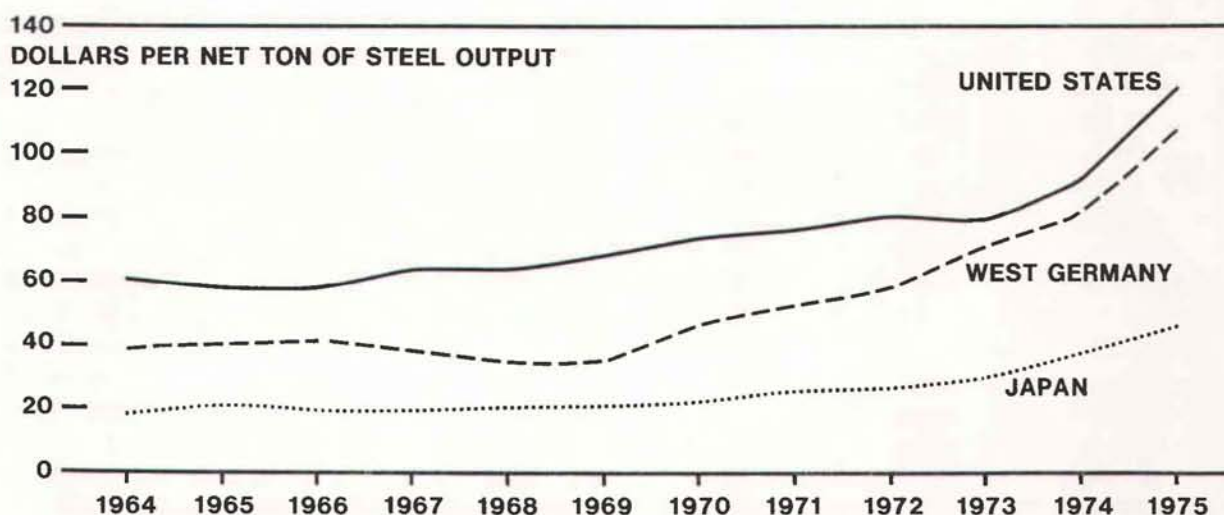
through trading companies, which frees steel producers from the job of marketing their output.

The role of government is somewhat different for European producers, with more emphasis on protecting the steel industry from foreign competition than expanding it. Faced with sagging demand, declining prices, and the prospect of increased competition, the steel-producing countries of the European Economic Community (EEC) formed a legalized cartel, Eurofer, in 1976. The purpose of the cartel is to limit total production, allocate sales among members, and control imports to the EEC.

#### Southwestern industry small but efficient

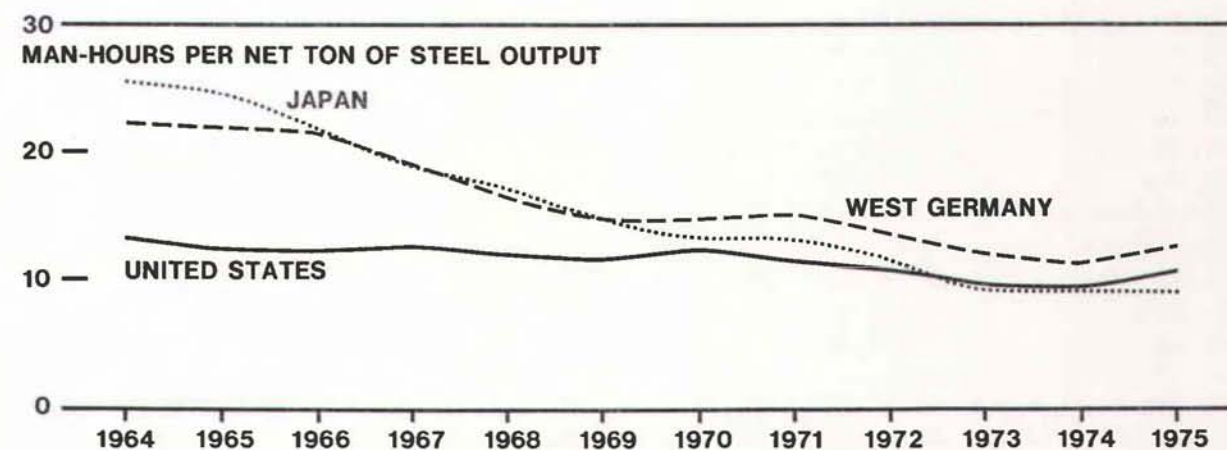
The U.S. steel industry is concentrated in Pennsylvania, Ohio, Michigan, Indiana, and Illinois, but many steel plants are operating successfully in other regions. The Southwest is one such region where economic growth has been strong enough

**Employment costs abroad are well below those in the United States, primarily because of lower wage rates**



SOURCE: *Economics of International Steel Trade: Policy Implications for the United States*  
(Prepared for American Iron and Steel Institute by Putnam, Hayes & Bartlett).

**Labor required by foreign steel producers has been sharply reduced by faster implementation of new technology**



SOURCE: *Economics of International Steel Trade: Policy Implications for the United States*  
(Prepared for American Iron and Steel Institute by Putnam, Hayes & Bartlett).

to provide the market incentives for expansion of existing plants and attraction of new ones. However, the regional industry differs significantly from the large steel mills that make up most of U.S. production.

The 14 raw steel plants located in the southwestern states of Texas, Louisiana, and Oklahoma constitute about a tenth of the total number of U.S. steel plants, but their total production capacity amounts to only 4 percent of total U.S. capacity. The three largest steel plants in the Southwest have a combined capacity of 5 million net tons annually. In the case of the 83 steel plants in Pennsylvania, Ohio, Michigan, Indiana, and Illinois, the three largest have 23 million tons of capacity. By comparison, the typical steel plant in the Southwest is small indeed. But some small plants have distinct advantages in an industry of giants.

The only element common to the diverse collection of southwestern steel plants is that they are all "neighborhood" plants. That is, they gear their

production to supply major regional customers—the construction, oil, and agricultural industries in the Southwest. That strategy minimizes transportation costs of the finished goods, which can run \$10 a ton or more for major mills shipping steel into this region.

Regional producers generally cannot supply all the steel required in the Southwest—particularly during periods of strong demand. Instead, they seek to develop permanent markets for their particular products. This enables these firms to operate close to minimum costs of production most of the time.

While gearing output to the regional market is an important strategy in the overall planning and operation of southwestern steel plants, it is the wide-spread use of electric furnaces that allows most plants to produce steel at relatively low costs, even when compared with the costs of production of BOF's. Rather than producing steel from the primary output of iron ore, electric furnaces utilize cold charges of scrap, pig iron, or prereduced iron

pellets. Most southwestern steel plants, therefore, begin their manufacture of steel "downstream" from the starting point of the large integrated mills and are major recyclers of scrap, which is both inexpensive and plentiful. A primary source of scrap is junked cars, largely from the large urban centers of the regional market.

Energy costs of an electric furnace are lower than those of other furnaces. The energy required to produce a ton of steel in an electric furnace is 2.5 million Btu (British thermal units), or slightly higher than the 2.2 million Btu required by a BOF starting at the same stage of production. But when the total energy requirements of both furnace and necessary support facilities are taken into account, mills using electric furnaces need less than a fifth of the energy required in a fully integrated blast furnace-basic oxygen furnace complex—3.2 million Btu per net ton of output, in contrast to 19.3 million Btu. Moreover, electric utility rates in much of the Southwest are lower than elsewhere in the nation, which reduces energy costs even further.

The largest steel plant in the region—the 2-million-ton United States Steel Corporation plant at Baytown, Texas—relies solely on electric furnaces. The next two largest integrated steel plants—the 1.5-million-ton Lone Star Steel plant at Lone Star, Texas, and the 1.5-million-ton Armco Steel plant in Houston—use electric as well as open-hearth furnaces.

---

**While gearing output to the regional market is an important strategy in the overall planning and operation of southwestern steel plants, it is the widespread use of electric furnaces that allows most plants to produce steel at relatively low costs.**

---

New southwestern plants in recent years have been small-scale mills—"minimills." A minimill is a steel plant with a production capacity of less than 300,000 tons annually. Slightly larger plants, with capacities of 300,000 to 1 million tons, are sometimes called "midimills." Since 1974, three new minimills have been located in the Southwest, and the eight plants now making up this segment of the industry have a combined capacity of more than 1.6 million tons annually.

Minimills, which have been around for more than 40 years and are not unique to the Southwest, can produce steel cheaper than most American competitors, and many are able to meet the price competition of imports. They compete effectively with large integrated mills because they do not require fixed investments in blast furnaces and coke ovens. Moreover, because minimills use electric furnaces that are fed 100-percent scrap charges, materials costs are minimized.

In addition to the widespread use of electric furnaces, half of all southwestern steel plants have some capacity for continuous casting. The newer plants were built with this capability, and many of the older plants are investing in continuous-casting facilities.

Southwestern steel producers do not have an advantage in lower wage rates compared with domestic producers in other regions. All pay wages equal to or higher than union pay scales even though not all of them employ union workers. Because of the high efficiencies in many southwestern plants, the cost of labor can be offset fairly easily by high productivity.

If steel imports through Gulf Coast ports in the second half of 1977 equaled those in the first half, some 6 million tons of steel were imported during the year. Nearly two-thirds of the imports are from Japan, at prices 10 to 20 percent lower than those quoted by most American manufacturers.

However, steel producers in the Southwest are meeting the competition from imports better than producers in other areas of the country. Demand for steel in this region is strong enough that output of most southwestern steel producers is running close to preferred rates of capacity utilization. A survey of the industry indicates that 12 plants are operating at 80 to 100 percent of capacity. But the two large Houston area plants, Armco and U.S. Steel, that compete most directly with foreign imports are operating significantly below their preferred rates of capacity utilization.

A major reason their operating rates are down is that these two plants produce mainly structural and plate steel. And much of the imported steel products received on the Gulf Coast is structurals and plates: 40 percent is heavy structural steel, and 30 percent is plate steel. For the nation, structurals account for 30 percent of all imports, and plates 20 percent.

Regional steel plants located outside the Houston area do not compete as directly with foreign imports because their output is not geared heavily to structurals and plates. The Lone Star Steel plant makes mostly tubular goods for the oil and gas industry, although it competes with some foreign suppliers of flat-rolled products. Minimills market light construction materials such as reinforcing bars, as well as other light products used in the oil industry. But foreign producers have not increased exports of light steel products to the U.S. market as rapidly as exports of heavy products.

### **Future geared to Government policies**

The future of the U.S. steel industry will depend partly on what actions the Government takes to combat the current tide of foreign imports. Policymakers face a dilemma, since the unemployment rate remains at a high level and prices of industrial commodities continue to climb at a fast rate. Any decisions to limit imports and rely more heavily on higher-priced domestic goods would boost U.S. steel production and preserve steelworkers' jobs. But that would also aggravate the problem of inflation by forcing steel users to buy a greater share of higher-priced domestic products. Conversely, to ignore the inflow of low-priced foreign steel would aggravate unemployment, at least in the short run.

There are several possible alternatives. First, nothing might be done if it was believed that in the long run the foreign trade problem would tend to solve itself by a reversal of cyclical relationships. If the U.S. foreign trade deficit continues, the value of the dollar would tend to float down further in foreign exchange markets, which would raise prices of imports relative to domestic products. Even so, recent trends in relative costs have been running against the U.S. steel industry.

Enforcement of the Trade Act of 1974 could also give some relief to U.S. steelmakers, especially the more efficient plants. In the first test case, the U.S. Treasury Department gave an initial ruling last October in favor of Gilmore Steel Corporation, a small Oregon plant, that the Japanese were charging unfair prices on imported steel plate. That initial ruling encouraged other domestic producers to file suits of their own. The final determination by the U.S. Treasury Department in January found the Japanese guilty of dumping, but by narrower margins than were estimated last fall.

In order to enforce its antidumping law more effectively, the Government is establishing a "trig-

ger price" system for imported steel that is due to go into effect February 15. Trigger prices will be computed for most categories of steel products, based on Japanese production costs. Steel imports priced below trigger levels will lead to "fast-track" investigations of dumping charges. A drawback to trigger prices, however, is that the system might be circumvented fairly easily for some products. For example, some foreign producers might find after further processing that they can make steel products that are not covered by the trigger price system.

The Government is also considering six other proposals to aid the domestic steel industry. One is to limit steel imports to 6 million tons a year, or 14 percent of current U.S. output. Another would be to reexamine current investments that are required for pollution control equipment. New guidelines for the Justice Department on mergers and joint ventures in the industry could lead the weaker firms to reorganize into stronger firms. Reduction of the depreciation "guideline life" of steelmaking equipment from 18 years to 15 years would increase the cash flow for profitable companies. A more general reform of depreciation guidelines would likewise increase the industry's cash flow. Finally, a Government-guaranteed loan program to finance existing small steel firms is a possibility.

---

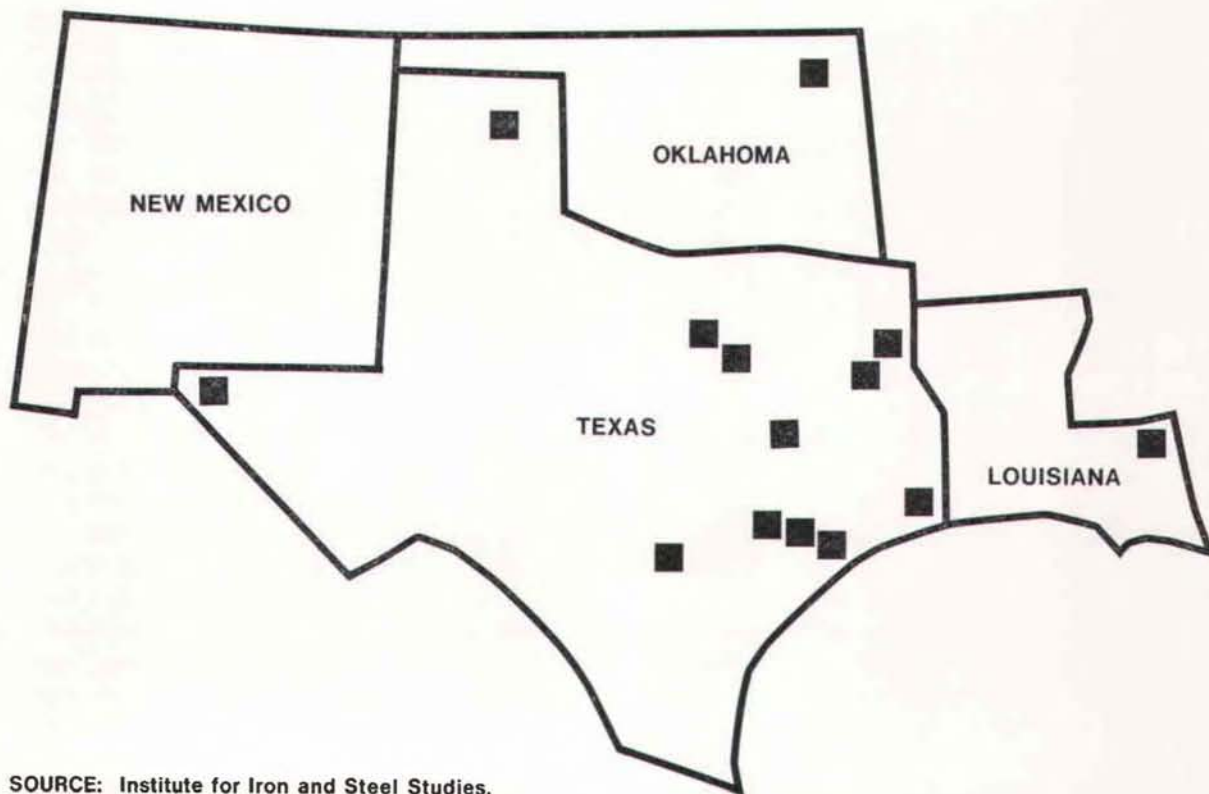
**Restrictions against imports or measures to subsidize domestic production do not address the longer-run problem, which is that trends in world trade have been running against the U.S. steel industry.**

---

Still another option is to raise the current level of import duties on foreign steel so as to bring prices of imported steel more in line with domestic prices. But import duties vary widely according to product, alloy content, and amount of previous processing of the import. And the large number of steel products exported by the major producing nations could require a complex, cumbersome monitoring system to impose the import duties. A simpler method of restricting imports, therefore, would be a quota system.

But restrictions against imports or measures to subsidize domestic production do not address the longer-run problem, which is that trends in world trade have been running against the U.S. steel in-

## Raw Steel Plants in the Southwest



SOURCE: Institute for Iron and Steel Studies.

dustry. While such measures would be in the interest of producers, they would not be in the best interest of consumers and would lead to an inefficient use of world economic resources. If the United States produces goods that foreign countries can supply more efficiently, the size of the world economic pie is reduced. Government policies to facilitate the movement of labor and capital from steel into other industries might yield a bigger economic payoff in the long run than ones directed at protecting steel from increasingly intense foreign competition.

A major source of foreign competition in the future will be less developed countries (LDC's). Indications are that costs of production in LDC's are considerably lower, particularly labor costs. Moreover, the LDC's, like the Japanese and Europeans 25 years ago, are adopting the advanced western technologies of steel production. Therefore, as the share of steelmaking capacity grows

in the LDC's, it will become increasingly difficult for most steel producers, even our major foreign competitors, to compete at still lower costs of production. The stiffest competition for southwestern producers will likely be close to home.

Although Mexican steel currently accounts for only 3 percent of all imports on the Gulf Coast, Mexican plate undersells other imported plate by \$15 a ton. Moreover, because of Mexico's close proximity, the transportation costs of its steel are much lower than those for other foreign suppliers.

Three of the largest steelmakers in Mexico—with a total capacity of 6.8 million net tons annually, or nearly equal that of the southwestern industry—have recently merged. The purpose of this merger is to rationalize operation of the national steel industry in the areas of production, distribution, and consumption. If the merger is successful in doing this, Mexico's competitive position will be further enhanced.

---

## Member Bank Salary Surveys Available

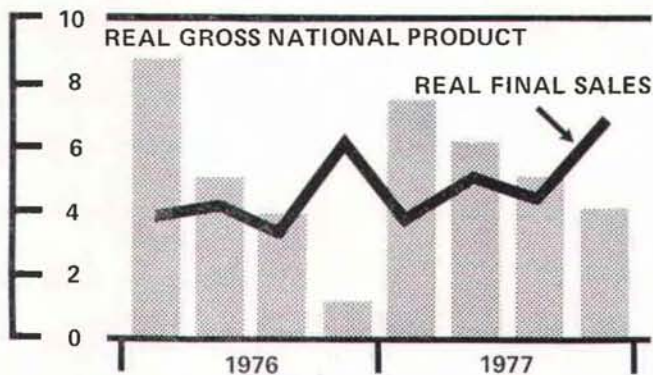
Reports of the 1977 surveys of officer and employee salaries have been mailed recently to approximately 300 member banks that participated in the surveys. Information on average, maximum, and minimum salaries for 31 official positions and 28 employee positions is provided. Compensation other than salaries is reported also. All data are shown by geographic area and bank size, as well as overall overages for the Eleventh District.

The surveys indicate that average salaries of officers and employees increased 3 percent in 1977. The average salary for chief executive officers in 1977 was \$39,400, ranging from a low of \$12,000 to a high of over \$125,000. A chief executive officer had an average of 20 years of banking experience, 7 in his present position. He received an average bonus of \$5,860, an average of \$5,494 from profit sharing, average insurance benefits of \$875, and average retirement plan benefits of \$4,073. In addition, he was provided club membership and an automobile.

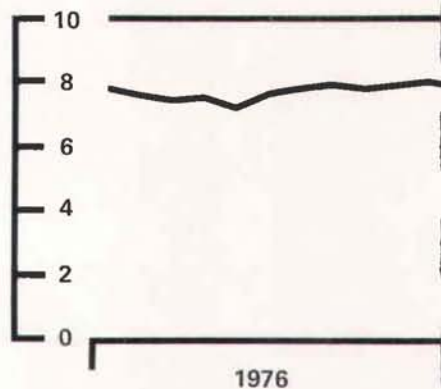
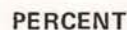
The Employees' Salary Survey shows that paying and receiving tellers, for example, had an average salary of \$6,304 in 1977 and an average of five years of banking experience. This type of teller received an average bonus of \$529, an average of \$382 from profit sharing, and average insurance benefits of \$453. Proof machine operators—another employee category surveyed—had an average of three years of banking experience, an average salary of \$6,105, and average insurance benefits of \$288 in 1977.

Invitations to participate in the salary survey are mailed to member banks each year in June. Further information is available from the Bank and Public Information Department, (214) 651-6370.

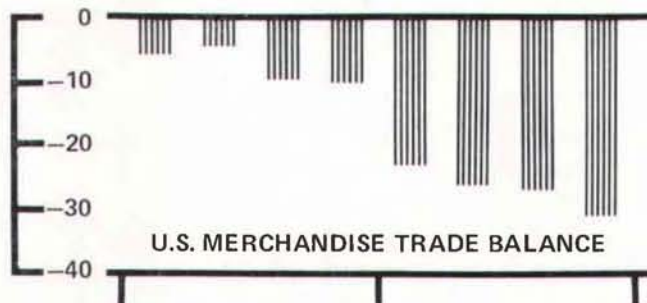
## REVIEW OF 1977



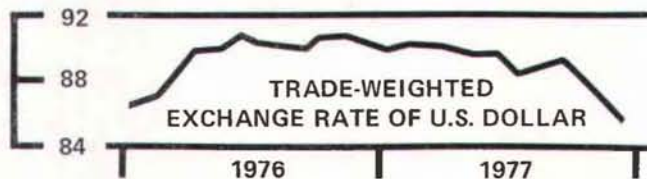
The economy's output, adjusted to eliminate the effect of inflation, grew irregularly but at an average rate of 5.8 percent in 1977. That compared with the 1976 average of 4.8 percent. Real final sales (GNP less inventory accumulation) also grew faster than in 1976.



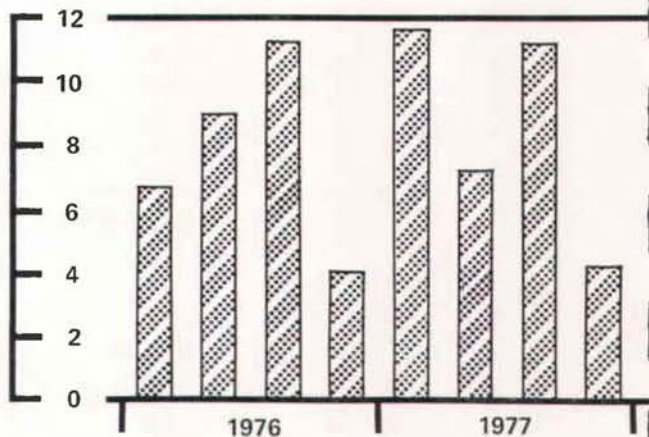
Economic growth was sufficient to reduce the unemployment rate to 6.4 percent at the end of 1977 from 7.8 percent at the end of 1976, even though the labor



MAY 1970=100

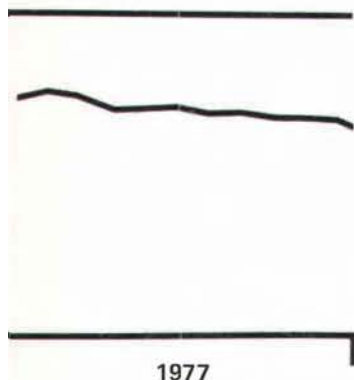


The U.S. trade balance worsened dramatically in 1977, only in part because of the energy problem. While imports of crude materials and fuels rose at an annual rate of 1.5 percent after the first of the year, imports of manufactured goods grew by 15.4 percent. The deterioration in the trade balance put downward pressure on the value of the dollar in foreign exchange markets.



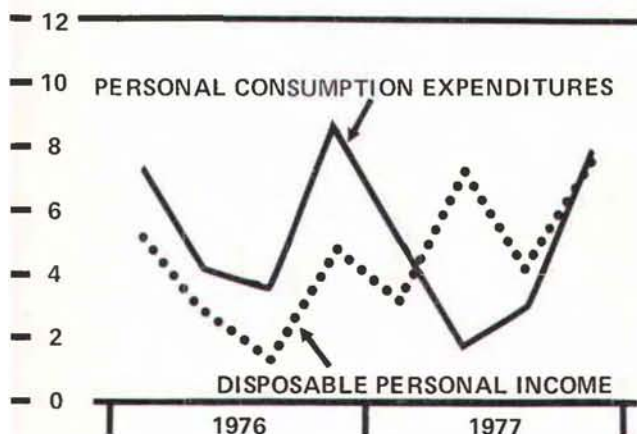
Business spending on plants and equipment, adjusted for changes in prices, advanced at roughly the same pace as in 1976. That was about as fast as the average in other recent economic expansions.

Last year the nation experienced accelerated growth of real final sales, an uptick in the rate of inflation, stronger business loan demand despite a higher prime rate, and a significant decline in the merchandise trade balance.



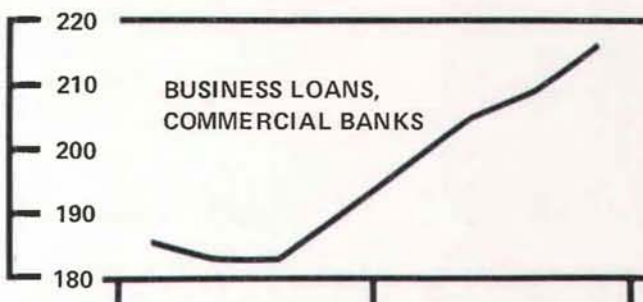
orce participation of women and teenagers continued to increase substantially. Total employment rose 4.2 million—a record increase.

#### PERCENT CHANGE

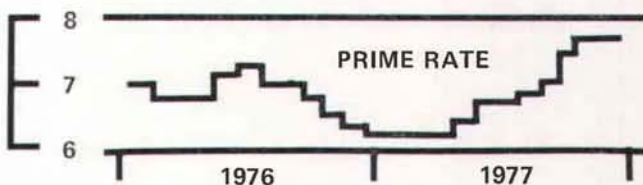


he growth of real income outpaced growth of real consumption in most of 1977; conversely, consumption grew faster than income the year before. A slowing in the growth of consumption relative to income is a normal occurrence as a recovery matures.

#### BILLION DOLLARS

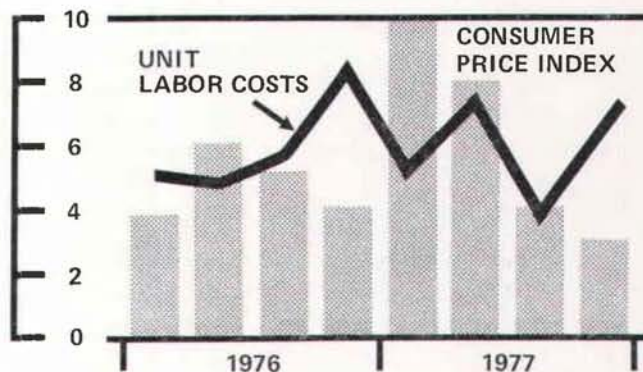


#### PERCENT



Loans to businesses expanded sharply in 1977, partly because of stepped-up investment in inventories. These credit demands helped to boost the interest rate for prime customers at commercial banks to nearly 8 percent by the end of the year.

#### PERCENT CHANGE



Price inflation accelerated in the first half of 1977—despite little change in the trend of inflation in labor costs—primarily because of an escalation of food prices that was created by severe winter weather.

# How the Federal Reserve Creates and Destroys Currency

By Billings D. Barnard

The only currency that circulates in volume in the Southwest bears a serial number starting with **K**.

This letter, the 11th in the alphabet, indicates the note was issued by the Federal Reserve Bank of Dallas. The Bank, with branches at Houston, San Antonio, and El Paso, serves Texas and parts of Louisiana, Oklahoma, and New Mexico—the eleventh Federal Reserve District.

Currency with numbers identifying other Federal Reserve districts circulates just as freely. But paper money wears fast. A dollar bill does not last nearly a year. And as notes are caught up in the massive flows of funds between banks, notes that are dirty and torn are pulled out at the Federal Reserve Bank and destroyed.

Here is how the system works—how the Federal Reserve meets the public demand for currency by increasing or decreasing the amount in circulation to keep the supply of currency at the amount the public needs.

## **Circulation of new currency**

At the hub of the system providing currency in the Eleventh District is the Chairman of the Board of the Dallas Bank. Like other directors of the Bank, he has no career ties to the Federal Reserve. He is a private citizen, though invariably a prominent one, serving without pay. And though there is prestige to the chairmanship of a Federal Reserve Bank, the appointment is usually accepted pretty much as a civic duty, like service on a college board or park commission.

The current Chairman is Irving A. Mathews of San Antonio, chairman of Frost Bros. His predecessor was John Lawrence of Dallas, former chairman of Dresser Industries.

Directors of the Bank are selected by a complicated process ensuring representation from across the District. Six of the nine directors are elected by banks that are members of the Federal Reserve System. Only three of these six, however, can be bankers, the others coming from industry, commerce, and agriculture.

The other three directors are selected by the Board of Governors of the Federal Reserve System. From among these three, none of whom are bankers, the Board of Governors designates one as Chairman of the Board and another as Deputy Chairman.

The Chairman wears two hats. He is also Federal Reserve Agent for the District. Here, the comparison with other part-time positions of civic responsibility ends. As Agent, the Chairman is responsible for the Bank keeping a supply of Federal Reserve notes on hand to meet the needs of business activity in the Southwest. He does not merely conduct the meetings of a policymaking group. He takes personal responsibility for monetizing billions of dollars in currency. The year-end balance sheet of the Federal Reserve Bank of Dallas showed nearly \$4.9 billion of its currency in circulation—all a liability of the Bank.

To do the actual work of keeping an adequate stock of notes on hand, in all the denominations

that might be needed, the Chairman is assisted by Assistant Federal Reserve Agents that are career employees.

On recommendation of the Chairman acting as Federal Reserve Agent, the Board of Governors in Washington places an order with the Comptroller of the Currency for notes to be printed expressly for the Dallas Bank. The notes come from the Treasury's Bureau of Engraving and Printing in bricks of 4,000 each—40 packages of 100 sequentially numbered bills. These crisp new bills do not become money, however, until they are "collateralized."

To get notes, the Federal Reserve Bank pledges collateral worth the face value of the notes. As agent for the Board of Governors, the Chairman will accept direct obligations of the Government, such as gold certificates or Treasury notes, bills, and bonds. He will also accept certain types of short-term commercial paper.

Backed by securities that can be readily marketed, the Federal Reserve notes become issued notes ready for circulation. Just numbered pieces of finely engraved paper, they have been made into money.

As commercial banks need cash, they order it from the Federal Reserve Bank or one of its branches. Member banks pay for the cash through authorization of a charge against their reserve accounts. Banks that are not members usually get their currency through a correspondent that is. But sometimes arrangements are made for currency to be delivered directly to a nonmember bank, with

the reserve account of a correspondent member bank being charged for the shipment.

#### **Destruction of old currency**

As paper money is handled, folded, and creased, it wears, eventually getting limp, torn, and dirty. No longer fit for circulation, it has to be replaced.

This holds for all denominations but especially for \$1 bills, which are used most. And as they make up more than half the currency in circulation, they take most of the attention that goes into keeping fairly crisp, clean currency circulating in the Southwest.

When commercial banks deposit their surplus cash with the Federal Reserve Bank, they package the currency by denominations in bundles of 100 notes. All the bills are turned the same way and bound by a strap showing the name of the bank, the date, and the identity of the teller that counted the bills.

At the Federal Reserve Bank, the count is verified on specially designed machines. Turning rapidly through each bundle, sorting tellers decide almost instantly whether the bills are fit for further use and feed them into the machines in bunches of 100. With these machines, which not only count the bills but also detect counterfits, a teller can handle about 7,500 bills an hour.

Currency still fit for use goes into the vault to be held, along with new currency released by the Federal Reserve Agent, for filling orders of commercial banks. Currency that is not fit goes into a

---

**Backed by securities that can be readily marketed, the Federal Reserve notes become issued notes ready for circulation. Just numbered pieces of finely engraved paper, they have been made into money.**

---

separate compartment of the vault to await destruction.

When currency is destroyed, the amount is charged against the notes outstanding, reversing the accounting processes that allowed the notes to be issued in the first place. The only limitation on these processes is that the collateral held by the Federal Reserve Agent must always at least equal the amount of the notes outstanding.

Destruction is tightly controlled, with constant audits at every stage. Bills are first canceled by having holes punched in each quadrant. They are then cut lengthwise, with different groups verifying the genuineness of the bills, their denomination, and the number. Only then are the bills ready for final destruction. And again, different groups destroy the separate sets of halves.

Until a few years ago, the halves were burned. Now, they are pulverized. The residue is barely recognizable as currency. Not only are the bills ground beyond recovery, but the distinctiveness of the paper is lost. What is left is baled and sold for use in making such things as wrapping paper, drilling mud, and roofing material.

Few large bills come in unfit. There were never many, compared with small bills certainly. And with checks used now in nearly all major transactions, the few large bills that are in circulation do not get enough use to show much wear. But where there were once some bills as large as \$10,000, anything larger than \$100 is now taken out of circulation, regardless of its condition.

Of the nearly 150 million used bills that came into the Federal Reserve Bank's Dallas office last year, only a little over 2 million were in denominations over \$20. Over three-fourths were in denominations of \$10 or less.

Three out of five of the \$50 and \$100 bills were fit for further use. But two-thirds of the \$1 and \$5 bills were unfit, and over half the \$10 and \$20 bills.

And although the Bank has been taking large bills out of circulation for years, there are still some big ones coming in. Last year the Dallas office destroyed eleven \$1,000 bills.

---

## Amendment to Regulation Q

The minimum rate of interest that member banks must charge on loans secured by time and savings deposits is now 1 percent—reduced from 2 percent—above the rate being paid on the deposit. This amendment to Regulation Q took effect November 23, 1977, and concerns only those deposits that require prior notice of withdrawal.

Prior to the amendment, member banks were required to charge at least 2 percentage points above the rate on the instrument used as collateral. The

change makes certificate borrowing rules affecting Federal Reserve member banks more consistent with those affecting savings and loan associations.

The purpose of the minimum borrowing rate is to prevent depositors from using loans to avoid, in effect, paying a penalty for early withdrawal of deposits. If a loan could be extended at the same rate being paid on a time or savings deposit, this would be equivalent to payment of the deposit before maturity.

---

## Shortened Call Report Considered for Small Banks

A simplified and shortened call report for small banks is being studied by the staff of the Federal Reserve Board. The proposed call report, which would be derived by combining some items, reducing detail, and eliminating some forms, is now in the drafting stage.

As proposed, a "small" bank is defined as a bank with assets of \$100 million or less. The \$100 million cutoff is not definite, but if it were adopted, over 90 percent of the banks now filing call reports would use the condensed form.

The Federal Deposit Insurance Corporation and the Comptroller of the Currency are also exploring ways to reduce the burden of reporting for small banks.

---

## Amendment to Regulation M

Required reserves on dollar deposits at foreign branches of U.S. banks lent to American borrowers have been reduced from 4 percent to 1 percent, effective December 1, 1977. This amendment to Regulation M, "Foreign Activities of National Banks," will enable foreign branches of U.S. banks to be more competitive with foreign banks lending to U.S. borrowers.

Foreign banks have increased their efforts to lend to U.S. borrowers in recent years. As the

spreads between Eurodollar lending and deposit rates have narrowed, reserves required of foreign branches of U.S. banks, but not of foreign banks, have increased in competitive importance. Therefore, the lowering of these reserves will enable foreign branches of U.S. banks to compete on more equal terms with foreign banks in lending to U.S. borrowers.

The reserve requirement was established in 1969 to discourage the use of Eurodollars to finance U.S. domestic credit.

The change applies only to reserves that foreign branches of U.S. banks are required to maintain on dollar deposits lent to American borrowers. No change has been made in the 4-percent reserve requirement on borrowings by member banks from their overseas branches or from foreign banks.

# Gains in Median Family Incomes Offset by Inflation and Higher Taxes

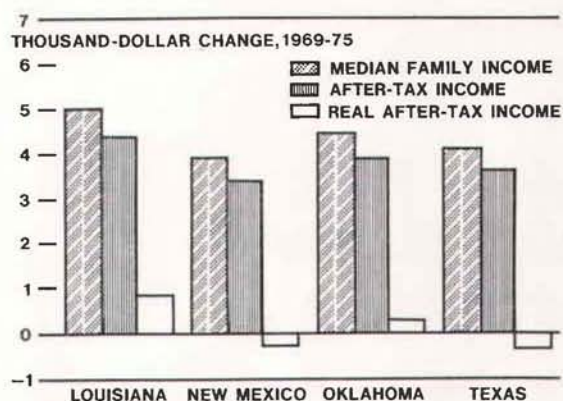
Personal income in the United States more than doubled between 1969 and 1977, rising from \$746 billion to about \$1,530 billion. Such rapid growth suggests that Americans have considerably improved their economic positions in the seventies. Before rushing out to buy a new car or take an extended vacation, however, it might be well to look at how much family purchasing power has changed.

As in the nation, income rose sharply in each of the Eleventh District states of Louisiana, New Mexico, Oklahoma, and Texas in the first half of the seventies. Most of that growth, however, was eroded by higher consumer prices and taxes. After adjustment for inflation and higher direct Federal taxes, median family incomes declined slightly in the nation, Texas, and New Mexico and rose only about 1 percent and 2 percent per year in Oklahoma and Louisiana, respectively.

According to data recently released by the U.S. Department of Commerce, from 1969 to 1975 the median family income rose 49 percent in Texas to \$12,672, 50 percent in New Mexico to \$11,798, 58 percent in Oklahoma to \$12,172, and 67 percent in Louisiana to \$12,576. By comparison, the median family income in the nation rose 47 percent to \$14,094.

As measured by the U.S. consumer price index, prices increased 47 percent from 1969 to 1975 to erode more than 95 percent of the rise in median family income in Texas in the first half of the seventies, nearly 94 percent in New Mexico, almost

Real after-tax incomes have shown little change in Eleventh District states



NOTE: After-tax income excludes only social security and Federal income taxes. Income taxes were based on a family of four, using the standard deduction.

SOURCES: U.S. Bureau of Labor Statistics.  
U.S. Department of Commerce.  
Federal Reserve Bank of Dallas.

81 percent in Oklahoma, and about 70 percent in Louisiana.

While consumer price data for individual states are not available, the U.S. Bureau of Labor Statistics publishes quarterly consumer prices for the Eleventh District cities of Dallas and Houston. The rate of inflation in Dallas, at 42 percent, was somewhat slower than in the nation between 1969 and 1975, while the rate in Houston, at 49 percent, was slightly faster than in the nation.

Increased direct Federal tax payments also retarded growth in real disposable income. The higher taxes on median family incomes between 1969 and 1975 resulted primarily from legislated changes in the social security program that raised the tax rate of that program from 4.80 percent to 5.85 percent and raised the wage base subject to the tax rate from \$7,800 to \$14,100. As a result of those changes and the growth in current-dollar incomes, social security taxes paid by median-income families increased 98 percent in Texas, 84 percent in New Mexico, 92 percent in Oklahoma, and 104 percent in Louisiana.

As median family incomes rose, the progressive structure of Federal income taxes increased personal tax liabilities more than proportionately. However, as a result of various tax reforms enacted during the period, the actual Federal income tax burden for median-income families of four rose only about half as fast as median family income. Consequently, the proportion of median family income paid as Federal income taxes in the District states fell from about 10 percent in 1969 to around 8 percent in 1975.

Median family income in the nation rose about 6 percent in 1976. But after adjustment for higher taxes and inflation, it was about 1 percent below a year before. The Tax Foundation estimates that the median family income in the nation grew an additional 8 percent in 1977, but, once again, virtually all of the gain was absorbed by higher taxes and increased prices.

Similar comparisons for 1976 and 1977 cannot be made for the District states because the data

are not available. But median family income in the Southwest undoubtedly continued to increase sharply, in line with the robust expansion of the regional economy. And as in the nation, inflation and higher taxes would have continued to absorb most of the growth. Increases in consumer prices in both Dallas and Houston have exceeded the rise in U.S. consumer prices since 1975. Consumer prices rose at an average rate of about 6 percent in Dallas in 1976 and 1977 and 6.5 percent in Houston—only slightly below the average rates of increase between 1969 and 1975.

The outlook for a significant improvement in family incomes in the near term is dim. The 15-percent increase in the minimum wage at the beginning of the year and labor contract settlements to be made later this year will raise the nominal earnings of some families. But the increased cost of labor, as well as higher social security taxes, may well lead to higher prices, which, in turn, would erode the gains in nominal income. It seems that inflation should now be included in the familiar adage "The only sure things in life are death and taxes."

Mary G. Grandstaff

# Consumer Protection Legislation Being Studied

Concern over the complexity, cost, level of consumer awareness, and effectiveness of consumer protection legislation has resulted in several studies measuring these dimensions. The information obtained through these studies will help the Board of Governors of the Federal Reserve System and the Congress to revise and administer the legislation.

One study, undertaken by the National Committee on Consumer Finance and partially sponsored by the Federal Reserve Board, examined consumer awareness of annual percentage rates of interest on loans. The Truth in Lending Act requires that rates quoted to consumers must be true annual percentage rates, but in order to receive any benefits from the act, consumers must be aware of the rates and comprehend them.

Three awareness surveys of consumers were made, the first shortly before the act was implemented in July 1969 and the second in October 1970 after 15 months of Truth in Lending. An additional survey was conducted in 1977. The results of the surveys show that substantial gains in awareness were made in the first 15 months after

implementation of the act and the gains have continued, although at a slower pace, through 1977. Awareness of annual percentage rates is now approximately 55 percent for closed-end credit and 65 percent and 71 percent for retail revolving credit and bank credit, respectively.

The only disturbing finding among these favorable trends, according to the National Committee on Consumer Finance, is the discovery that many consumers still appear to be unable to use percentage rates to calculate dollar finance charges.

Another study, now underway, is being conducted by the Board of Governors to determine the extent to which consumers are exercising certain rights under the Equal Credit Opportunity Act and the Fair Credit Billing Act and the cost to creditors of compliance with these laws.

Information is being sought from creditors about the number and cost of separate credit histories for married persons and of notifications of specific reasons for credit denial. Creditors are also being asked about the number of people formally raising questions about billing errors in their accounts.

---

## New nonmember bank

Aledo State Bank, Aledo, Texas, a newly organized insured nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business January 17, 1978.

---

---

## Improved Transfers of Funds Proposed

Two plans to improve funds transfer among banks have been published by the Federal Reserve Board for comments.

One proposal would allow member banks to use their reserve accounts for settling wire transfers conducted on Bankwire. Bankwire is a communications network, owned by an association of banks, that provides interbank funds transfer services to about 200 banks throughout the country. Under the proposal, member banks would appoint Bankwire their agent, and settlement would be effected through member bank reserve accounts.

The other proposal would connect the 33 automated clearinghouses operated by the Federal Reserve into a nationwide system. Currently, the local clearinghouse associations clear and settle electronic payments within their respective regions. Under the proposal, ACH transfers could be made nationwide. The ACH transactions would be forwarded over the Federal Reserve's communications system.

Concerning the proposals, the Board said: "We expect that the program to carry out net settlement for Bankwire transactions will stimulate private sector alternatives in the payments mechanism leading to lower cost provision of banking services throughout the nation. . . . With respect to providing interregional clearing and settlement facilities for ACH's, we hope to encourage the use of electronic fund transfers as a more efficient and less costly alternative to check payments."

The Board requested comments on the proposals by February 28, 1978.