Economic Review

MARCH 1982

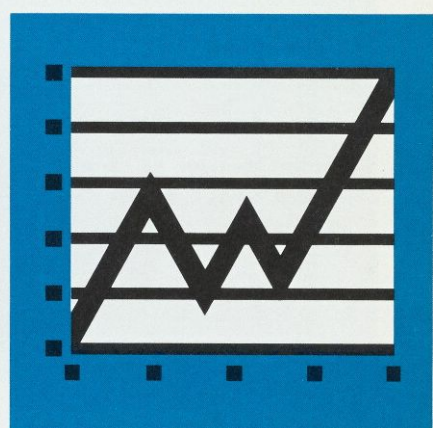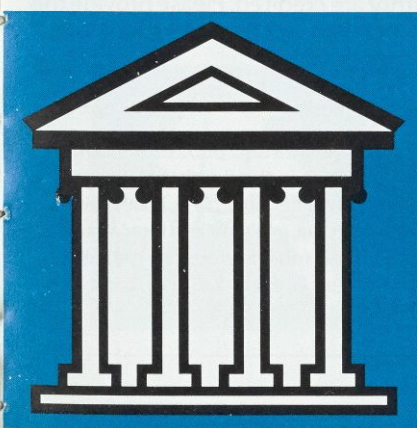**SUNBELT** "Stealing" Industry from North?

CURRENCY How Much Is Hoarded?

TAX CUTS Shifting the Burden

CHECKS Patterns of Change

BANKS Evaluating Capital Requirements

LIVING COSTS Guide to Sources

The purpose of the *Economic Review* is to inform the public about Federal Reserve policies and the economic environment and, in particular, to narrow the gap between specialists and concerned laymen.

Behind the Sunbelt's Growth:

The Sunbelt's growth is not so much a result of entire firms moving from North to South as it is a function of "decentralization." Manufacturing, in particular, seems to be seeking out not only southern locations, but also smaller cities and non-urban areas.

The economy of the Southeast has been growing more rapidly than the national economy for several decades. The Southwest and the West have also grown considerably, while the Northeast and the Midwest have experienced a marked slowdown in their growth. Many commentators have discussed this pattern in the context of a Sunbelt-Frostbelt dichotomy, but this is not entirely accurate. The slow growth has been mainly in the populous industrial states of the manufacturing belt from New York westward to Illinois, but this slowdown has not affected other areas of the North such as the Plains states. The recent experience of New England has been much better than that of the neighboring Middle Atlantic states.

The most notable characteristic of the differing growth of regions has been the shift away from large metropolitan and small cities. Even in the Sunbelt, growth has been proportionately greater outside the largest cities than within them.

The sector of the economy which has been leading this change is manufacturing. While services, finance, real estate, transportation, trade and construction employment mostly serve their local markets, manufacturing tends to be more oriented to the national market, and manufacturers have been far more footloose throughout our history.

The current trend is for a decentralizing and spreading-out of industry. The more rapid growth of the Southeast is being influenced by the new location decisions of manufacturers. From 1960 to 1980, total employment in the Southeast grew 56 percent more than that for the U. S. as a whole; service employment grew only 33 percent faster in the Southeast, while manufacturing employment grew 208 percent faster. It is important to note that these are growth rates relative to the U. S. average. Manufacturing employment as a percentage of the labor force has declined in the Southeast and in the nation. But whereas other sectors such as construction, trade and services grow in parallel fashion in every region, manufacturing growth rates are widely divergent, with a pronounced shift out of the traditional manufacturing belt and toward the South and West.

This development raises two questions. One is whether the Southeast's gain has been at the expense of the North, in the sense that some plants have been relocated from the North to the Southeast or that new plants have been built in the Southeast which in the past would have been built in the North. The second question is concerned with the benefits of industry location in the Southeast. What factors have made this region so attractive? This article will review some of the ideas and evidence surrounding these questions.

From 1970 to 1981, total employment grew in every state. Yet manufacturing employment declined in some areas, primarily in the manufacturing belt from New York to Illinois, which together lost over 1.1 million jobs. The Southeast gained significantly compared to the total gain of about 5 percent. (Chart 1).

In order to say whether this marked shift in manufacturing represents a movement from one region to another or a process of growth or shrinkage which is independent within regions,

Industrial Decentralization

we need information on the experience of individual firms. The only comprehensive source of this information is David Birch, **The Job Generation Process**. Birch reports on the expansion, contraction, birth, death and migration patterns of individual establishments from Dun and Bradstreet's files on nearly all business establishments. Establishments are classified as independent (single establishment), headquarters or branch, and parent or subsidiary. The employment experience of individual facilities was charted from 1969 to 1976.

It is clear from the Birch study that entire firms are not moving from the North to the South. Even the states with declining industrial bases lost only about one-tenth of one percent of their employment per year from out-migration of firms. The other popular conception of job movement is that firms are closing plants in the North in order to open new ones in the South. This is also contradicted by Birch's findings. The declining states had either the same or a lower rate of closures than the fast-growing states. It is the

excess of the rate of births of new firms that determines the difference between the fast and slow growth areas.

These results have been interpreted by some to mean that states should look to the process of new firm formation in order to generate faster growth. However, the case of manufacturing growth in the Southeast is somewhat atypical. A large proportion of Southeast manufacturing employment is in branch plants operated by firms headquartered outside the region. Birch reports the distribution of net new employment for the entire South from 1969 to 1976 ownership status as follows:

Net Employment Growth in Manufacturing

Independent	14.0 percent
Headquarters/Branch	66.1 percent
Parent/Subsidiary	19.9 percent

About 86 percent of new manufacturing jobs in the South from 1969 to 1976 were generated in multi-establishment firms. The question that

Chart 1. Manufacturing Employment
(Percent Increase, 1970-1981)

State	Percent
FL	46.6
MS	23.5
LA	21.1
NC	18.7
SC	16.5
TN	14.3
VA	13.3
GA	13.0
KY	11.5
AL	10.8
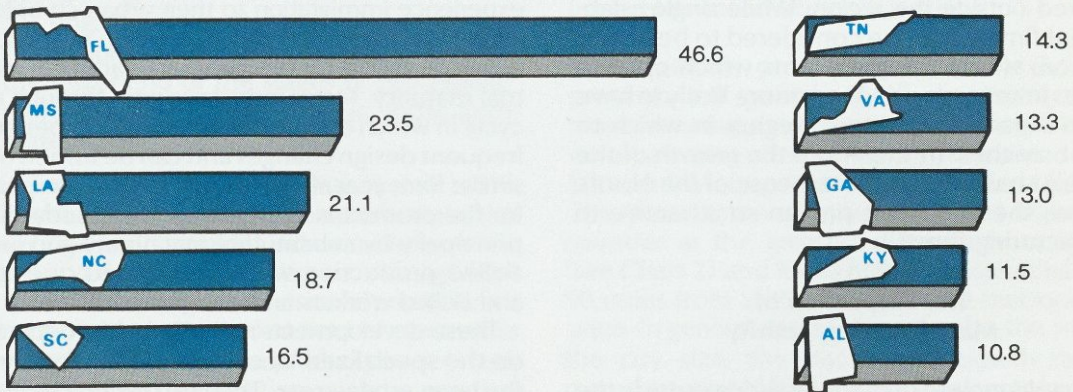
Source: Bureau of Census, **Employment and Earnings**, 1970 and 1971.

Table 1

Percent Distribution of Manufacturing Net Employment Change in the South Due to Differential Treatment of Branches and Subsidiaries by Headquarters and Parents.

Location of Headquarters	Percent of Branch Employment Change	Location of Parent	Percent of Subsidiary Employment Change
Northeast	31%	Northeast	46
North Central	41	North Central	54
South	16	South	−18
West	13	West	18
	100		100

Source: David Birch, **The Job Generation Process**, MIT Program on Neighborhood and Regional Change, Cambridge, Mass., 1979.

remains, then, is how many of these jobs were the result of location and expansion decisions made outside the region? The closest we can come to an answer is the distribution of branch and subsidiary employment gains by location of headquarters and parent, respectively (Table 1).

Seventy-two percent of branch employment growth from 1969 to 1976 was in plants owned by firms in the Northeast and North Central, and 86 percent was in plants owned outside the South. Subsidiaries owned by parents in the South actually decreased employment over the period, so that all of the employment growth in subsidiaries came in firms owned outside the South.

Most of the manufacturing employment gains in the Southeast have occurred in firms headquartered outside the region. While single-establishment firms might be considered to be generated from within a region, firms which operate facilities in several regions are more likely to have chosen a particular state or region in which to locate branches. In this sense the growth of the Southeast has been at the expense of the North. Why has the Southeast proven so attractive to manufacturing firms?

The Dispersion of
Manufacturing Activity

The rapid growth of manufacturing outside the old manufacturing belt represents the reversal of a long trend toward the concentration of industry which dates from the beginning of the Industrial Revolution. Much of the industry grew up in large urban concentrations whose growth paralleled that of the economy. The major reason for these urban-industrial concentrations is that related industries such as fabricated metal, industrial machinery and transportation equipment enjoyed greater efficiency through the sharing of similar labor force skills and other resources and through savings in transportation and communication costs. Wages, rents, taxes and many other costs were higher in these industrial centers, but these were offset by the higher productivity resulting from the inter-industry linkages.

However, the evidence is growing that a turning point has been passed. The long trend of population and employment concentration has been reversed both in the United States and in many other developed countries. Many nations which experienced net immigration to their major industrial complexes since the beginning of economic development have recently seen a switch to net out-migration in favor of less densely populated regions.

In general, the countries which industrialized first have decentralized first. The group which is experiencing out-migration includes—besides the United States—France, West Germany, Belgium, Denmark and Holland. Countries where immigration to urban centers has ceased are Japan, the United Kingdom, Italy, Sweden, Spain and Canada. Countries still in the process of industrializing, such as South Korea and Taiwan, continue to experience immigration to their urban complexes.

The forces behind this dispersion of manufacturing come under the general heading of industrial maturity. Many industries pass through a life cycle in which the product no longer experiences frequent design changes and can be turned out in similar form year after year. The production process for the product is also refined and standardized, principally by substituting machinery and lower-skilled production workers for hand operations and skilled workers and designers.

These developments make firms less dependent on the specialized labor force and other firms in the large urban areas. They can reduce their cost of production by locating in smaller cities or rural

areas where construction costs, wages, and taxes are lower. In addition, most industries today have a wider range of products, individual products are more complex, and more stages of processing are required. This encourages large firms to create individual plants specializing in particular products, processes or components. These plants are sited in cities or regions suited to their particular resource needs.

The Southeast has benefited from the maturing of products and production processes since the end of the nineteenth century. The textile industry saw much of its most labor-intensive production move from New England to the South Atlantic between 1880 and 1920 after the development of automatic machinery in spinning and weaving replaced many skilled workers. Similar factors facilitated the southward movement of chemicals, paper, rubber and furniture. Today many multi-plant firms in a wide variety of industries are finding the Southeast a favorable location for producing some of their products or components of products.

In a study of new plants built by Fortune 500 firms during the 1970s, Roger Schmenner identified the characteristics of Sunbelt plants which distinguished them from Frostbelt plants. In declining order of significance, Sunbelt plants were found to be:

- non-union
- not independent (that is, Sunbelt plants are more often single-function facilities rather than producing the complete product)
- purchasing more inputs from other company plants
- not engaged in product innovation
- using more raw materials (that is, they are at the lower end of the stages of processing)
- more capital-intensive (that is, more automated)

This and other studies suggest that it is the relatively standardized production processes which are moving out of the older industrial areas, while research and design, engineering and management tend to remain behind. This division of production is most noticeable in the broad field of electronics and related equipment. New product development and highly-skilled production such as medical electronics and scientific equipment is located in

Chart 2. Manufacturing Employment Change 1959-1969

Source: Table 2.
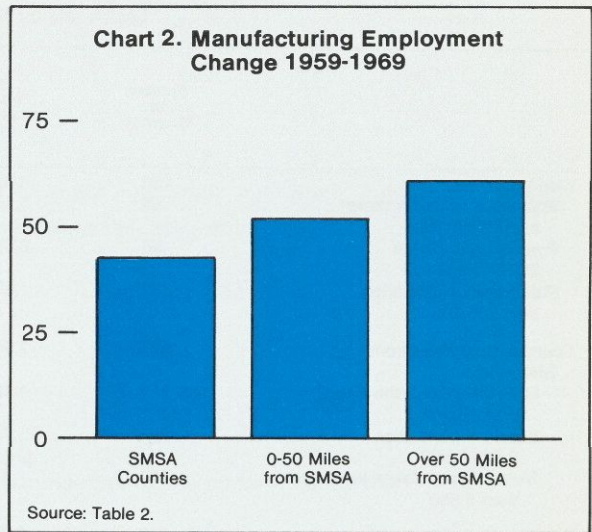
the Northeast and California. Plants outside the manufacturing belt produce high volume components and sub-assemblies, while low-skill labor-intensive parts such as circuit boards are made in low-wage, underdeveloped countries.

Foreign competition must be mentioned as a contributing factor to the accelerated movement of industry in the United States. The share of foreign trade in the economy has doubled in the last 10 years, and many more industries now find themselves competing in world market. In autos, rubber, textiles, shoes and consumer electronics, lower foreign wage rates have sent domestic producers searching for lower-cost locations for mass-produced goods. The result has been a more rapid growth of industry in the Southeast, Southwest, Plains states and in general away from large, high-cost metropolitan areas.

This pattern can be seen in Table 2, which presents the growth of all employment and manufacturing employment in the South by size of urban area and distance from the nearest Standard Metropolitan Statistical Area (SMSA). The manufacturing growth rate was highest for counties at the greatest distance from SMSAs (see Chart 2) and it was higher for counties up to 50 miles from SMSAs than for the metropolitan areas. In general, the rule seems to be, the smaller the city size, the higher the growth rate of manufacturing. While both total employment and manufacturing employment grew by 49

	Number of Counties	Total Nonfarm Employment 1959	Total Nonfarm Employment Change 1959-1969		Manufacturing Employment 1959	Manufacturing Employment Change 1959-1969	
			Number	Per Cent		Number	Per cent
SMSA counties: total	153	5,660,076	2,811,677	49.7	1,604,903	701,916	43.7
Population of SMSA more than 1,000,000	23	1,384,134	965,325	69.7	340,123	221,338	65.1
Population of SMSA 250,000-999,999	63	2,996,093	1,270,317	42.4	897,999	335,210	37.3
Population of SMSA less than 250,000	67	1,279,849	576,035	45.0	366,781	145,368	39.6
Counties 0-50 miles from SMSA: total	595	2,050,630	989,771	48.3	963,604	505,508	52.5
Main city population more than 10,000	127	1,190,025	579,051	48.7	558,786	286,617	51.3
Main city population 2,500-9,999	287	717,530	344,467	48.0	344,060	182,501	53.0
Main city population less than 2,500	181	143,075	66,253	46.3	60,758	36,390	59.9
Counties Over 50 Miles From SMSA: Total	553	1,379,489	674,345	48.9	505,585	308,972	61.1
Main city population more than 10,000	85	630,248	296,225	47.0	230,469	113,034	49.1
Main city population 2,500-9,999	244	582,561	291,506	50.0	214,662	148,738	69.3
Main city population less than 2,500	224	166,680	86,614	52.0	60,454	47,200	78.1

percent over this period for the South as a whole, manufacturing growth was below total growth in the SMSA counties and above total growth in the non-SMSA counties. Manufacturing seems to be seeking out not only southern locations for its facilities, but it is growing at a disproportionate rate in small cities and non-urban areas.

What Factors Have Made the Southeast So Attractive?

The primary attraction that a region can offer is lower production costs. However, a region needs more than low labor costs to attract industry. Also important are the availability of efficient labor, access to national distribution, and establishment of a favorable business climate. An additional factor that will enhance a region's relative attractiveness is the agglomeration of firms within an industry, or among related supplying and purchasing firms. This concentration of industry increases the productivity of each firm and encourages more firms to follow. So the initial attractions of labor cost and other factors eventually draw enough industry that firms begin to come because of the other firms that are present as well as for the region's natural advantages.

Cost of Labor

The Southeast has generally been acknowledged as a low labor cost region. A study by Lynn Browne demonstrated that this cost differential applies to all industries in the Southeast and is not simply due to the predominance of low wage

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Table 3
Growth Rates in Manufacturing Hourly Earnings*
(annual percentage rates of change)

| | U.S. | Northeast | | North Central | | South | | | West | |
		New Eng.	Mid-Atl.	East Nor. Cent.	West Nor. Cent.	So. Atl.	East So. Cent.	West So. Cent.	Mtn.	Pac.
1960-70	4.0%	4.3%	4.0%	4.1%	4.2%	4.4%	4.2%	4.1%	3.4%	3.9%
1970-75	7.4	6.8	7.6	8.1	7.4	7.4	7.5	7.6	6.9	6.7
1960-75	5.2	5.2	5.2	5.4	5.3	5.4	5.3	5.2	4.5	4.8

Source: Lynn Browne, "How Different are Regional Wages?" **New England Economic Review**, Jan.-Feb., 1978, p. 42.

*Geographical divisions in this article are based on U.S. Census regions.

Table 4
Estimated Rates of Growth in Average Earnings Standardized for Industry Mix

(For each region, hourly earnings by industry are averaged with each industry figure weighted according to that industry's relative importance nationally.)

	NE	MA	ENC	WNC	SA	ESC	WSC	MT	PAC
1960-70	4.3%	3.9%	4.0%	4.2%	4.2%	3.9%	4.1%	3.5%	3.8%
1970-75	6.8	7.4	7.8	7.3	7.3	7.3	7.5	6.6	7.0
1960-75	5.2	5.1	5.3	5.2	5.2	5.0	5.2	4.5	4.9

Source: Lynn Browne, "How Different are Regional Wages?" **New England Economic Review**, Jan.-Feb., 1978, p. 42.

industries. In the study, Browne identifies the wage differential among the regions of the country by standardizing the industrial make up, or mix within each region's economy. This standardization removes the regional and industrial biases that arise from geographic specialization and differences among industrial wage rates. After standardizing for industrial mix, the South Atlantic and East South Central states still have the lowest industrial wages in the nation.

Despite the relatively lower rates, wages in the South are growing faster than the national average (see Table 3). However, there is little evidence that the South's relative wage position is changing. The unadjusted wages have grown more rapidly than average. Yet when wages are standardized for industrial mix it becomes apparent that the increase is primarily due to a shift toward higher

wage industries, rather than faster growing wages. This is evident because the adjusted wages for the South are equal or below the national average. Only if the adjusted wages were greater than the national average could it be concluded that the South was losing its relative low wage position (see Table 4).

In addition to wages, total labor costs are also lower in the South. Workmen's compensation and unemployment insurance are lower in the South than elsewhere; eligibility restrictions and benefit levels are also less. Combined with lower levels of insured unemployment over the last 30 years, these contribute to lower employment taxes in southern states.

In order to take full advantage of the relatively lower labor cost, business must also employ laborers who are equally as productive as the

TABLE 5

Comparison of Average Hourly Earnings in Manufacturing Unadjusted and Standardized for Cost of Living Differences — 1975

| | U.S. | Northeast | | North Central | | South | | | West | |
		NE	MAT	ENC	WNC	SAT	ESC	WSC	MTN	PAC
Unadjusted Earnings	$4.81	$4.42	$4.98	$5.60	$4.92	$3.95	$4.07	$4.45	$4.70	$5.31
Standardized for cost of Living	4.81	4.03	4.73	5.54	5.07	4.11	4.47	4.94	4.95	5.09

Source: Lynn Browne, "How Different are Regional Wages?" **New England Economic Review**, Jan.-Feb., 1978, p. 43.

national average. Without at least equal productivity, the reduction in output could offset the wage advantage and potentially make production more expensive than in other regions. However, studies indicate that southern workers are equally, if not more, productive than northern workers. So lower labor cost does translate into lower production cost.

Cost of Living

Over and above the benefits derived from the region's low wages, southern businesses receive a surprisingly large real wage cost advantage (see Table 5). Before adjustments for cost of living, southern wages are between 7 percent and 18 percent below average. After adjusting for cost of living, the wages are between 15 percent below and 3 percent above average. This represents a 3 to 10 percent improvement in purchasing power which businesses receive as a windfall. In addition, even though industry pays lower wages, the workers receive a relative cost of living bonus that brings them close to the national average.

The lower real cost has two advantages for industry. It not only enables the payment of lower nominal wages, but it also reduces the costs of materials purchased from local markets. Local prices for products and especially services will be relatively lower due to the local labor cost component. The production cost saving from lower locally purchased goods and services has not been measured, but it is potentially quite important.

Labor Supply

In addition to labor cost factors, businesses are concerned with the availability of labor when they consider new sites. With an inadequate supply of labor, business would be unable to sustain the advantage of the relatively low wages. The excess demand would tend to bid the wages higher, and thus, reduce the relative advantage. However, population increase in each southern state exceeds the national average, and as an aggregate exceeds the national average by 10 percentage points (see Chart 3).

Included in the population increase is the resurgence of migration from other regions. Lynn Browne[1] has analyzed the migration trends from 1958 to 1977 in her 1979 study, "The Shifting Patterns of Regional Migration."

Since the 1950s, three discernible trends have affected labor supply in the South. First, from 1957 to 1967 there was an out-migration from the rural East and West to South Central. The exodus was primarily attributable to the poor economic conditions of the 1950s and early 1960s. The late sixties comprise the second period, a transition period when the South Atlantic attracted a large share of the migration from the Mid-Atlantic and East North Central. The seventies

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[1]Lynn Browne, "The Shifting Pattern of Regional Migration." **New England Economic Review**, November-December 1979, pp. 17-32.

Chart 3. Population (Percent Increase 1979-1980)

State	Percent Increase
FL	43.4%
TX	27.1%
SC	20.4%
GA	19.1%
AR	18.8%
OK	18.2%
TN	16.9%
NC	15.5%
LA	15.4%
VA	14.9%
KY	13.7%
MS	13.7%
AL	12.9%
WV	11.8%

South: 21.4%

U. S.: 11.4%
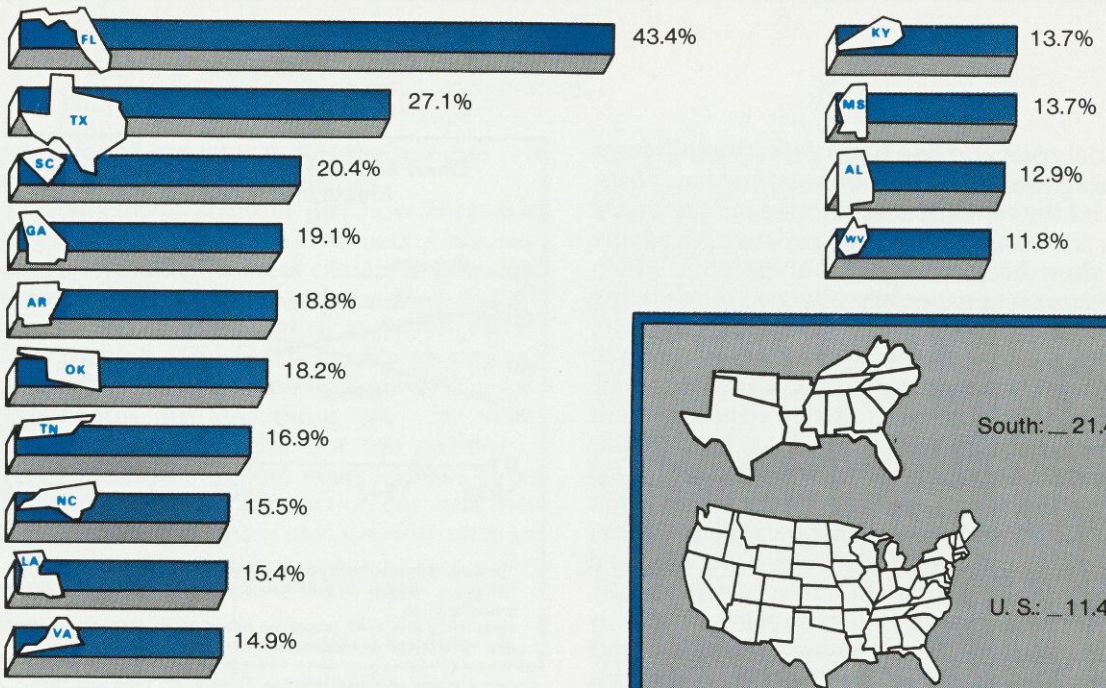
Source: Census Bureau.

are the third period, during which there has been a large out-migration from the industrial belt. The southern regions attracted the largest share and are expected to continue attracting a large share into the 1980s.

With the combination of the natural birth rate and the net migration trend, the Southeast provides an expanding labor pool that exceeds the average national growth rate. Availability of such a labor pool provides insurance that an ample supply will be available as business activity expands in the South.

In the previous section, we argued that the Southeast is the lowest production cost region. Along with the wage benefit, the region also provides real purchasing power savings and has an available supply of workers who are as productive as northern workers. However, these factors have been present in the Southeast during past decades. Businesses could have taken advantage of these regional benefits before, but few did. Why are businesses presently responding to the regional advantages of the Southeast?

Transportation Factors

Decreased transportation costs, increased speed, and increased accessibility have all contributed to the ability of businesses to locate in the lowest production cost areas. With these transportation economies, the relative importance of transportation has been decreasing when compared with total costs. This has induced firms to become more sensitive to changes in other production costs and more flexible in relocating to regions that provide such cost advantages. Without the transportation economies, movement or expansion of production facilities would be hampered by the relative cost of transporting to and from established markets.

From a historical perspective, the primary mode of transportation for commerce has changed from water (inland and oceanic) to rail, and then to highways and air. Each step in the transition has increased the flexibility of transport and has produced economies that have changed the structure of transportation costs. The resulting economies can be divided into the effects on

terminal costs and line haul costs. The shift from rail to highways, while it increased line haul costs, reduced the terminal cost. Despite rail's relatively lower line costs, trucking has a relative advantage with short hauls and partial shipments, which makes trucking especially effective for shipping higher value to weight products. Furthermore, trucking's added flexibility enables it to reach virtually all domestic markets faster than rail. Rail's relative advantage remains in the shipment of lower value to weight products such as raw materials. It is the combination of the structural changes in the transportation costs and the shift from predominance in lower value to higher value to weight products that have elevated trucking to the primary mode of transportation.

The development of the interstate highway system enhanced the Southeast's ability to attract industry. The highway system has provided access to national markets at competitive costs, which has enabled southeastern businesses to produce in a region with lower costs while maintaining distribution to the national markets they serve. Local highways in the Southeast have also been improved. This improves accessibility to regional labor and product markets. With the improvements in local roads and the increase in personal automobile ownership, the radius within which business can attract workers and source supplies for rural plants has dramatically increased. This allows business to take advantage of the lower production cost of a rural location without restricting access to local labor and supplies.

Concentration of Industry

The complex network of trade between businesses results in a magnified growth effect as industry begins to locate in a region. Textile producers have been in the Southeast for many decades, but it was not until they reached a critical level of concentration that textile machinery makers and chemical firms tied to the textile industry found it advantageous to locate near their customers. More recently, the furniture industry has drawn the makers of machinery, leather and textiles into its orbit. Electronics is another industry with many small component-makers which are attracted by each other's

Chart 4. Share of U. S. Manufacturing Employment 1939-1976

*Textiles, tobacco, food, paper, lumber
**Plastics, leather, primary metals, electrical equipment, instruments, miscellaneous
Note: 1939 and 1947 proportion based on production workers; 1958 and 1976 based on total employment.
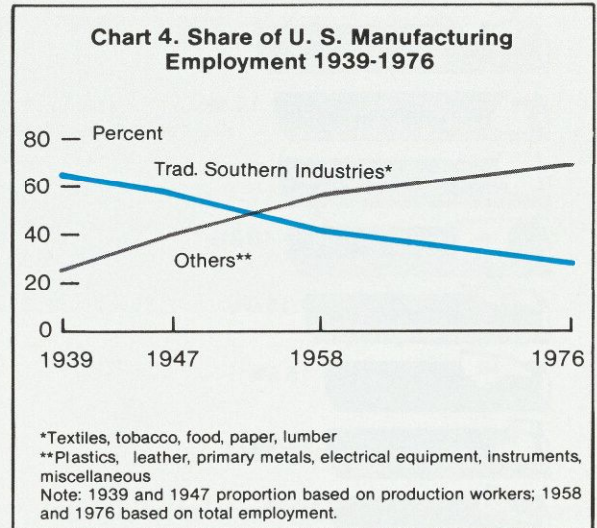
Source: **Census of Manufacturing**, 1939, 1947, 1958, and 1976.

presence in clusters such as those in Florida, Georgia and North Carolina.

The result of all this clustering of related firms is that a new advantage for the Southeast has been created. In the past, the low production cost in the region was offset by its distance from the major industrial areas as well as consumer markets of the North. But industrial location surveys today find, somewhat surprisingly, that the Southeast is beginning to reach the level of industry concentration necessary to give it all the attractions of the North, in addition to having lower costs.

Business Climate

An important yet highly elusive factor in industry location decisions comes under the broad heading of business climate. This term is used to compare states on such characteristics as labor legislation (primarily right-to-work laws), business taxes, political attitude toward industrial development (which may be highly subjective) and the general regulatory posture of the state. Indexes of business climate are compiled regularly and in industrial location surveys this factor ranks in the

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top five for all industry and as the number one consideration for some industries.

It is difficult to sort out just how important business climate actually is in attracting industry. Would a favorable business climate in one state ever induce a company to locate a plant there if production cost and distance to markets were greater than elsewhere? It is hard to answer this question because the states with favorable business climates are also those with the other advantages being sought. But the pattern of industry location in recent years appears to be oriented more toward production cost and markets than toward business climate. And northern states which have attempted to improve their image with business have not been notably successful in attracting industry due to their higher cost structure.

The Southeast's advantage is that many attractive features have come together in recent years. The lower cost structure has always been present, but it has been joined by favorable developments in transportation and communication, by the decrease in transport cost sensitivity of many products and by the maturing industrial technology which can make effective use of the labor and other resources of the Southeast.

—John Hekman
and Alan Smith

Inflation alone does not account for the sudden surge in currency. Evidence suggests that cash being held in hoards increased from 56 percent of total currency in circulation in 1960 to almost 70 percent in 1980.

Explaining the Cash Explosion
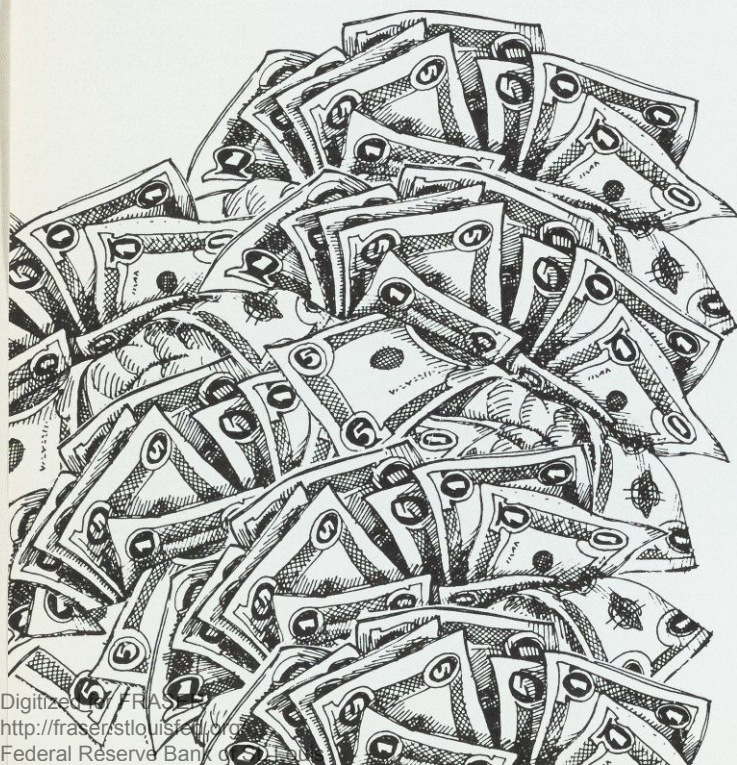
The amount of U. S. currency in circulation today amounts to $121 billion, a four-fold increase over the $30 billion circulating in 1960. In 1960 there was sufficient currency in circulation for each person in this country to hold $162; today each of us could hold more than $600 (Chart 1).[1]

Let's examine the composition of this currency measure, by denomination. The most striking aspect is the spectacular increase in the value of $100 notes outstanding: an increase from $5.9 billion (18 percent of the value of all currency outstanding) in 1960 to $49 billion (almost 36 percent of the value of all currency) in 1980 (Chart 2). In terms of value, the $100 note actually replaced the $20 note in 1978 as the largest denomination outstanding. Twenty dollar notes grew slightly less rapidly than $100 notes.

The value of $50 notes grew from 8.6 percent of the value of all notes and coins outstanding in 1960 to 10 percent of the total in 1980, while the stock of coins grew in importance from 7.4 percent of currency outstanding in 1960 to better than 9 percent in 1980. The relative importance of ten and one dollar notes declined from 1960 to 1980.

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[1]The difference between currency in circulation and the currency component of M1 is currently held in the vaults of commercial banks. This vault currency has increased in direct proportion to the public's increased demand for currency. The ratio of currency held by commercial banks to the currency component of M1 has varied within a four percentage point range from 1965 to 1980. This stability confirms that commercial bank holdings simply reflect the demand for currency by the population.

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Chart 1. Total Currency in Circulation Outside Treasury and Federal Reserve Banks

$ Billions

(y-axis: 0, 20, 40, 60, 80, 100, 120, 140; x-axis: 30, 40, 50, 60, 70, 80)
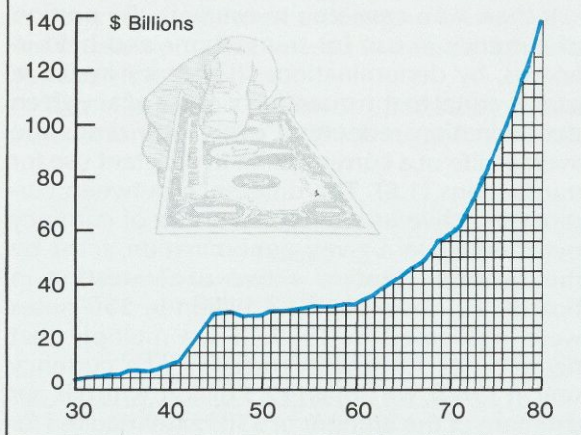
Chart 2. Currency Outstanding by Denomination

$ Billions

- $100
- 50
- 20
- 10
- 5
- 2
- 1
- Coins

(y-axis: 0, 10, 20, 30, 40, 50; x-axis: 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80)
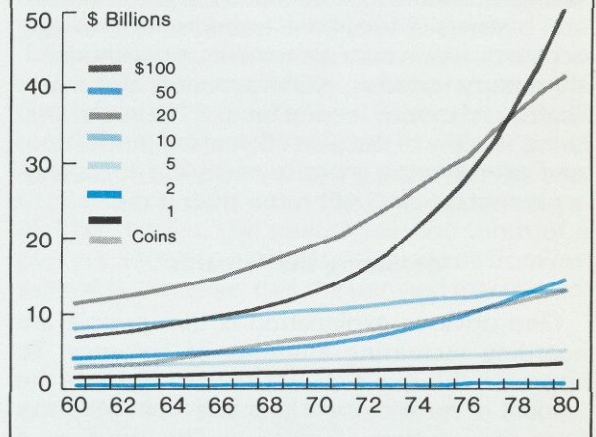
The Reasons Behind Currency Growth

Currency is demanded by the population for two reasons only, to facilitate cash transactions and to serve as a store of value. In recent years a number of studies have attempted to explain growth in currency demand.[2] The conclusions of this literature are less than satisfying, primarily because of the difficulties in obtaining good information on how people hold and use currency. People who use more currency for off-the-books tax avoidance or in illegal transactions, for example, are unlikely to admit to it. Few of us keep track of cash transactions.

Data on individuals' use of currency is scarce. Researchers are confined basically to analyzing the aggregate data on currency outstanding. Even this data is an estimate. We know how much currency has been issued, but no one knows the proportion which has been destroyed or lost. Also, very little is known about the amount of our currency in foreign hands. In many countries, U. S. bills circulate as a second currency, and foreigners hold an unknown amount of bills as a portable hedge against economic or political turmoil in their own countries.

We know that business firms hold a relatively small portion of total currency outstanding. Most currency is held by individuals, and estimates of that proportion run as high as 90 percent.[3]

Currency as a percent of overall economic activity (measured by nominal GNP) fell from 5.7 percent of GNP in 1960 to 4.4 percent in 1980, for several reasons. Interest rates are higher, so holding currency costs more in terms of interest foregone. Also, a number of financial innovations have appeared as functional substitutes for cur-

[2]See for Example: Phillip Cagon, "The Demand For Currency Relative to Total Money Supply", National Bureau of Economic Research, Occasional Paper 62 (New York: National Bureau of Economic Research, 1958). George G. Kaufman, "The Demand For Currency", Board of Governors of the Federal Reserve System, Staff Economic Studies, (Washington: Board of Governors of the Federal Reserve System, 1966). J. Carl Poindexter, Jr., "The Currency-Holding Behavior of the Public and the Strength of Monetary Controls", Graduate School of Business Adminstration, Institute of Finance, New York University, **The Bulletin**, No. 67 (New York University, November, 1970). Robert D. Laurent, "The Growing Appetite For Cash", Federal Reserve Bank of Chicago, **Business Conditions**, (Chicago, Federal Reserve Bank of Chicago, April, 1971). Donald L. Kohn, "Currency Movements in the United States." Federal Reserve Bank of Kansas City, **Monthly Review** (Kansas City, Federal Reserve Bank of Kansas City, April, 1976). Paul S. Anderson "Currency in Use and in Hands", Federal Reserve Bank of Boston, **New England Economic Review** (Boston, Federal Reserve Bank of Boston,

March/April, 1977). Robert D. Laurent, "Currency and the Subterranean Economy," **Economic Perspectives** (Chicago, Federal Reserve Bank of Chicago, March/April, 1979). Norman N. Bowsher, "The Demand for Currency: Is the Underground Economy Undermining Monetary Policy?" Federal Reserve Bank of St. Louis, **Review**, Volume 62, No. 1 (St. Louis, Federal Reserve Bank of St. Louis, January, 1980). Peter Gutmann, "The Subterranean Economy," **Financial Analyst Journal**, November/December 1977. Edgar Feige, "The Irregular Economy: Its Size and Macroeconomic Implications," Social Systems Research Institute, Working Paper 7916. And Charles J. Haulk, "Thoughts on the Underground Economy," Federal Reserve bank of Atlanta, **Economic Review**. (Atlanta, Federal Reserve Bank of Atlanta, March/April, 1980).

[3]See Paul S. Anderson "Currency in Use and in Hoards", **New England Economic Review**, Federal Reserve Bank of Boston (Boston, Federal Reserve Bank, March/April 1977) p. 23.

rency: cash management services, negotiable certificates of deposit, authorization to offer savings accounts to state and local governments and businesses, telephone transfers from savings accounts, repurchase agreements, preauthorized third party transfers, NOW accounts and share drafts, and money market funds.[4] The surprising thing, in view of the past 20 years of innovation and interest rates, is that currency did not fall (as a percentage of GNP) more than it did.

Measuring the "Hoards"

One obvious explanation is that people are hoarding increasing amounts of currency. To approach this question, we need to separate the amount of currency held for transactions purposes from the amount of currency "hoarded" as a store of value. One ingenious method for doing this was developed by Paul S. Anderson.[5] He reasoned that every piece of currency in circulation could pass from hand to hand only so many times before it was worn out and had to be pulled from circulation and replaced by the Federal Reserve.

He further reasoned that one dollar notes were the least likely to be hoarded and the most likely to experience constant use in transactions. (To the extent $1 bills are hoarded, the hoarded components below are underestimated.) He therefore calculated the average life of a one dollar note (1.81 years) by dividing the total number of one dollar notes redeemed in 1980 ($1.77 billion) into the total number of one dollar notes outstanding at that time ($3.26 billion). So the average one dollar note was replaced every 1.8 years.

The higher denomination bills use the same paper, and the durability of that paper has not changed significantly. This implies that every currency unit—$5 bills, $20 bills, or whatever — would also wear out in 1.8 years if it were used entirely in transactions. If higher denomination

bills last longer than 1.8 years, then the longer life must mean they were at rest, or hoarded, for the time in excess of 1.8 years.

It then is an easy step to estimate the portion of currency in use for transactions and held in hoards, by denominations. "Currency in active use" is equal to the quantity of notes of any given denomination redeemed every year times the average life of a currency unit in constant use for transactions (1.8). The difference between currency in active use and the amount of currency outstanding, in a given denomination, must be the quantity "not in active use"—resting in hoards. For example, $1.4 billion in $50 notes were redeemed in 1980. If we multiply that figure times 1.8 (the average life of a currency unit in 1980), we obtain $2.5 billion, which is our estimate of the amount of $50 notes required for transactions, not hoarding. The amount of $50 notes actually in circulation was $13.1 billion in 1980, which means that $10.6 billion worth of $50 notes ($13.1 - $2.5) were at rest, or hoarded. Similar calculations for each denomination yield the total amount of currency in active use and the total hoarded.

Table 1 shows the estimates for currency in use and currency in hoards calculated at five-year intervals for the period 1960 through 1980.

Table 1
Estimated Currency in Use and in Hoards
(in $ Billions)

	Currency Outstanding	Currency in Use	Currency in Hoards	Cur. in Hoards as percent of Cur. Outstanding
1960	$29.1	$12.8	$16.3	55.9%
1965	35.5	13.4	22.1	62.3
1970	47.7	20.0	27.7	58.0
1975	72.3	25.4	46.4	65.8
1980	117.4	36.2	81.2	69.1

During the period 1960 through 1980, the average length of life for a Federal Reserve Note was 1.7 years, so we used that figure for average transactions life rather than 1.8 (the 1980 figure).

Adding these calculations across denominations indicates that the percent of total currency at rest in the economy, or in hoards, increased to almost

[4]See Marvin Goodfriend, James Parthenos, and Bruce Summers "Recent Financial Innovations:Causes, Consequences for the Payment System and Duplications for Monetary Control." Federal Reserve Bank of Richmond, **Economic Review,** March/April 1980.
[5]See Paul S. Anderson, "Currency in Use and in Hoards", Federal Reserve Bank of Boston, **New England Economic Review,** March/April 1977, pp. 25-28.

70 percent of total currency in circulation in 1980, up from 56 percent in 1960. This suggests that the largest part of recent growth of currency is not a result of increased demand by the public for transactions, but instead increased demand for hoarding purposes.

This inference is further supported by similar calculations in Table 2, which suggest, sensibly,

Table 2
Estimated Currency in Use and in Hoards
by Denomination in 1980

	Currency in Active Use	Currency in Hoards	% of Denom. Hoarded
$1	$3,015,601.1	$ 248,883.9	7.6%
$2	72,743.0	596,792.0	89.1
$5	3,785,512.4	548,310.6	12.7
$10	7,290,349.7	3,823,569.3	34.4
$20	15,241,055.9	22,933,160.1	60.1
$50	2,448,805.8	10,622,279.2	81.3
$100	4,379,183.0	42,374,940.0	90.6

that in 1980 the large denomination notes were the ones with the largest hoarding component. The higher denomination notes are easier to store (and possibly to hide) than lower denomination notes. Therefore, the demand for currency for hoarding purposes would more likely involve the use of high denomination notes. Except for the two dollar denomination, the percentage of a given denomination of currency hoarded, according to our calculations, increases as the size of the denomination increases, rising from only 7.6 percent of the one dollar bills to just over 90 percent of the $100 bills. (The hoarding component of the $1 bill in 1980 reflects our use of the 1.7 year average life over the 1960-80 span which is lower than the 1980 average life of 1.8 years.)

The only inconsistency is in the two dollar note denomination, 89 percent of which was hoarded. However, the public's limited acceptance of the two dollar note has limited the number of two dollar notes circulating for transactions. They are more attractive to collectors. Therefore, the estimate that 89 percent of the two dollar notes

outstanding are hoarded seems plausible. So Tables 1 and 2 suggest that currency hoarding is a major part of the answer as to why currency has grown rapidly during the 1960-80 period.

Our estimate of the component of currency in active use for transactions, relative to nominal GNP, actually declined from 2.5 percent in 1960 to 1.3 percent in 1980 (Table 3). The residual amount of hoarded currency, however, appears to have remained a relatively constant percentage of GNP, ending the period just one tenth of a percent lower than it started. It appears from our estimates, therefore, that the demand for currency

Table 3
Currency in Circulation and
Estimated Currency in Use and in Hoards
as a Percent of GNP

	Total Currency in Circulation	Currency in Active Use	Currency in Hoards
1960	5.7%	2.5%	3.2%
1965	5.1	1.9	3.2
1970	4.8	2.0	2.8
1975	4.6	1.6	3.0
1980	4.4	1.3	3.1

for transaction purposes has not kept pace with growth in GNP, while the demand for currency for hoarding purposes has grown at about the same pace as GNP.

Implications for Measuring the Money Stock

Currency outside banks is included in the M1 definition of the money stock. But the work in this article suggests that currency includes both an active and a hoarded component. The active component logically belongs in both M1 and M2, but the hoarded component should logically be excluded from M1, because M1 is a measure of transactions balances. The motives behind hoarded currency are probably more closely related to those of time and savings accounts than to currency in use for transactions. If this reasoning is correct, removing the hoarded com-

Chart 3. M1 and M1 Adjusted
(less currency in hoards)

Table 4. M1 and M1 Adjusted
(less currency in hoards*)
1960-1980
(in Billions)

Year	M1	M1 Adjusted
1960	141,358	122.943
1961	144.208	127.399
1962	147.842	131.080
1963	152.317	134.290
1964	158.267	139.936
1965	165.025	146.873
1966	172.558	161.322
1967	179.392	154.733
1968	191.967	168.357
1969	203.358	178.997
1970	211.042	186.134
1971	225.333	195.422
1972	241.467	212.429
1973	259.000	224.586
1974	271.850	231.658
1975	284.200	240.297
1976	299.258	251.271
1977	320.692	265.317
1978	345.342	287.290
1979	363.342	298.172
1980	379.758	307.443

*In making these calculations, we reduced our estimate of hoarded currency in circulation by the proportion of currency held outside banks, recognizing both the stability of the ratios of vault cash to currency and the fact that M1 excludes vault cash.

ponent of currency from M1 should increase the quality of the M1 series.

Chart 3 shows M1 and M1 adjusted (less currency in hoards) for the period 1959 through 1980. M1 adjusted tracks M1 very closely up to 1972, and from 1972 forward the gap between the two widens steadily. Since 1972 the directional change has been almost totally in a down- ward direction. This suggests that hoarded currency has become a larger and larger percentage of M1.

—**David D. Whitehead**

Tax Cuts: Who Shoulders the Burden?

The Reagan tax cuts have been criticized as a "welfare for the rich" approach. Yet analysis of the tax cuts of the 1920s, the 1964 tax cut, and the 1932 tax increase suggests that the Reagan program will shift the tax burden toward the rich.

Economists have long recognized that taxes on economic activity distort prices and reduce the size of the gains derived by both buyers and sellers.[1] When taxes are levied on economic activity, the quantity of the activity will decline. As a result, taxes impose a cost on society over and above the revenue collected.

The effects of tax cuts are not so well recognized. Under a system of progressive taxation, where tax rates increase as incomes increase, a proportional reduction in tax rates (an equal percentage reduction in all brackets) will provide a greater incentive for persons in upper income brackets to expand their taxable income than those with lesser incomes. As the result, after a proportional rate reduction, the tax base will grow more rapidly in the upper income brackets than the lower brackets. The effect will be to shift the tax burden toward higher income groups.

Thus, contrary to the current wisdom, we believe that a roughly proportional tax reduction—such as the program recently enacted by Congress—will shift the tax burden toward high-income taxpayers. In this article, we outline the theoretical case for this surprising proposition, and then investigate the historical record. Our analysis focuses on the 1964 tax cut, the tax cuts of the 1920s, and the 1932 tax increase.

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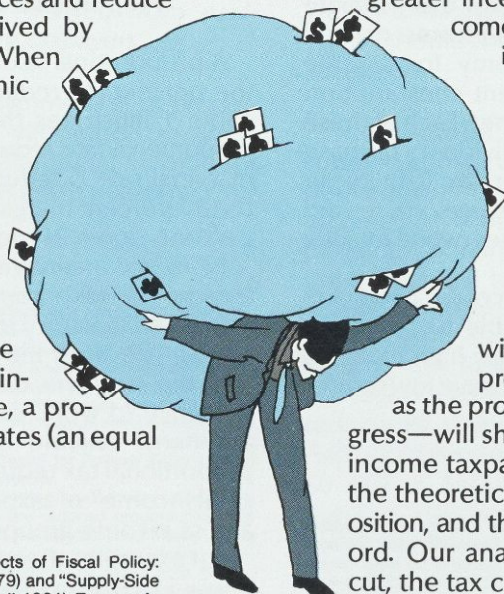
[1] See Robert Keleher, "Supply-Side Effects of Fiscal Policy: Some Preliminary Hypotheses" (June 1979) and "Supply-Side Tax Policy: Reviewing the Evidence" (April 1981) **Economic Review**, Federal Reserve Bank of Atlanta.

Table 1: The Impact of a 20 percent Proportional Tax Rate Reduction on the After-Tax Income of Taxpayers for Selected Marginal Tax Rates.

Initial Marginal Tax Rate for Income Bracket (1)	Marginal Tax Rate After a 20% Rate Reduction (2)	Percent of Each Additional Dollar Earned that the taxpayer is permitted to keep:		Percent Increase in the taxpayer's Return from an Additional Dollar of Income (5)
		Prior to Reduction (3)	Subsequent to Reduction (4)	
10	8	90	92	2.2
20	16	80	84	5.0
40	32	60	68	13.3
50	40	50	60	20.0
60	48	40	52	30.0
80	64	20	36	80.0
90	72	10	28	180.0

Tax Rates and Taxable Income

Changes in marginal tax rates influence both the supply of labor and capital and the efficiency with which these resources are transformed into desired goods. When tax rates change, individuals have an incentive to make several adjustments that will alter their taxable incomes. For example, rising marginal tax rates encourage persons to substitute (a) leisure for work,[2] (b) tax deductible expenditures for taxable expenditures, (c) tax shelter investments for investments that generate taxable income, (d) unreported income derived from the underground economy for taxable reported income, and (e) current consumption for savings (taxable future income). Each of these substitutions will reduce the individual's tax base and thereby reduce his or her tax liability. In short, higher tax rates reduce the personal reward derived from productive activities, while making tax avoidance more attractive.

Of course, tax avoidance is costly. Many tax avoidance projects are profitable to taxpayers only when they face exceedingly high marginal tax rates. Such projects typically have low returns

to society but are "subsidized" for the individual by a reduced tax liability. Lower marginal tax rates will reduce people's incentive to engage in tax avoidance, by permitting them to capture a larger proportion of the income derived from work, investment, saving and other activities that generate goods and services in exchange for taxable income. Therefore, if supply-side incentive effects are important, taxable income will expand in response to reduced tax rates.

The Incentive Effects of a Proportional Tax Rate Reduction

A proportional tax reduction is one for which the *percentage reduction* in tax rates is equal. Table 1 illustrates the pattern of a 20 percent proportional rate reduction, where the 10 percent marginal rate is reduced to 8 percent. Similarly, the 50 percent marginal tax rate is reduced to 40 percent, down 20 percent from the initial rate.

From an incentive standpoint, the after-tax income (or take-home pay) that taxpayers are permitted to keep if they expand their earnings is critical. The larger the share of additional earnings that the taxpayer can capture, the greater the incentive to work, save, and invest to generate additional taxable income. The impact of a proportional tax reduction on the after-tax "marginal income" of taxpayers will vary substantially across income groupings.

For example, after a 20 percent rate reduction, a low income taxpayer who had a 10 percent marginal tax rate finds himself permitted to keep

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[2]Individuals may also substitute "leisure intensive" jobs for less enjoyable but more remunerative "work intensive" jobs. Since the desirable non-monetary elements of a job are not taxable, high marginal tax rates reduce the incentive of workers to undertake various sacrifices (e.g., inflexible work schedule, out-of-town travel, job pressure, and hectic work environment) in order to earn additional *taxable* income.

92 cents of each dollar earned compared to 90 cents prior to the tax cut. The tax cut increases the *after-tax income per additional dollar earned* by 2.2 percent for this taxpayer. In contrast, taxpayers in the 50 percent marginal rate bracket will experience a 20 percent increase in after-tax earnings (from 50 cents to 60 cents per additional dollar earned) as the result of the proportional tax cut.

The increase in a taxpayer's after-tax income per dollar of marginal earnings is directly related to his initial marginal tax rate. For a progressive tax system, this means that high-income taxpayers will experience the largest increase in after-tax earnings (per dollar of additional income) for a proportional rate reduction. Therefore, the incentive effects of the rate reduction will exert a greater impact upon the taxable income of high-income recipients than on low-income taxpayers.[3]

An interesting corollary follows from this pattern of incentive effects. Because the incentive effects are greatest for wealthier taxpayers, they will be more likely than those with lower incomes to shift resources from various forms of tax avoidance into the generation of taxable income. Predictably, taxable income will grow most rapidly in higher income brackets. The rapid growth of taxable income in high-income brackets implies that the tax revenue derived from high-income taxpayers will decline by a smaller amount (or rise by a larger amount) than for taxpayers in lower income brackets.[4] *Therefore, a proportional reduction in tax rates will shift the tax burden (as measured by the share of tax revenue derived from each group) toward high-income taxpayers.*

The analysis is perfectly symmetrical. A proportional *increase* in tax rates will reduce the after-tax earnings per dollar of additional income for those with high incomes (and high initial marginal

tax rates) by the largest amount. Thus, as tax rates rise proportionally, high-income taxpayers will have stronger incentive to shift to tax avoidance than those with lesser incomes. Since the tax increase will exert a larger negative impact on the size of the tax base in higher income brackets, as tax *rates* rise, *the share of tax revenue collected from high income taxpayers* will decline.

That is what standard economic theory tells us *should* happen when tax rates are increased or reduced proportionally. Now let's examine the historical record of such tax changes and see what actually did happen.

The Distributional Impact of the 1964 Tax Cut

The 1964 tax cut has often been referred to as an "across the board" proportional tax cut. While the rate reductions were accompanied by an expansion in the number of income brackets, the tax cut was approximately proportional. For the lowest income bracket, the 20 percent rate of 1963 was reduced an average of 22.5 percent. At the top of the income scale, the maximum marginal rate was reduced 23 percent. In between, marginal rates for most income brackets were reduced by 17 percent, to 21 percent.

Given the pattern of these incentive effects, our theory indicates that the most rapid income gains should be registered by upper-income taxpayers.

The historical data support this theory. Measured in constant 1963 dollars, the total income derived from tax returns with an adjusted gross income (AGI) of less than $10,000 rose only 1 percent. In contrast, taxpayers with adjusted gross incomes between $10,000 and $50,000 registered approximately a 33 percent increase in aggregate income. Moving up to still higher income brackets, where our analysis indicates the most significant incentive effects of the rate reductions, still larger gains in AGI are found. Adjusted gross income derived from returns with an AGI of $50,000 to $100,000 rose by 39.1 percent. For income brackets above $100,000, constant dollar gains in AGI registered between 52.1 percent and 71.6 percent over the two-year period.

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[3]Some economists have argued that since a tax cut also increases the level of income for the taxpayer, the "income effect" may encourage individuals to reduce their work effort, at least partially offsetting the impact of the substitution effect. While this is true for the individual, it is highly questionable when applied to the aggregate labor market. When considering the income effect for the economy as a whole, we must also look at how the change in tax rates (and revenues) affects the availability of goods supplied through the public sector. For a detailed analysis of this issue, see J. Gwartney and R. Stroup, "Labor Supply and Taxation: A Correction of the Record," unpublished paper available from the Center for Political Economy and National Resources, Montana State University.

[4]Tax revenues are equal to (a) the applicable tax rate(s) multiplied by (b) the size of the tax base. When the rates are reduced proportionally, tax revenues will vary directly with changes in the "taxable income base." Since the positive incentive effects of a proportional tax reduction are greatest in the upper income brackets, the rate reduction will cause both taxable income and the revenues collected in the upper brackets to expand relative to the lower brackets.

Table 2: The Growth Rate of Adjusted Gross Income and Tax Revenues for Tax Returns Reporting Income of $50,000 or more Prior to and Subsequent to the 1964 Tax Cut (Data Are Measured in Constant 1963 Dollars)

Year	Adjusted Gross Income (Billions of Constant 1963 Dollars) Returns with AGI Greater than $50,000	Tax Revenue Collected (Billions of Constant 1963 Dollars) Returns with AGI Greater than $50,000	Average Tax Rate
1960	$11.99	$4.54	37.9
1961	13.75	5.21	37.9
1962	13.62	5.04	37.0
1963	14.60	5.38	36.8
1964	17.67	6.08	34.4
1965	21.33	7.20	33.8
1966	23.65	7.97	33.7
Average Growth Rate (percent):			
1961-63	7.0	6.1	—
1964-66	17.5	14.1	—

Source: Internal Revenue Service, **Statistics of Income: Individual Income Tax Returns** (Annual).

Chart 1 sheds additional light on the impact of the 1964 reductions on returns reporting an adjusted gross income of $50,000 or more during the 1959-66 period. Between 1959 and 1963, the number of these high-income returns ranged from 125,000 to 162,000. Only a slight upward trend was observable. After the rate reduction, the number of high-income returns grew rapidly, reaching 272,000 by 1966. Clearly, the tax cut was accompanied by an acceleration in the number of returns with an AGI of $50,000 or more.

The Growth of Tax Returns Reporting Income of $50,000 or More, 1959-66

Source: Internal Revenue Service, **Statistics of Income: Individual Income Tax Returns** (Annual)
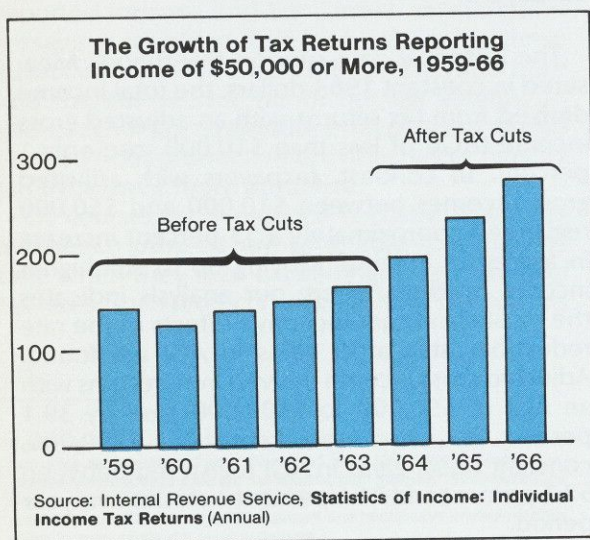
Table 2 presents data on the growth of adjusted gross income and tax revenues collected from returns with an AGI of $50,000 or more for the 1960-66 period. The adjusted gross income derived from these high-income taxpayers grew at a 7 percent annual rate during the three years immediately prior to the tax cut. The picture was quite different for 1964-66. During the three years subsequent to the rate reductions, the AGI (measured in constant 1963 dollars) derived from returns reporting incomes of $50,000 or more, rose at an annual rate of 17.5 percent!

The growth rate of tax revenues derived from these taxpayers followed a similar pattern. For the 1961-63 period, the real tax revenue collected from returns with an income of $50,000 or more rose at an annual rate of 6.1 percent. In the three years after the tax cut, tax revenues collected from these taxpayers grew at an annual rate of 14.1 percent. Even though the average (and more importantly the marginal) tax rate of taxpayers with incomes of $50,000 or more declined, the constant dollar *growth rate* of revenues collected in this category rose substantially.

Are Other Factors at Work?

With the passage of time, many factors other than the incentive effects of lower marginal tax rates may contribute to income growth. As real

Table 3: The Share of Tax Revenue Collected from Various Percentile Groupings Ranked According to Adjusted Gross Income Prior to and Subsequent to the 1964 Reduction in Tax Rates

Percentile of All Returns (Ranked from Lowest to Highest Income)	Tax Revenues Collected from Group (in billions of 1963 dollars)[a]			Percent of Personal Income Taxes Collected from Group[a]	
	1963	1965	Percent Change	1963	1965
Bottom 50 percent	$ 5.01	$ 4.55	−9.2	10.4	9.5
50 to 75 percentile	10.02	9.61	−4.1	20.8	20.0
75 to 95 percentile	16.00	15.41	−3.7	33.2	32.1
Top 5 percent	17.17	18.49	+7.7	35.6	38.5
Total	$48.20	$48.06	−0.3	100.0	100.0

[a]These estimates were derived via interpolation.

Source: Internal Revenue Service, **Statistics of Income: Individual Income Tax Returns** (1963 and 1965).

income grows, individuals will move to higher income brackets. Even for a period as short as two years, the shifting of individuals across income brackets for reasons unrelated to the tax cut could reduce the reliability of data based on income brackets. For example, if such growth reduced the total number of taxpayers in lower income brackets and shifted them into higher ones, that alone could explain the expansion of higher income groups' gross income.

To correct for such shifts across income classes, we analyzed the change in net income by percentile groupings. For the bottom 50 percent of returns, *measured in constant dollars*, the adjusted gross income rose from $70.75 billion in 1963 to $77.66 billion in 1965, an increase of 9.8 percent. Other groupings registered even more rapid gains. Returns with incomes in the 50 to 75 percentile and 75 to 95 percentile range experienced growth rates in adjusted gross income of 13.1 percent and 12.4 percent respectively. Just as our analysis would expect, the largest income gains were registered by the top 5 percent grouping—the category where the decline in marginal tax rates increased after-tax earnings by the largest amount. The adjusted gross income (measured in constant 1963 dollars) in this top 5 percent category, representing returns with an income of more than $13,667 in 1963 and $15,000 in 1965, rose from $76.24 billion in 1963 to $88.86 billion in 1965, an increase of

16.6 percent. Thus, the growth rate of adjusted gross income in the top 5 percent group was nearly 70 percent greater (16.6 percent compared to 9.8 percent) than the growth for the lowest 50 percentile, where incentive effects of the tax cut would have been weakest.

Given this pattern of income, Table 3 illustrates the change in tax collections according to percentile groupings. For the bottom 50 percentile, tax revenues (measured in 1963 dollars) declined from $5.01 billion in 1963 to $4.55 billion in 1965, a reduction of 9.2 percent. Clearly, the evidence does not support the backward bending Laffer Curve for this grouping.[5]

Revenue collections from returns in the 50 to 75 percentile and 75 to 95 percentile also declined, although by a smaller percent than for the lowest income grouping. In all three of these income categories, the negative impact of the rate reductions on tax revenues overshadowed the positive impact of income growth on tax revenues. Therefore, tax revenues collected in these income categories in 1965 were lower than in 1963.

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[5]The backward bending portion of a Laffer Curve results when *lower* tax rates cause income to rise by an amount sufficient to induce an *increase* in tax revenues. While this was not true for the bottom 95 percent of taxpayers, the data do indicate that it may have been present for the top five percent. Marginal tax rates for this group of high income recipients declined from the 30-91 percent range in 1963 to the 25-70 percent range in 1965. Nonetheless, as Table 3 shows, the tax revenue collected from them was 7.7 percent greater in 1965 than for 1963.

The picture for the top 5 percentile of returns was quite different. In this category, measured in constant 1963 dollars, federal tax revenue collections from personal income rose from $17.17 billion in 1963 to $18.49 billion in 1965, an increase of 7.7 percent. While tax collections declined between 1963 and 1965 for all other groupings, the top 5 percent of returns registered a healthy 7.7 percent expansion. Tax revenue grew because the rapid expansion in taxable income more than offset the loss of tax revenue from the rate reductions.

Just as our theory predicts, the roughly proportional tax rate reduction of 1964 shifted the tax burden to high income groupings. Since the growth of income was more rapid for high than low income taxpayers, the proportional reduction in rates increased the share of tax revenue collected from more prosperous recipients. As Table 3 illustrates, in 1965 the 5 percent of returns with the highest incomes paid 38.5 percent of the income taxes, compared to only 35.6 percent in 1963, prior to the rate reduction. Simultaneously, the proportion of income tax revenue derived from the bottom 50 percent fell from 10.9 percent in 1963 to 9.5 percent in 1965.

The Tax Cuts of the 1920s

In addition to the 1964 tax cut, there have been two other instances in this century of major peacetime tax rate changes in the United States. During the 1920s a series of tax reductions substantially altered the tax structure. In 1932, the largest peacetime tax rate increase in U. S. history was imposed. We will briefly analyze the nature of these two changes and investigate their impact on the growth of income (and tax revenue) across income brackets.

Three major tax reductions—engineered by Secretary of the Treasury Andrew Mellon—were enacted during the 1920s—in 1922, 1924 and 1926. Like the supply-siders of today, Mellon argued that the high marginal tax rates imposed during World War I retarded economic growth, while encouraging the flight of income into areas exempt from taxation.[6] Opponents of the tax reductions argued that high tax rates were necessary to generate revenue that would permit a reduction in the huge debt incurred during World War I. Believing there was a roughly proportional relationship between tax rates and

> " . . . the tax base proved highly responsive to changes in the incentive structure during the 1920s."

tax revenues, many congressmen concerned about the size of the debt were reluctant to reduce the high marginal surtax rates that had been imposed during the war.

There was also widespread disagreement about the distributional impact of the tax reduction. Predictably, Mellon argued that lower rates would reduce the incidence of tax avoidance and lead to an expansion in the tax base. He believed that lower rates would increase the tax revenue collected from the rich. Critics of the tax cuts argued that they were a boon to the rich. In his summary of the Revenue Act of 1926 published by the prestigious **American Economic Review**, Professor Roy Blakey of the University of Minnesota concludes, "In a word, taxes on the rich, especially on the very rich, have been greatly reduced. In order to secure political support for this big reduction (in marginal tax rates) on large incomes and estates, smaller tax cuts were handed out all down the line."[7]

Despite the opposition, tax cut advocates carried the day. When considered as a package, two characteristics of the tax reductions during the 1920s stand out. First, the marginal tax rates in the upper income brackets were slashed.

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[6] In his book **Taxation: The People's Business** published in 1924, Secretary Mellon wrote:
"The existing system of taxation was formed to meet wartime conditions.... The vital defect in our present system is that the burden is borne by wealth in the making, not by capital already in existence. We place a tax on energy and initiative; and at the same time provide a refuge in the form of tax-exempt securities, into which wealth that has been accumulated or inherited can retire and defy the tax collector."

[7] Roy Blakey, "The Revenue Act of 1926," **American Economic Review** (September 1926), p. 401.

Table 4: The Tax Revenue Collected According to Income Groupings Prior to and Subsequent to the Series of Reductions in Tax Rates Instituted During the 1920s.

| Net Income Grouping | Tax Revenue Collected from Income Grouping (in millions of constant 1929 dollars) | | | Percent of Tax Revenue Collected from Grouping | |
	1921	1926	Percent Change	1921	1926
Less than $10,000	$155.1	$ 32.5	− 79.3	22.5	4.6
$10,000 to $25,000	121.8	70.3	− 43.2	17.6	9.9
$25,000 to $50,000	108.3	109.4	+ 1.0	15.7	15.4
$50,000 to $100,000	111.1	136.6	+ 23.0	16.1	19.2
Over $100,000	194.0	361.5	+ 86.3	28.1	50.9
Total	$690.2	$710.2	+ 2.9	100.0	100.0

Source: Internal Revenue Service, **Statistics of Income** (Annual).

While the marginal rates ran to 73 percent in 1921, the top rate was cut to 25 percent by 1926. Clearly, the progressivity of the personal income tax was substantially reduced during the five-year period. Second, the personal income tax liability was eliminated or virtually eliminated for low-income recipients during this same period. As the personal exemption allowance and the minimum income for filing were increased, millions of taxpayers were removed from the tax rolls. The number of returns filed declined from 6.66 million in 1921 to 4.14 million in 1926.[8]

The economy's performance during the 1921-26 period was quite impressive. Price stability accompanied a rapid growth in real output. The tax cuts granted the largest increases in after-tax take home pay to those in the highest income brackets.[9] At the bottom of the income scale, the take-home pay of a married couple earning between $5,000 and $10,000 rose from the 89-91 percent range in 1921 to the 95-97 percent range in 1926. In contrast, the take-home pay on marginal earnings for a married couple with a net income of $100,000 or more rose from the 27 to 40 percent range in 1921 to 75 percent in 1926. Clearly, the tax rate reductions during the 1920s indicate that the incentive to earn additional

taxable income was enhanced most for people in the upper income brackets.

How was the growth of income across income groupings affected by the tax cut? Measured in dollars of constant purchasing power, the net income of taxpayers in the $5,000-$10,000 bracket rose 63.1 percent between 1921 and 1926, a healthy increase of more than 10 percent annually.[10] However, those in higher income brackets registered even more rapid gains. For the $10,000-$25,000 grouping, net income reported for tax purposes rose by 82.9 percent during the five-year interval. Persons with incomes between $25,000 and $100,000 registered gains of more than 100 percent during the period. At the top of the scale, where marginal tax rates were reduced dramatically from 73 percent to 25 percent, the reported net income of returns with incomes of $100,000 or more *rose* 421.9 percent (a compound annual rate of 39 percent) in just five years! Just as Secretary Mellon had predicted, high income individuals apparently adjusted their affairs, substituting away from the various forms of tax shelters and leisure toward the earning of taxable income as their marginal rates were reduced substantially.

Table 4 presents evidence on the impact of the 1920s rate reductions and other tax changes on distribution of the tax burden. In aggregate, real

[8]The number of *taxable* returns declined from 3.59 million in 1921 to 2.47 million in 1926.

[9]Remember, after-tax take-home pay per marginal dollar of earnings is the major determinant of one's incentive to earn additional taxable income. Of course, the percent of one's take-home pay per marginal dollar of earnings is equal to 100 percent minus one's marginal tax rate.

[10]Since the filing status and exemption allowances were also changed, it is not possible to make income comparisons between 1921 and 1926 for brackets below $5000.

tax revenues were 2.9 percent higher in 1926 than in 1921. However, tax revenue collected from income groupings of less than $25,000 actually declined. The tax revenue derived from incomes of $10,000 or less fell from $155.1 million in 1921 to $32.5 million in 1926, a decline of 79 percent. In contrast, collections from taxpayers reporting a net income of $50,000 or more rose from $305.1 million in 1921 to $498.1, an increase of 63.2 percent.

Clearly, even though the progressivity of the personal income tax was reduced substantially, the tax changes of the 1920s shifted the burden toward high-income recipients. As the last two columns of Table 4 show, only 4.6 percent of the personal income tax revenues collected in 1926 came from returns with a net income of $10,000 or less, compared to 22.5 percent in 1921. In contrast, in 1926, fully 50.9 percent of the total income tax revenue came from returns with an income of $100,000 or more, compared to only 28.1 percent collected from this same grouping in 1921.

These findings illustrate that the tax base proved highly responsive to changes in the incentive structure during the 1920s. Like our analysis of the 1964 rate reductions, as a result of the strong response of high-income taxpayers, the tax cuts of the 1920s actually shifted the tax burden to the higher income brackets even though the *rate* reductions were greatest in this area.

The Tax Increase of 1932

The view that government should at least balance its budget was an accepted orthodoxy in the 1930s. Throughout the 1920s the budget had run a surplus. Substantial progress was made toward retiring the World War I debt. Even during the recession year of 1930, the federal budget ran a small surplus. As the recession worsened during 1931, however, a budget deficit was incurred. As the budget situation continued to deteriorate in 1932, President Herbert Hoover, assisted by the newly elected Democratic majority in the House of Representatives, moved to reinstitute the high marginal tax rates of the early 1920s. For taxpayers with less than $10,000 net income, rates were increased from the 1.5 to 5 percent range in 1931 to 4 to 9 percent in 1932.

The progressivity of the system was increased sharply. A person with $50,000 of taxable income confronted a 30 percent marginal rate in 1932, compared to 18 percent in 1931. For $100,000 of taxable income, the rate jumped from 25 percent to 56 percent. While the 25 percent rate constituted a ceiling in 1931, the effective marginal rates ran up to 63 percent in 1932.

What impact did these rate increases have on taxable income? In aggregate, the net income reported to the IRS fell by 4.7 percent during the first year the tax rate increases were imposed. The percentage decline across income groups was highly uneven. The largest decline in reported income was registered at the very top of the income pyramid. Measured in constant 1931 dollars, the reported net income from returns with incomes in excess of $300,000 fell a whopping 49.1 percent in a single year. Several other income classes above $10,000 registered double-digit reductions in reported net income.

In contrast, the net income derived from returns with less than $10,000 of income (less than $8,985 in 1932 in order to adjust for the deflation), actually increased slightly, by 2.8 percent. Just as the 1920s data indicates that a reduction in marginal tax rates rapidly increased the reported net income from high income returns, the 1932 data suggest a rapid decline in the reported net income in upper brackets as the marginal rates increased sharply.

Table 5 illustrates the impact of the 1932 tax increase upon tax revenues according to income classes. Overall, measured in constant dollars, tax revenues rose by 49.2 percent. However, the increase in tax revenue was far greater in the *lower* income groupings—particularly the under $10,000 category. Tax revenues collected from returns with a net income of $25,000 or less rose from $51.6 million in 1931 to $134.0 million in 1932, an increase of 160 percent in a single year. While the marginal *rates* on incomes above $25,000 rose sharply in 1932, the revenue increases derived from the high rates were much more modest. Measured in constant dollar terms, the total tax revenue collected from returns reporting more than $25,000 of net income rose from $194.6 million in 1931 to $233.4 million in 1932, a growth of 19.9 percent.

The big increases in marginal tax *rates* levied against large incomes did increase revenue collections from these classes. However, the growth

Table 5: The Tax Revenues Collected According to Income Groupings (Measured in Constant 1931 Dollars) Prior to and Subsequent to the Tax Rate Increase of 1932

Net Income Grouping (constant 1931 dollars)[a]	Tax Revenues Collected from Grouping (in millions of constant 1931 dollars)[b]			Share of Tax Revenues Contributed	
	1931	1932	Change	1931	1932
Less than $25,000	$ 51.6	$134.0	+ 159.7	% 21.0	% 36.5
$25,000 to $50,000	40.1	48.1	+ 20.0	16.3	13.0
$50,000 to $100,000	44.8	51.7	+ 15.7	18.2	14.1
$100,000 to $300,000	51.9	66.2	+ 27.6	21.1	18.0
Over $300,000	57.8	67.4	+ 16.6	23.5	18.4
Total	$246.1	$367.3	+ 49.2	100.0	100.0

[a]The parallel constant dollar brackets for 1932 are: (a) less than $8,985, (b) $8,985 to $22,462, (c) $22,462 to $44,923, (d) $44,923 to $89,846 and (e) over $89,846.
[b]The 1932 tax revenue data were **inflated** to adjust for the decline in prices during the period.
Source: Internal Revenue Service, **Statistics of Income** (Annual)

of tax *revenues* was much more modest than for the lower income categories. In the $50,000-$100,000 brackets, where the marginal tax rates approximately doubled, tax revenues expanded by only 15.7 percent. Similar revenue growth was derived from incomes above $100,000, where marginal tax rates more than doubled. Thus, for high incomes, the large increases in tax *rates* did not increase tax revenues by very much.

Implications of the Analysis

Our analysis indicates that the tax base responds to changes in marginal tax rates. Economic theory indicates that a reduction in marginal tax rates will increase people's incentive to earn more taxable income. Further, this incentive will be higher for higher income groups.

Like the 1964 rate reductions, the 1981 tax cut is roughly an across-the-board proportional reduction in tax rates. By the time it is fully effective in 1984, the tax rates on money income will be between 20 and 25 percent lower than the parallel marginal rates of 1980.[11] Nonetheless, it has often been criticized as a "welfare for the rich" approach. Even highly placed administration officials have implied that the tax cut's major objective was to reduce the taxes of high-income recipients. Therefore, it is widely perceived that the Reagan tax cut will shift the tax burden away from high income taxpayers and toward those with lesser income.

The historical evidence indicates that this criticism is misplaced. Previous changes in tax rates suggest that the tax base will increase most in those income brackets where the rate change induces the largest increase in take-home pay per dollar of marginal income. For the Reagan plan, as for proportional rate reductions in general, this means that the positive incentive effects will be greatest in the upper income brackets. Predictably, a more rapid expansion of the tax base in the upper income brackets will lead to an increase in the share of income tax revenue collected from high-income groups.

Therefore, the 1981-84 rate reductions seem likely to increase the share of tax revenue derived from high-income recipients compared with those derived from taxpayers with lesser income. Far from shifting the tax burden toward the poor, the Reagan program will shift the tax burden toward the rich.

—James Gwartney
and Richard Stroup

[11]Of course, these data refer to income measured in money terms. Since the indexing of the rate structure is not scheduled to begin until 1985, inflation will continue to push persons with a *constant real income* into high marginal tax brackets. Our work indicates than on average, once account is taken for inflation, the marginal tax rates of a person with a 1980 income of less than $50,000 will be virtually unchanged if earnings and the annual inflation rate during 1981-84 averages between 10 percent and 12 percent. Therefore, it is not obvious that significant supply-side incentive effects will result from the Reagan tax cut.

Lumbering at Top Speed: The Check Collection System, 1952 - 1979

Banks now have more incentive than ever to collect checks quickly. But the historical evidence casts doubt on whether increased local clearing and enhanced Fed and correspondent collection services will result in significantly faster check collection.

Like some kind of awkward creature in a race for survival, the U.S. check collection system has evolved to keep pace in its changing environment. Yet the speed of collection has remained essentially unchanged for the last 27 years.

Today, the check collection system is facing pressures that seem to presage significant change. The pricing of Federal Reserve check collection services, which began in 1981, and high labor and transportation costs are raising the cost of check collection, while high interest rates are making it more important to collect checks quickly. In response to these pressures, banks in many areas are creating or reestablishing local clearing arrangements, and correspondent banks are upgrading their check collection services.

It seems reasonable to expect a substantially streamlined check collection system to emerge from these pressures. However, history suggests otherwise. The period between 1952 and 1979 also saw considerable social, structural, and technological change, but the banking industry's responses to these changes produced no significant improvement in check collection speed.

1952

On a typical day in 1952 the nation's banks of first deposit received about 28 million checks from their customers. About 20 percent of those items were drawn on the banks in which they were first deposited ("on-us" checks). The remaining 80 percent were "on-others" checks.

Almost 40 percent of the 22 million on-others checks processed for collection on day 2 were drawn on banks in or near the same locality as the first receiving bank. These items were collected from the local banks either directly or through local or regional clearing arrangements. Checks drawn on non-local banks were collected through correspondents and Federal Reserve Banks. Correspondent banks received 28.4 percent of all on-others items sent for collection by banks of first deposit, and the Fed received 32.1 percent. Thus the Fed had about a 3.7 percent market share advantage over the correspondent banking system.

Speed of Collection

Some checks were processed by only one or two financial institutions while others were processed by as many as seven banks. The percentage of items that were paid on each day and the weighted average number of days each check remained in the check collection system are shown in Table 1. Because it is based on a model that represents only the *essential features* of a real-world situation, Table 1 "tends to overstate the speed of payment and understate the volume of items in process of collection... In other words, the outline shows checks being collected about 25 percent faster than they actually are collected."[1] This suggests the average speed may have been as long as 2.6 days. The estimated average time a check remained in the process of collection in 1952 was 2.3 days, which is approximately at the mid-point of the 2.1-2.6 day range.[2]

1967

During the late 1950s and throughout the 1960s the banking industry focused on automating check processing operations to alleviate the pressure generated by continued check volume growth. The concept of electronic funds transfer (EFT) was a natural outgrowth of banks' automation efforts. A Bank Administration Institute (BAI) study for an EFT system design resulted in

Table 1

Percent of Bank-of-First-Deposit
Items Paid Per Day in 1952

Day	Number paid (millions)	Percent Paid
1	5.835	21.0
2	15.431	55.4
3	5.304	19.1
4	1.116	4.0
5	.128	0.5
6	.012	*
7	.004	*
	27.830	100.0

Weighted average speed of collection 2.1 days

*Less than 0.05 percent

an updated model of the check collection system.

On a typical day in 1967, about 74 million items were received by banks of first deposit, nearly triple the number received by banks in 1952.[3] A larger population and the increased financial activity of consumers contributed to the larger check volume.

A second change revealed by the 1967 model was that a larger proportion of bank-of-first-deposit items were on-us checks that were paid on the same day they were deposited. In 1952 about 1 in 5 bank-of-first deposit items were on-us checks; in 1967 the ratio was nearly 3 in 10. This change may have been due to the concentration and branch expansion that took place during 1952-1967. In 1967 there were 347 fewer banks and 12,185 more bank offices than in 1952.[4]

Third, the proportion of on-others items collected from local banks either directly or through local clearing arrangements dropped almost 6 percentage points from the 39.5 percent calculated from the 1952 model to

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[1]Joint Committee onCheck Collection System, **Study of Check Collection System** (Washington, D. C., 1954), p. 133, cited as the **Wurts Report.**
[2]Ibid., p. 22.

[3]In the late 1960s the Bank Administration Institute began an EFT study that was the basis of the BAI project report titled **An Electronic Network for Interbank Payment Communications: A Design Study.** Data about check flows in the United States were collected for that study, and later they were used as the foundation of another BAI report. **The Check Collection System: A Quantitative Description.**
[4]Federal Deposit Insurance Corporation. **Annual Report of the Federal Deposit Insurance Corporation for the Year Ended December 31, 1952** (Washington, D.C., 1953), pp. 84 and 85; and **Annual Report of the Federal Deposit Insurance Corporation: 1967** (Washington, D.C. 1968), pp. 156 and 157.

33.6 percent in 1967. A considerable portion of this change may be related to a 27 percent decrease in the number of local clearinghouses in operation between 1952 and 1967.[5] However, it is not clear whether the demise of many clearinghouses was the result of a decline in the percentage of local items in the mix of bank-of-first-deposit checks in some locations or if local clearinghouses were displaced by other check collection intermediaries without regard for the local and non-local components in the item mix.

A final difference was in the number of days necessary for all checks received in a single day's deposits to completely clear the system. The 1952 model indicated that a total of seven days was required, but the 1967 model showed the elapsed time to be only five days. Since both models appeared to assume overnight transportation,[6] this difference suggests that some of the circuitous check routing that took place in 1952 had been eliminated. The improvement may have been related to the virtual disappearance of non-par checks by 1967. Some of the circuitous routing in 1952 was caused by banks' effort to avoid exchange charges on non-par checks.

Model Similarities: 1952 and 1967

The 1952 and 1967 check flow models displayed two striking similarities. First, the relationship between correspondents' and Federal Reserve Banks' market share of on-others checks received from banks of first deposit was virtually unchanged. Both correspondents and Federal Reserve Banks gained market share as the number of local clearing arrangements declined; the Fed gained 3.1 percentage points; and correspondents gained 2.8 percentage points. This relatively equitable distribution of items formerly sent to local clearings seems to support the hypothesis that clearinghouse closings were largely the result of social, structural and technological developments, rather than of a concerted effort to improve the check collection system.

Second, the average number of institutions that processed each check was essentially the same. While the BAI reported that on average each check written was processed by 2.6 institutions, it apparently did not consider the difference to be significant. The BAI report noted, "Two theoretical patterns were used by the 1952 'Study of the Check Collection System' to arrive at a similar figure of 2.4; one pattern developed 2.6, and the other 2.2."[7]

1979

A third model was developed in 1979 as part of a study conducted by the Federal Reserve Bank of Atlanta for the American Bankers Association, the Bank Administration Institute, and the Federal Reserve System. That model showed an increase in check volume but stability in the average number of institutions that processed each check. The study stated, "On average, each of the 32 billion commercial bank checks written in 1979 was processed by 2.4 institutions.[8] The study also noted, "The 'best condition' estimate of the average speed of collection was 1.9 days," a miniscule improvement over the model developed in 1952.[9]

Check Disposition Patterns

The nation's banks received 126 million bank-of-first-deposit items on a typical day in 1979. Of these, 36 million items (29 percent) were drawn on the banks in which they were first deposited and were paid on the day they were received. The 89 million on-others items received by banks of first deposit were sent to the three categories of check collection intermediaries in the following proportions:

Federal Reserve Banks	41.2 percent
Local clearinghouses	22.1 percent
Correspondents and other banks	36.7 percent

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[5]Rand McNally & Company, **Rand McNally Bankers Directory** (First 1953 Edition) Chicago, Il., 1953, pp. 298-305; and **Rand McNally International Bankers Directory** (First 1968 Edition) Chicago, Il., 1968, pp. 62-65.
[6]The assumptions underlying the BAI model were not clearly specified in the report or in the technical appendices, which are contained in the earlier document, **An Electronic Network for Interbank Payment Communications.** The appendices only suggest that the **Wurts Report** model was used in developing the BAI's model.

[7]Linda M. Fenner and Robert H. Long, **The Check Collection System: A Quantitative Description.** (Park Ridge, Illinois: Bank Administration Institute, 1970), p. 18. This study will be cited as the **BAI Study.**
[8]Federal Reserve Bank of Atlanta. **A Quantitative Description of the Check Collection System** (American Bankers Association and Bank Administration Institute: Washington, D.C., 1981), p. 5. This study will be cited as the **Atlanta Fed Check Study.**
[9]Ibid. p. 4. [10]Rand McNally & Company. **Rand McNally International Bankers Directory** (First 1968 Edition), Chicago, Il., 1968, pp. 62-65; and **Rand McNally International Bankers Directory.** (First 1980 Edition), Chicago, Il., 1980, pp. 50-54.

1979 Check Flow Model
in millions of items

A. Banks of First Deposit
B. Federal Reserve Banks
C. Correspondents
D. Local Clearinghouses
E. On-Us
F. RCPC Banks
G. Reserve City Banks
H. Country Banks
I. Payor Banks

Day 1
Processed: 125.6
Paid: 36.3

A 125.6 → E 36.3

36.8   19.7

Day 2
Processed: 126.2
Paid: 64.2

F 18.8   B 36.8   G 11.2   E 7.6   C 32.8   6.9   D 26.6   I 26.6

3.3   14.0

Day 3
Processed: 40.8
Paid: 22.6

H 3.5   F 9.7   B 17.3   G 5.8   E 3.4   C 4.3   D 0.2   I 0.2

Day 4
Processed: 3.0
Paid: 2.3

H 1.8   F 0.5   B 0.7   G 0.0

Day 5
Processed: 0.2
Paid: 0.2

H 0.2
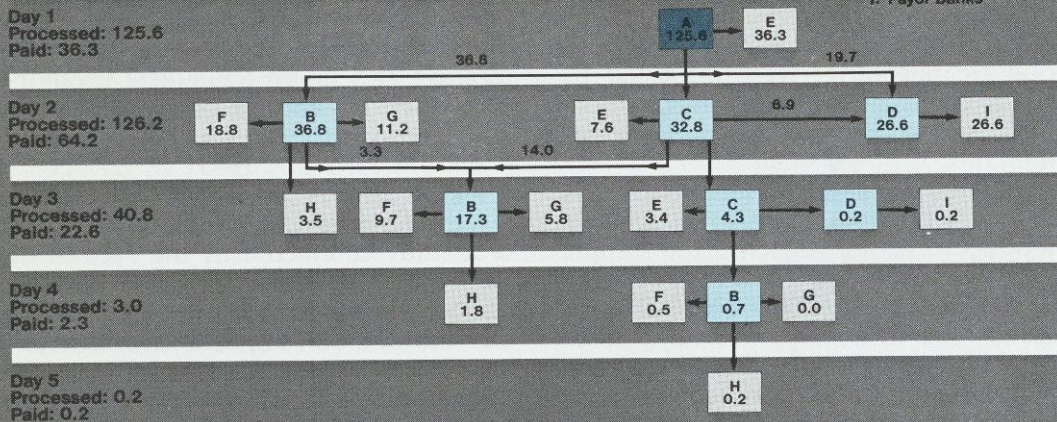
KEY:
input, i.e., banks of first deposit
intermediary processing or pass-through (local clearinghouses) points
output, i.e., items paid by payor banks

Source: ABA and BAI: A Quantitative Description of the Check Collection System.

The percentage of on-us checks received as bank-of-first-deposit items in 1979 was very similar to what it was in 1967, and the change in the distribution of on-others checks was consistent with the 1967 pattern. That is, as the number of local clearinghouses fell (from 237 in 1967 to 146 in 1979[10]) the share of bank-of-first-deposit items collected through local clearing arrangements fell from 33.6 to 22.1 percent. Analysis of the 1979 model showed that correspondent banks picked up 5.5 of the 11.5 percentage points lost by local clearinghouses, and the Federal Reserve System picked up 6.0 percentage points. This consistency with the market share shift patterns of 1967 suggests that commercial banks, acting in their role as banks of first deposit, did not initiate the changes to improve the check collection system but only reacted to changes in their external environment.

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[10]Rand McNally & Company. **Rand McNally International Bankers Directory** (First 1968 Edition), Chicago, Il., 1968, pp. 62-65; and **Rand McNally International Bankers Directory**. (First 1980 Edition), Chicago, Il., 1980, pp. 50-54.

Impact of RCPCs

A change in availability schedules at the Fed, not a major shift in check collection patterns, appears to have been responsible for most of the reduction in the best-condition average speed of check collection between 1967 and 1979. The change in availability was a part of the Fed's Regional Check Processing Center (RCPC) program implemented in the early 1970s.

The RCPC concept evolved out of the recommendations presented in the **Wurts Report** in 1954. In some regions of the country the Fed established regional check processing facilities that were remote from a Fed head office or branch and designated the geographical area surrounding these facilities as RCPC areas. In other instances, RCPC areas were established, but check processing was actually performed at a Fed head office or branch. The RCPC program incorporated three major changes in the Fed's check collection policies. First, immediate credit (same day availability) was granted on items drawn on RCPC banks. Second, the Fed

Table 2

Impact of RCPCs on Weighted Average Speed of Check Collection

Day	Percent of Average Day's Bank-of-First-Deposit Items Paid Over 5-Day Check Flow Period	
	AFCS* Model	Extrapolation from AFCS Model**
1	28.9%	28.9%
2	51.1	36.8
3	18.0	28.3
4	1.8	6.1
5	0.2	0.6
	100.0%	100.0%
Weighted Average Speed of Collection	1.9	2.2

*Atlanta Fed Check Study
**Extrapolation based on assumption that check disposition patterns remained constant but availavility of RCPC items was 2 days.

required RCPC banks to make immediate payment in a form readily available to the presenting bank (i.e., reserve account balances at the Fed) for the cash letters it delivered to them. Finally nonmember RCPC banks were permitted limited access to Fed check collection services.

The impact that RCPCs had on the average speed of check collection under optimal conditions is shown in Table 2. The first column shows the percentage of items that were paid on each day of the 5-day flow period depicted in the 1979 check flow model. The second column shows the percentages that would have been paid on each day if items drawn on RCPC banks had received deferred credit (next-day availability), as they did under the Fed's pre-RCPC policies. Table 2 shows that the RCPC program resulted in about 0.3-day improvement in weighted average speed of collection.

Conclusion

The check collection system has shown a surprising degree of stability over the past 30 years. There has been a gradual reduction in the number of local clearinghouses in operation and, hence, in the proportion of items collected via local clearings. However, the volume displaced by local clearinghouse closings has been redistributed to correspondents and Federal Reserve Banks in nearly equal proportions. The difference between the proportion of on-others items sent by banks of first deposit

to the Fed and the proportion sent to correspondents increased less than 1 percentage point between 1952 and 1979. Neither intermediary has gained a substantial market advantage over the other.

Furthermore, on average each check written has been processed by 2.2 - 2.6 financial institutions throughout the period. In 1952 and 1967, the average speed of collection was equal to the average number of processors per item. The only development that appears to have had a noticeable impact on the average speed of collection is the Fed's RCPC program, which changed the availability schedule for items drawn on over 9,000 RCPC banks.

In view of the historical evidence, it seems reasonable to question whether present efforts to establish local clearing arrangements and enhance Fed and correspondent check collection services will result in significant improvements in check collection speed. In fact, one can question whether the speed at which the system operates can be substantially improved (as long as the system relies solely on a paper document). Certainly the industry can work to reduce the number of rejects and exception items and improve the rate at which return items are handled. However, the best possible speed of collection under ideal processing and transportation conditions can only be improved to 1.7 days if the 30/70 percent split between on-us and on-other items in bank-of-first-deposit checks remains steady and if all on-others items are paid on day 2. The potential of the check collection system is limited by the need to transport checks physically and to batch process them.

Because of the limitations inherent in the check collection system, banks must carefully evaluate their responses to the changes that are occurring today. While the check collection system must continue to function to serve the needs of payors and payees, and while banks will certainly seek to profit from the changes, in the long run investments in the check collection system may only maintain the status quo in a system that is reaching its maximum potential. A delicate balance must be sought between resources committed to maintaining the check collection system and those invested in developing and promoting alternatives to the check.

—Donald L. Koch,
Veronica M. Bennett,
and Paul F. Metzker

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Regulation of Bank Capital: An Evaluation

Shrinking profit margins in the 1980s may well make it increasingly difficult for banks to maintain currently required capital ratios. Regulators should consider innovative alternatives, such as the equal marginal capital approach or the deregulation of large institutions.

Introduction

How much capital should a commercial bank have to ensure its own health and the health of the banking system? The question has been the subject of increasingly vigorous discussion in the industry and its regulatory agencies.[1] The regulators impose minimum capital ratios on banks to ensure that public confidence in financial institutions remains high. Banks, on the other hand, argue that they are hurt by the requirements, since they must retain significant portions of their earnings or raise capital in direct competition with unregulated firms.

Determining what are adequate capital levels in commercial banking organizations is a complex and difficult problem. The debate has centered on two major issues. First, what are adequate levels of capital for each bank and

[1]The Federal Reserve regulates state chartered member banks, the Comptroller of the Currency regulates national banks, and the FDIC regulates state chartered nonmember banks. Various states also actively enforce capital requirements on their institutions.
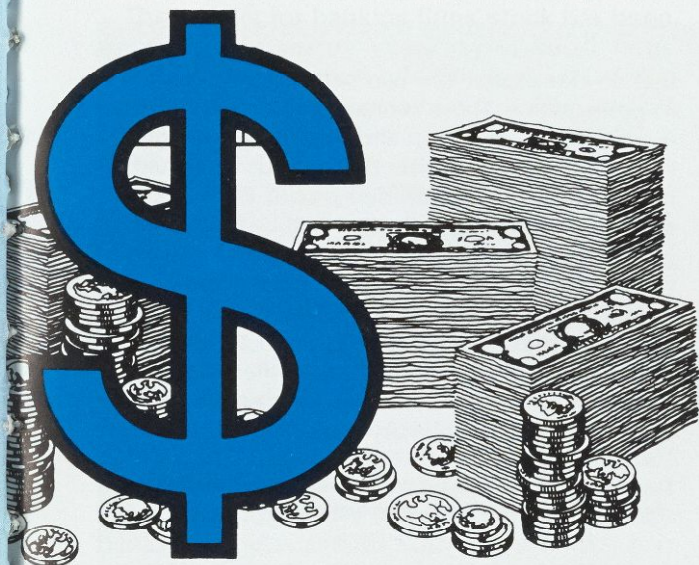
bank holding company, and for the banking industry? Second, how should achievement of adequate capital levels be ensured? Should regulators set ratios for the entire industry or for large groups of similar banks? Should standards be tailored to the individual bank? Alternatively, could private financial markets rather than regulators be relied upon to determine capital adequacy?

At the base of the debate between regulators and the banking industry are the different objectives of the two groups. The regulators are concerned with maintaining the soundness of the entire banking system. Traditionally, regulators have argued that bank failure is "contagious." In other words, failure of one institution could create difficulties for other financial institutions if it causes depositors and other creditors to lose confidence. Capital requirements act as a form of insurance against failure.

An individual banking organization's view of capital, on the other hand, is strongly influenced by the increasingly competitive financial markets in which banks operate. Commercial banks and their parent companies compete for funds with firms operating under less severe regulatory constraints. Banks often argue that regulators force them to maintain excessive levels of capital.[2] As a result, commercial banks are placed at a competitive disadvantage.[3]

[2] Anthony M. Santomero and Ronald D. Watson, "Determining an Optimal Standard for the Banking Industry," **Journal of Finance,** September 1977, pp. 1267-1281.
[3] It is possible that this disadvantage is offset by other forms of regulation, especially limitations on competition and the provision of government supported deposits insurance.

These disagreements reach the heart of several issues vital to bankers. Competition between large banks and small banks, between domestic banks and foreign banks, between banks and nonbank providers of financial services is significantly influenced by the capital levels that these institutions hold. The ability of banking organizations to expand their services and geographic service areas is constrained by regulators' views of what is adequate capital.

Why the Capital Issue is Important

Three recent developments in the financial industry make it crucial for banks and their regulators to resolve the capital issue. First, capital levels are falling (Table 1), a fact which is unsettling to banks and regulators. Historically, remember, regulators have tended to accept the view that less capital in the industry means greater risk exposure for the financial system.[4]

Second, capital levels vary by banking firm size (Table 2). Larger banks generally have lower capital ratios than smaller banks. Higher capital at smaller banking organizations may result from several forces; regulation is important among these. There is no doubt that bank regulators require higher capital-asset ratios in smaller banks. While this may have been a reasonable approach in

[4] There is no doubt that, other things being equal, reduced capital levels lead to a higher incidence of failure within the banking industry. As capital levels fall, the probability increases that banks will suffer losses that force them into bankruptcy. For an excellent discussion of this, see Santomero and Watson, *op. cit.* The entire industry could still be safer, however, if the probability of capital being needed has fallen at a faster rate because of safer portfolios or less volatility in the economy. It is quite unlikely that this is the case, especially in recent years.

What is Capital?

Financial analysts and accountants look on capital as owner's equity in the banking firm. Conceptually, it is the book value (the value shown in the firm's own accounting statements) of the firm's assets, less the book value of its liabilities. If market values were equal to book values, capital would represent the net value after the firm's assets were liquidated and the depositors and other creditors were repaid.

Some bank regulators have permitted banking firms to consider subordinated notes and debentures as an additional source of capital for the regulators' purposes. Recently the Federal Reserve Board and the Office of the Comptroller of the Currency have agreed on a definition of capital

that divides capital into two parts on the basis of its permanence. Those sources of funds that have no due dates—common and perpetual preferred stocks and convertible debt that must be converted into stock, surplus, undivided profits, and certain reserves—are called primary capital. Limited-life preferred stock and subordinate notes and debentures—sources of funds with due dates—are called secondary capital if they have an original maturity of more than seven years and are phased out of the banking firm's capital as their maturity approaches. Secondary capital is counted only up to 50 percent of primary capital.

Except where otherwise noted, the discussion of capital in the rest of this article will be in terms of primary capital.

Table 1
Changes in Capital Ratios,* 1970-1980
Banks in Sixth District States

Year	Equity to Total Assets	Equity to Risk Assets
	(percent)	(percent)
1970	7.7	10.8
1975	7.7	9.9
1980	7.4	9.6

Source: Federal Deposit Insurance Corporation: Bank Operating Statistics 1980, 1975, 1970

*Average weighted by assets

Table 2
Equity Capital to Assets
Banks in Sixth District States
1980

Asset Size (million $)	Equity to Total Assets	Equity to Risk Assets
	(percent)	(percent)
Under 10.0	11.2	14.6
10.0 to 24.9	9.1	11.3
25.0 to 99.9	8.2	10.3
100 or more	6.7	9.0

Source: Federal Deposit Insurance Corporation: Bank Operating Statistics 1980

light of risks inherent in small banks, the small banks argue that the policy places them at a significant competitive disadvantage.

Third, capital requirements imposed by regulators may be restricting banking firms' growth. As their assets grow over time, banking firms must make additions to their capital accounts commensurate with their growth or else face declining capital to asset and capital to risk asset ratios. To rectify this, they may sell common or preferred stock. They may also add to equity by retaining earnings in the firm. In practice, a substantial portion of banking firms' earnings are not distributed, but are retained in the bank.

The market for banking firms' stock has been depressed for many years. Most small firms find it difficult to sell additional shares. Thus, they prefer to retain earnings. The capital formation rate (shown in Table 3) provides a measure of the ability of banks to generate capital funds internally through retaining earnings. This rate is defined as net income after taxes, less dividends, relative to equity capital. The rate is not excessive for commercial banks in the Sixth District, relative to growth in assets. Banks in the most rapidly growing states in the District are least able to generate sufficient funds internally to maintain their asset growth.

Smaller banking firms must either have greater earnings, or retain a greater percentage of their earnings, in order to maintain higher capital ratios. In competitive markets in which small banks compete directly with larger banks, it is unlikely that earnings rates will be higher.

BANK CAPITAL RATIOS IN SIXTH DISTRICT

Aggregate capital ratios for recent years for commercial banks in the Sixth Federal Reserve District are presented in Tables 2 and 3. In these Tables, equity capital is defined to exclude subordinated notes and debentures. In Table 2, the ratio of capital to assets is indicative of the total leverage of the banking firm. It represents the percentage of the bank's assets purchased with funds invested by stockholders. The remaining assets were purchased with funds from depositors or other creditors. The greater is the stockholder share of investment, the less likely is the bank to be unable to meet the demands of its depositors and other creditors.

On average, the capital asset ratio is 7.4 percent. Therefore, 92.6 percent of assets are purchased by debt. While this is extraordinarily high relative to most business or manufacturing firms, many other financial firms are leveraged to an even greater degree.

The ratio of equity capital to risk assets in Table 3 more narrowly considers the role of capital as a buffer to protect depositors and other creditors against losses on loans and other risky assets held by the bank. Losses that exceed capital in magnitude will force the bank into bankruptcy. In this event, creditors, uninsured depositors, and the FDIC representing insured depositors will not receive full value on their funds held at the bank.

Risk assets are defined as total assets less risk free assets. Risk free assets are cash, balances due from other banks, and holdings of government securities.* The capital to risk asset ratio focuses on the value of capital as a buffer against losses on the value of assets.

*Of course losses may also occur resulting from a mismatch of asset and liability maturity structures. In that event, the government security portfolio does not play a role in the risk exposure of the bank as changes in interest rates and liquidity needs may force sales at market values below book value.

Table 3

Median Capital Formation Rates
Sixth District States and U.S.
1980

Area	Capital Formation Rate	Increase in Total Assets
	(percent)	(percent)
Alabama	8.8	6.8
Florida	8.1	13.8
Georgia	9.6	5.7
Louisiana	11.2	14.4
Mississippi	10.4	8.3
Tennessee	8.0	7.9
United States	8.2	9.7

Source: Federal Deposit Insurance Corporation: Bank Operating Statistics 1980

Therefore, they must retain earnings at a greater rate through reduced dividends. A lower dividend rate will tend to reduce the value of the bank to the shareholders.

Capital From the Bank's Perspective

From the banking firm's point of view, capital has two functions other than satisfying regulatory requirements. First, since losses may be charged against equity, but not against debt, without causing the bank to fail, equity capital serves as a buffer against losses. This role of capital is most critical to the uninsured depositors and other creditors. Insured depositors are protected by the deposit insurance fund (FDIC), and are likely to be indifferent to the intricacies of the capital issue. Uninsured depositors and other creditors do not have this protection and must look to capital accounts as buffers to protect them against losses.[5]

The second role of capital within the banking firm is as a source of funds, similar to deposits, notes, and other forms of debt. It has certain attributes that are attractive to banks. It has infinite maturity and requires no fixed payment of interest as does debt. In terms of asset-liability maturity structure of the firm, it plays an important role.[6] However, capital as a source of funds is expensive compared to non-capital sources. The costs of generating new capital are substantially higher than the costs of raising funds through alternative sources. Dividends on equity are not deductible from taxes whereas interest on debt is. For this reason, capital may cost twice as much (in terms of investor return) as other debt.

In order to determine its capital level, the management of a banking firm must balance the costs of capital against the benefits of capital as a buffer against losses and a source of funds. So long as uninsured depositors are aware of the bank's leverage and associated risk and require compensation for depositing funds in riskier institutions, banking firms will find that overall costs of funds rise after their capital-asset ratio falls below a certain level. The capital level at which costs of funds begin to rise is the one which the bank should choose. This ideal level, however, may not coincide with regulatory requirements. As a result, banks are unhappy with the present system.

Capital From the Regulatory Perspective

The regulatory agencies are charged with the responsibility of maintaining a safe and sound commercial banking system for at least two major reasons. Demand deposits are the largest element of the nation's money supply. Failure of a bank or its parent holding company could weaken public confidence in the safety of their deposits in commercial banks. If weakened confidence led bank customers to withdraw their deposits from other banks, a widening circle of failures could lead to both significant decline in the nation's money supply and to disruption of financial markets.[7]

Ideally, regulators should set minimum capital levels for each firm individually based on the firm's risk of failure and the impact of its failure on financial markets. The bank examination process does allow for fitting capital requirements to the characteristics of the individual bank. This fitting, however, has been highly judgmental and generally has ignored the social costs of failure of the individual bank. Because of the high costs of determining such risks for each institution, federal regulatory agencies

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[5]Of course, their primary protection is the ongoing nature of the bank, the safety of its assets and the flow of income from all the bank operations that normally would be sufficient to offset any specific losses.
[6]For an analysis of optimal capital from this perspective see John Pringle,"The Capital Decision in Commercial Banks," **Journal of Finance**, June 1974.

[7]Robert C. Clark, "The Soundness of Financial Intermediaries," **Yale Law Journal**, Vol. 86, No. 1, November 1976.

have placed banking firms into categories which are to some degree grouped by their relative soundness. Target capital ratios were initially set for banks within each group. The targets were then adjusted to reflect specific considerations for the firm.

Until late in 1981, the Federal Reserve and the Comptroller of the Currency applied this approach in two separate ways. The first, generally adhered to by the Federal Reserve and the FDIC, was to set ratios of capital for similar sizes of banking firms. Within each size class, firms were expected to maintain target levels of capital relative to assets, deposits, or risk assets. For many years, the Federal Reserve used an elaborate version of this approach in which capital targets were based upon the asset and liability portfolio composition. The relative weights for required capital for each category of assets and liabilities were somewhat arbitrary. They were roughly based upon the loss experience of the 1930s.[8]

An alternative approach, developed by the Comptroller of the Currency, was to group banks into homogeneous classes based upon size, branches and the degree of competition in their markets. Each bank was then expected to maintain capital ratios consistent with the average bank within its peer group. Over time, as banks below the average are required to increase capital, their ratios would tend to rise. This approach was based upon the current actual levels of capital within this group and, if the entire group has too much capital, requiring each bank to achieve the average is effectively requiring each to have too much capital. Alternatively, the entire group may have insufficient capital, resulting in targets being set too low for each bank within the group. In reality, the peer group levels were lower for the larger banks since they are based on current levels. Therefore, larger national banks were required to hold less capital.

New Regulatory Policies

Late in December of 1981, each of the three federal bank regulatory agencies made specific policy statements about its approach to capital adequacy. The Federal Reserve and the Comp-

troller of the Currency together announced capital guidelines for the banking organizations they supervise; the Federal Deposit Insurance Corporation announced a separate policy.

The four principal features of the Federal Reserve-Comptroller plan are (1) basing capital requirements on bank size, (2) accepting subordinate notes and limited-life preferred stock as capital, (3) treating the largest firms individually, and (4) continuing to consider the specific situation of each institution within the broader frame of the guidelines.

This policy divides banking firms into three groups, on the basis of size. The first group is made up of 17 large multinational firms—all bank holding companies with assets of more than $15 billion. These large firms have no specific capital requirements; however, the supervisory agencies stated that they expected the long-term decline in capital in these organizations to be reversed under the new policy. Each institution is, however, to be subject to separate special analysis.

The second group—those banks with assets of $15 billion to $1 billion—called regional banks—are subject to somewhat less strict capital requirements than the third group, firms with assets of less than $1 billion—community banks. Within each group of banks three "zones" of capital were established: "adequately capitalized," "possibly undercapitalized," and "presumed undercapitalized." Banking firms falling in the first zone are presumed to have acceptable capital. Banks in this category receive no special supervision. Firms falling in a range of capital asset ratios below that which is acceptable are thought to have inadequate capital and are subject to extensive contact with the regulator and are required to submit capital plans that are acceptable to the regulator. Banks with very low capital, in zone 3, are continuously supervised.

Unlike the policy of the Federal Reserve and the Comptroller of the Currency, the FDIC policy does not count subordinate debt or limited-life preferred stock as capital. This policy does not base capital requirements on firm size, but since nearly all banks that the FDIC supervises have assets below $1 billion, the policy differs little from that of the other agencies in that respect. The FDIC policy also establishes three categories similar to zones in the policy of the other agencies. Its requirements are summarized in Table 4.

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[8] For a description of the ABC formula, see Ronald D. Watson, "Insuring Some Progress in the Bank Capital Hassle," Federal Reserve Bank of Philadelphia, **Business Review**, July, August 1974, pp. 3-18.

Table 4

Standard Capital-Asset Ratios
in Newly Announced Policies of the
Federal Regulatory Agencies

	Capital Asset Ratios (percent)		
	Federal Reserve-Comptroller*		FDIC**
Zones	Regional Banks	Community Banks	All Banks
Acceptable	6.5 or more***	7.0 or more****	6.0 or more
Possibly under-capitalized	5.5 to 6.5	6.0 to 7.0	5.0 to 6.0
Under-capitalized	Less than 5.5	Less than 6.0	Less than 5.0

*May include certain debentures and limited-life preferred stock.
**May not include debentures or limited-life preferred stock.
***Primary capital must be greater than 5.0 percent of assets.
****Primary capital must be greater than 6.0 percent of assets.

Rough estimates of the impact of the new capital policy of the Federal Reserve and the Comptroller indicate that the vast majority of regional and community banks have acceptable capital-asset ratios and that only a small proportion of these banks have capital-asset ratios low enough to warrant continuous supervision. There is a slightly lower proportion of regional banks in the acceptable zone and slightly greater proportion of regional banks in the unacceptable zone.

In adopting the new capital policy, the Office of the Comptroller appears to be withdrawing from the peer group approach that it developed in the mid-1970s. That approach failed to reverse the long-term decline in capital-asset ratios. It may, indeed, have been a casualty of that decline since it compared each bank with an average bank and capital in the average bank was generally declining.

Should Capital Requirements be Based on Bank Size?

These capital-adequacy guidelines based on size are not above attack, however. Distinction among groups of banks, especially on the basis of size, has been widely challenged by the industry. Size distinctions have generally been based on the argument that larger firms are safer. However, the probability of failure is complexly related to the size of the banking firm. With similar asset portfolios, larger banks would have less risk exposure because they have potentially greater diversification. Similarly, they are less exposed to the risks of losses brought about by sudden liquidity needs.

Although it has access to the federal funds market and to some interest-sensitive deposits, a smaller firm facing a reduction in deposits may be forced to sell assets. If interest rates are unfavorable, this could entail losses as the securities would be sold at a discount. Larger firms have access to Eurodollar markets, large certificates of deposit markets and other forms of borrowing and therefore can avoid some of this risk. Additionally, regulators have argued that larger firms have been able to attract a more sophisticated management.

Despite these factors, many larger firms behave in ways that may increase their risk. They hold different portfolios from smaller community banks. They typically hold large commercial and international loans not found on smaller banks' books. Even though access to financial markets reduces the risk of disintermediation, the cost of large firms' liabilities is more volatile as they must pay the market rate for a large percentage of their funds. Thus, the net relationship between size and soundness is unclear; there are strong, conflicting forces operating in each direction.

In addition to the financial cost of failure, regulators face the question of how to determine the social cost of failure. There is little doubt that the likely social costs of failure are higher for larger institutions. They are more visible. They have larger proportions of uninsured deposits and other forms of debt, thereby increasing the probability of a change in expectations leading to panics. Their portfolios tend to be similar. If one large firm is in trouble, investors and depositors are more likely to see their institution has a similar asset-liability structure and may be vulnerable. Their larger size relative to the FDIC insurance fund may change general expectations regarding the safety of deposits.[9]

Policy Options

There are several additional options for dealing with the capital problem. They range from maintaining the status quo to letting the financial

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[9]The Federal Deposit Insurance Fund was 11.6 billion on December 31, 1981. Each of the largest 230 banks had total assets exceeding 1.0 billion. A failure of any one of these size firms would have a strong impact on the FDIC reserve fund. See Federal Deposit Insurance Corporation, **Annual Report**, 1980.

> "Rapidly changing competitive forces may well make maintenance of size-related capital standards difficult during the next several years."
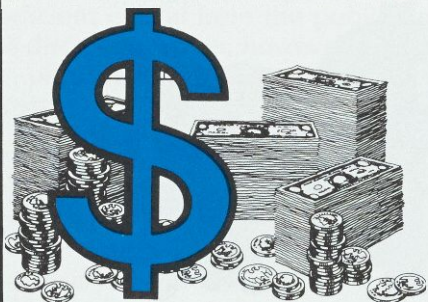
markets regulate capital. Intermediate proposals include developing a more sophisticated analysis of the probability and social cost of failure and adopting a new concept of equal marginal capital requirements for all firms. Let's look briefly at the major alternatives.

A. Maintain the Present System

The present system provides size related capital guidelines administered with cognizance of each individual bank's characteristics. Its flexibility is an advantage, particularly if regulators make advances in their systems for analyzing risk in financial institutions.

However, rapidly changing competitive forces may well make maintenance of size related capital standards difficult during the next several years. Banking's stable profits and protected markets have attracted non-depository firms from less stable industries into markets for financial services such as transactions accounts, time deposits, and commercial and consumer lending where banks had held a dominant position. Other new competitors for banks in several product markets have arisen through the Monetary Control Act of 1980 which expanded powers of thrift institutions and credit unions to such an extent that they are able to join banks as providers of a full line of consumer financial services. In addition to these breaks in product and industry barriers, breaks are occurring in geographic barriers. Nonbank institutions and large banks are expanding their service areas across state lines, entering local markets in many parts of the nation in competition with local banks. These factors are likely to increase the number of competitors in markets in which banks offer services and, as a result, to put downward pressure on bank profits. Lower profits will mean fewer internally generated funds to increase bank capital and diminished ability of banks to go to the capital markets. Consequently, banks will have even greater difficulties in generating sufficient new capital to meet regulatory requirements through retained earnings.

If earnings decline, the end result of maintaining strict size-related guidelines will be a substantial shift of activity away from the commercial banking system. The market-regulated sector, free from size-related capital guidelines and from their growth restrictions, will be able to grow at the expense of the commercial banking sector. At the same time, in the future smaller firms will likely lose market share to larger ones as the smaller banks continue to be placed at a competitive disadvantage and as larger firms expand the geographic scope of their operations.

The size problem of the present approach may be particularly critical for all banking organizations in the Southeast. Southeastern organizations increasingly are facing direct competition in commercial and international lending and deposit markets from large money center and foreign banks and from nonbank institutions. Most of these institutions have much greater leverage than even the largest regional banks. Consequently, they can operate with smaller margins between the cost of funds and loan revenue, and still return equal or even higher levels of profits to their stockholders. With this advantage, their share of the commercial and international markets is likely to increase unless size-oriented capital regulation is restructured.

B. Improve Financial Analysis to Determine Capital Levels

Many analysts have argued that a more sophisticated system of capital determination would eliminate many of the present system's problems. Such a system would be an extension of the present system toward the ideal of accurately calculated requirements for each bank based on its own characteristics. This approach

would require advances in knowledge of the factors that determine the soundness of financial insititutions.

If the system could be improved in this way, it would better enable the regulators to identify institutions with high probabilities of failure and to require more capital in them. The competitive advantage would more certainly go to those firms that are in fact safer.[10]

Current research in this area is quite promising. Analysts are improving their ability to identify banks that are likely to face difficulty in the new environment. They focus on levels and trends in key financial variables in the bank.[11] New developments in pricing of contingent claims may be very useful in this regard.[12]

Better financial analysis of banks would not avoid the current system's failure to consider the social cost of bank failure in setting capital requirements. However, present knowledge of these costs is inadequate for more than a very broad generalization about costs of failure. One can be fairly certain that the social costs of failure—the shakeup of public confidence in the financial system—rise with the size of the failing bank. Beyond that, there is no quantitative evidence on this problem and no formula for reflecting the social cost in capital requirements. Considerable study would have to precede allowing for the social cost of failure in setting capital requirements.

C. Require Equal Marginal Capital Levels

The equal marginal capital requirement would set the same capital adequacy levels for every bank in relation to additional assets. It would accept the fact that capital levels now differ. However in the future, all firms would be treated equally. Each would have to add an equal amount of capital for every dollar's growth in total assets or risk assets.[13]

This approach would have two primary implications. First, it provides competitive equality at

"Deregulation of capital may be a viable option, at least for a large banking organization."
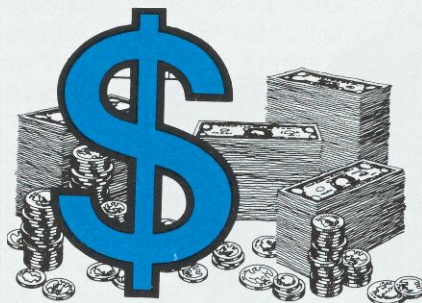
the margin. No organization would have a competitive advantage in expanding its activities based upon its ability to leverage to a greater degree than other firms. Second, the marginal capital approach will move all firms toward the same average level of capital. For those whose existing capital ratios are higher than the marginal ratio, capital ratios will tend to fall. Conversely, those with lower ratios who must add more to the capital than they have in the past will find their average ratios increasing.

This approach, however, fails to consider social costs of bank failure and it requires regulators to set a single marginal capital ratio that is applicable to the entire industry. By arbitrarily setting equal capital requirements for all institutions, it penalizes the safer institutions.

D. Deregulation

The final option is to deregulate capital totally. This view would be consistent with many policies that have been adopted in other industries in recent years. The regulators would simply rely upon private financial markets to monitor the riskiness of each bank or its parent holding company relative to its capital levels. Banking firms would be free to choose the level of capital that gives them the minimum cost of funds.

There are three distinct problems with this approach. First, banking firms acting without

[10]An alternative approach would be to vary the deposit insurance premium with the degree of risk.

[11]See Joseph H. Sinkey, Jr., "Problem and Failed Banks, Bank Examinations, and Early Warning Systems: A Summary," in E. I. Altman and A. W. Sametz, **Financial Crisis,** New York: John Wiley and Sons, 1977.

[12]Robert Merton, "An Analytic Derivation of the Cost of Deposit Insurance and Loan Guarantees: An Application of Modern Option Pricing Theory," **Journal of Banking and Finance,** Vol. 1, 1977, pp. 3-11.

[13]For an excellent discussion of this approach, see Thomas B. Walker, "Regulating Capital at the Margin," Mimeo, Southeast Banking Corporation, Miami, 1981.

regulation could not be expected to consider the social cost of bank failure in setting their capital levels. In the case of small firms, this is unlikely to be a major disadvantage to the public; however, large banking firms with high visibility may have large social costs of failure. Omission of these costs in setting their capital under a deregulated system could result in deficient capital from the public's perspective. As discussed earlier, however, no other present or proposed system formally factors in these costs.

Second, the stocks and uninsured liabilities of most small banking firms are not traded actively. Therefore there will be no continual monitor and barometer of the financial condition of the institution. Other regulations would be necessary in this instance.

Third, for deregulation to be a viable approach, the financial markets must penalize firms that take on too much leverage. It is not fully established that the market does penalize banking organizations that expand their leverage. Earlier studies, in fact, concluded that leverage had no impact on stock prices.[14] Later work based on the decade of the 1970s suggests market prices of stock and uninsured liabilities do change in reaction to different levels of leverage within large publicly traded bank holding companies. Therefore, deregulation of capital may be a viable option, at least for large banking organizations.[15]

Conclusion

In summary, capital adequacy has often been a bone of contention between the banking industry and its regulators. It is quite likely that increased competition in the 1980s will shrink profit margins and will make it increasingly difficult to maintain current capital ratios.

Regulators should give strong consideration to improving the present size-related system of determining capital adequacy. The present approach is likely to cause increasing difficulties as financial markets become integrated with all firms offering similar products. At a minimum, greater effort should be expended in developing a more objective system of financial analysis. In addition, the regulatory agencies should give full consideration to innovative proposals, such as the equal marginal capital approach or deregulation of large institutions.

—Arnold A. Heggestad
and B. Frank King

Note: William Estes and Caroline Harless made valuable comments on an earlier draft of this article.

Cost of Living Data:
A Guide to Sources

With average costs for transferring an executive running around $30,000, reliable information on cost-of-living differences becomes more important. A review of some major sources—as well as some often overlooked ones—discusses strengths, weaknesses, and methodological differences.

"How much will it cost me? Can I afford to buy a home in a new city? What kind of life style will be possible?"

When an employee is offered a promotion or a new job requiring a transfer to another city, these are usually the first questions asked. Even when offered large increases in salary, many potential transferees hesitate to relocate given the high cost of acquiring a new home at current interest rate levels. To encourage valued employees to accept a transfer or to attract a prime candidate for a new job in a more expensive city, many companies routinely offer relocation assistance which may include paying the interest-rate difference between the employee's old and new mortgages, covering closing costs, and guaranteeing sale price. According to the Washington-based Employee Relocation Council, whose mem-

bers include corporations with such relocation incentives, the average cost of transferring an executive within the U.S. currently runs around $30,000.[1] Faced with the present costs of relocation, any employee or company should have the most reliable and trustworthy information available for making decisions about whether to accept or reject a transfer.

Although several sources of data enable regional cost-of-living comparisons, none will provide instant answers for all the questions related to a specific relocation situation, and all have weaknesses that create problems for anyone attempting to use the data. This article will point out some often overlooked sources of information and will discuss differences in the types of data and collection methodologies.

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[1]Kenneth M. Pierce, "Housing the Company Way," **Time** October 12, 1981, page 85.

Map 1: Cost of Living Relative to Atlanta
Based on BLS "higher" budget for a four-person family
(percent deviation from Atlanta Budget)

Seattle +7

Minneapolis +13

Milwaukee +13

Detroit +10

Buffalo +13

Boston +32

Cleveland +9

New York +37

San Francisco +18

Denver +8

Chicago +10

Pittsburgh +6

Philadelphia +15

Kansas City +8

St. Louis +4

Cincinnati +4

Baltimore +12

Los Angeles +9

San Diego +10

Washington, D.C. +20

Dallas −2

ATLANTA

Houston +1

Anchorage +35

Honolulu +42
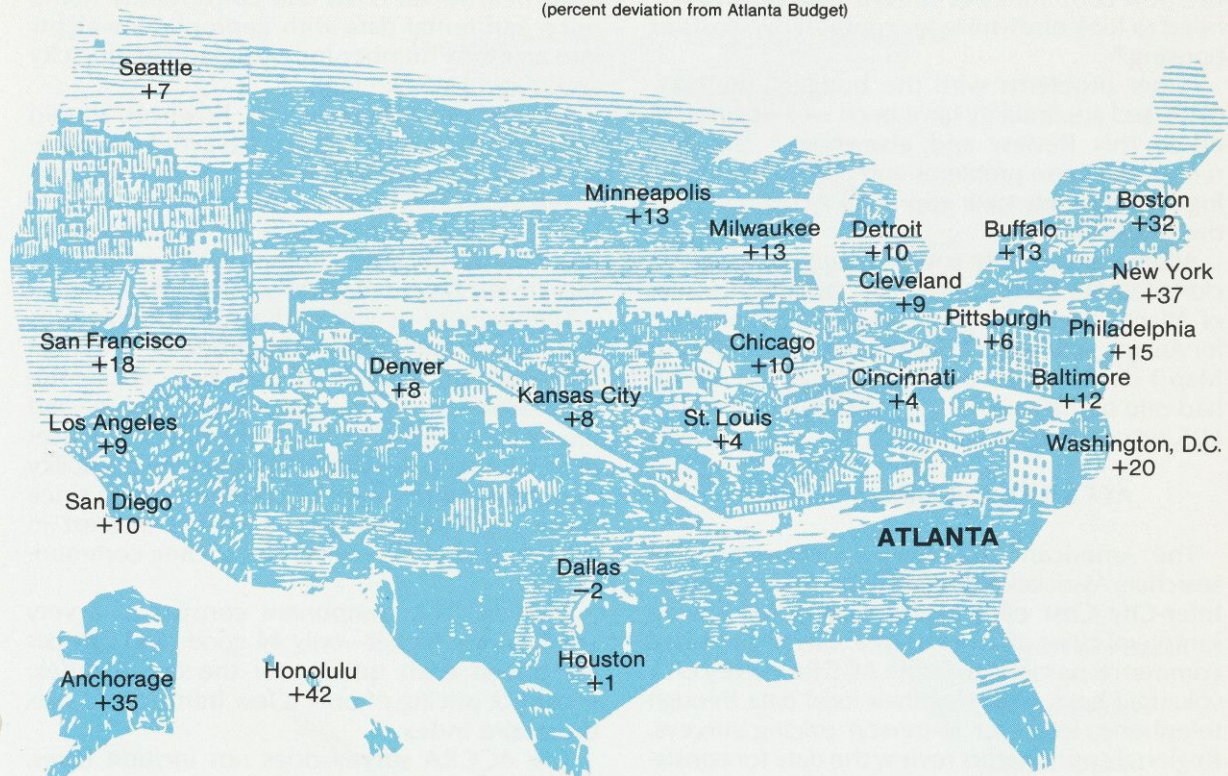
U.S. Urban Average: +10%

Source: U.S. Bureau of Labor Statistics, Federal Reserve Bank of Atlanta calculations.

BLS Urban Family Budgets

The Urban Family Budgets estimates, issued once a year by the Bureau of Labor Statistics (BLS), are widely used, high quality data for comparing cost of living differences between major urban areas.[2] The budgets specify the costs for maintaining three standards of living— lower, intermediate, and higher—for a hypo-thetical family of four living in any of 25 different metropolitan areas.[3] According to the most recent BLS survey in autumn, 1980, the average annual cost of the "lower" family budget was $14,044, the "intermediate" budget was $23,134, and the "higher" budget was $34,409 per year. The budgets are updated each autumn by applying price changes for each metropolitan area as reported in the Consumer Price Index.

Although an executive considering a transfer might find this information useful, the fact that the budgets are produced for only 25 cities obviously limits their value. Furthermore, the intermediate and higher budgets assume that homeowner costs include payments for a house purchased six years ago.[4] BLS clearly states that

[2]The Consumer Price Index often is used for geographical cost-of-living comparisons but was never designed for that purpose. See James T. Fergus, '"Cost of Living Comparisons: Oasis or Mirage?" **Federal Reserve Bank of Atlanta Economic Review**, July/-August 1977, pages 92-100.

[3]The Bureau of Labor Statistics defines the hypothetical family as: "a 38-year-old husband employed full time, a non-working wife, a boy of 13, and a girl of 8". See U. S. Bureau of Labor Statistics, "Autumn 1980 Urban Family Budgets and Comparative Indexes for Selected Urban Areas", April 22, 1981.

[4]According to BLS, housing costs at the lower budget level provide only for rental housing.

"the geographic indexes do not measure cost differences associated with moving from one area to another or the living costs of newly arrived residents in a given community."[5] Therefore, a transferee who plans to purchase a home in a new community at current market rates will need to look elsewhere for comparative costs of housing.[6]

Other problems with the budgets' methodology and applicability have been well-documented in this **Review** and elsewhere.[7] The BLS recognizes these problems and currently is studying a completely new approach to constructing the budgets.[8]

Atlanta is the only southeastern city now included in BLS Budgets estimates, but the inclusion of Atlanta does enable cost-of-living comparisons for Atlanta with other cities outside the Southeast. Map 1 demonstrates that in Autumn 1980 Atlanta had one of the lowest living cost levels of all the U. S. urban areas for which BLS data are available.

ACCRA Cost of Living Indicators

The American Chamber of Commerce Researchers Association (ACCRA) produces quarterly **Inter-City Cost of Living Indicators** for a wide sample of cities of various sizes. City chambers of commerce participate in the ACCRA survey on a voluntary basis, gathering their local data through telephone, letter, or in-person pricing surveys. Regional coordinators review the data for consistency and to ascertain whether substantial deviations from quarter to quarter are justified before they forward the data for final processing at the national level.

The survey covers a large sampling of cities— 237 communities participated in the Third Quarter 1981 survey—and the information reported is updated every quarter. The **Inter-City Cost of Living Indicators** report shows price levels in the form of index numbers for an all-items index and for the various major components of the index: grocery items, housing, utilities, transportation, health care, and miscellaneous goods and services.

Potentially, the survey's most useful component for the transferee is the index of housing costs.

The housing component carries the greatest weight of all components of the all-items index. Unlike the BLS Urban Family Budgets, the ACCRA survey measures the cost of home ownership at current market rates.[9] ACCRA also measures apartment rental costs and converts the home price and rental data with appropriate weights into an index number for each participating city and into a U. S. average.

Anyone using these figures, however, should heed ACCRA's warning that "to avoid misrepresentation...users should be aware of the limitations of the Index and should understand the kinds of information it does provide."[10] Differences of less than three index numbers between cities should not be considered significant.

The manner in which the ACCRA survey is conducted introduces a number of potential problems or sources of statistical error. The burden of reporting complete, accurate, and timely data rests with local volunteers. The user of ACCRA data also should consider the possibility of bias in the chamber of commerce data since these organizations have a vested interest in attracting jobs and businesses to their communities.

Each ACCRA component consists of a very small market basket—only 44 goods and services are priced each quarter for the entire Index. Incorrect pricing of only a few items could bias the entire Index.

The ACCRA survey does not include taxes, except for those incorporated in the product's price, as in the case of tobacco, gasoline, and liquor. Taxes can vary significantly from one city and state to another, and ACCRA has found no reliable way of calculating tax estimates.

Despite its flaws, the ACCRA **Inter-City Cost of Living Indicators** provides a source of current living cost data for a large sample of cities. Most people who need cost-of-living comparisons for making relocation decisions should find the ACCRA data readily available at local chamber of commerce offices.

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[5]U. S. Bureau of Labor Statistics, "Autumn 1980 Urban Family Budgets...," page 7.
[6]For example, the Federal Home Loan Bank Board each month releases information on the average terms of conventional home mortgages for selected metropolitan areas.
[7]See Fergus, "Cost of Living Comparisons."
[8]Harold W. Watts, "Special Panel Suggests Changes in BLS Family Budget Program," **Monthly Labor Review**, December 1980, pp. 3-10.

[9]The specifications describe a house with 1800 square feet: 3 bedrooms, 2 baths, living-dining area, kitchen with built-in cabinetry, finished family room, one average fireplace, utility room, and attached 2-car garage. The house is sited on a 10,000 square foot lot with 70-foot frontage. Other detailed specifications outline the type of construction required, with some leeway allowed for regional practices and local codes.
[10]American Chamber of Commerce Researchers Association, "Inter-City Cost of Living Index Instruction Manual for Participating Cities (Revised January 1979)," p. 35.

Map 2: Intercity Cost of Living Comparisons between Atlanta
and Other Southeastern Cities, Third Quarter 1981
(percent deviation from Atlanta budget)

Dyersburg
−14

Nashville
−11

Knoxville
−10

Morristown
−15

Jackson
−13

Chattanooga
−13

Huntsville
−10

Athens
−13

ATLANTA

Clarksdale
−9

Columbus
−14

Birmingham
−6

Columbus
−10

Augusta
−8

Shreveport
−5

Monroe
−10

Macon
−11

Americus
−11

Mobile
−6

Albany
−8

Lake Charles
−1

Baton Rouge
−3

Layfayette
−0

Tallahassee
−7

Jacksonville
−6

Pensacola
−14

Gainesville
−3

New Orleans
−7

Lakeland
−11

West Palm Beach
−0

Boca Raton
+11

Fort Lauderdale
+8

Source: American Chamber of Commerce Researchers Association, Federal Reserve Bank of Atlanta calculations.

Given the limited coverage of BLS data, it is natural to want to use ACCRA data for living cost comparisons within the Southeast. As a further check on the reliability of the ACCRA data in relation to the higher-quality BLS data, we compared the two measures in the 13 cities measured by both indexes. The comparison shows that, although actual price levels of specific cities vary widely between the two sets of data, intercity differences in living costs correlate highly.[11] Map 2 displays ACCRA data for the southeastern states and gives a rough indication of living cost levels for southeastern cities compared to Atlanta. Atlanta's living cost is relatively high within the region according to this measure, although cities in south Florida show an even higher cost of living.

Relocation Consulting Companies

To those who seek further information beyond that available from BLS or ACCRA and for those who are willing to pay, another option is to utilize the services of a company specializing in employee relocation or compensation consulting. These firms provide a variety of services to their clients,

[11]A simple correlation of data available for the same 13 cities from BLS and ACCRA indexes shows a 0.73 correlation coeffieient, or a highly significant degree of correlation with less than 1% chance of occurring from a random sample.

Table 1
Annual Expenditures for a Family of Four
Earning $40,000

City	Housing	Taxation	Trans.	Total
Atlanta, GA	$18,840	$7,437	$5,079	$31,356
Birmingham, AL	16,472	8,303	4,678	29,453
Boston, MA	24,987	6,242	5,682	36,911
Cincinnati, OH	21,026	7,215	5,073	33,314
New Orleans, LA	18,514	6,998	5,300	30,812
San Francisco, CA (E. Bay)	35,264	3,414	6,453	44,131
Washington, DC (VA.)	24,598	5,768	6,155	36,521
Standard City, USA	19,498	7,046	5,012	31,556

LEGEND:

Costs are based on a family of 4 persons with an annual income of $40,000. All living communities used in gathering data, represent communities where families at this income tend to reside.

The home has 7 rooms, 4 bedrooms, 2.5 baths, and 2,300 square feet of living area. The mortgage costs are premised on a 20% downpayment, 28 year amortization at interest rates in effect on August 17, 1981.

The transportation costs are based on a 1980 Chevrolet Impala driven 14,000 miles annually, and a 1977 Chevrolet Nova driven 6,000 miles per year.

Source: Runzheimer and Company, Inc., Rochester, Wisconsin

such as conducting special living cost surveys, preparing detailed reports, or providing subscriptions to indepth cost-of-living studies. Two of these options are described here, and several others undoubtedly exist.[12]

Runzheimer and Company specializes in employee relocations consulting, providing companies customized reports on the expected cost-of-living variations between specified cities for a given level of income. If a company plans to transfer an employee, Runzheimer can calculate how far that employee's salary will go toward maintaining a given standard of living in various cities by estimating expenditures for three major living cost components—housing, transportation, and taxation. Runzheimer asserts that the cost differential for food, clothing, health care, and other expenses varies only a little between different cities and levels of income.

Table 1 shows the total of housing, transportation, and taxation costs as of August 17, 1981, for

seven cities and a "Standard City, USA" for a family of four with an annual income of $40,000. The difference between a $40,000 income and the total expense of the three components is the amount the family will have left to spend on food, clothing, health care, and other discretionary items in those cities. Individual experience will vary from these average figures, according to differences in family size, home-buying preferences, and other variables.

Through a network of primary information sources, Runzheimer constantly updates a database on housing, transportation, and taxation costs so that the firm can provide a report on current living costs for almost any community in the United States. In addition, Runzheimer does primary research as needed in order to calculate estimated state, local, and federal income taxes for any income level and any location in the U.S.

Runzheimer's strength clearly is its ability to generate up-to-date living cost data for almost any specific relocation situation, enabling companies to make better decisions and to reimburse transferred employees fairly. Although the data

[12]Although we contacted several such companies, only two responded with significant information about their methodologies and data.

Table 2
Cost of Living Compared to Atlanta

BEFORE-TAX INCOME IN ATLANTA:	$35,000		$70,000	
	Before tax Income	Percent Difference	Before tax Income	Percent Difference
Boston	$41,960	+20	$81,300	+16
Chicago	39,050	+12	78,870	+ 7
Cleveland	37,420	+ 7	71,060	+ 2
Denver	33,960	+ 3	66,580	− 5
Detroit	37,710	+ 8	71,830	+ 3
Houston	36,090	+ 3	69,280	− 1
Los Angeles	41,100	+17	83,220	+19
Miami	35,320	+ 1	68,240	− 3
Minneapolis	38,890	+14	75,020	+ 7
New Orleans	35,040	0	66,650	− 5
New York	44,310	+27	87,870	+26
Philadelphia	37,290	+ 7	71,390	+ 2
Phoenix	33,190	− 5	63,030	−10
Pittsburgh	36,460	+ 4	69,690	0
St. Louis	33,900	− 3	62,710	−10
San Francisco	41,700	+19	84,480	+21
Seattle	34,500	− 1	64,590	− 8
Stamford	40,100	+15	77,750	+11
Washington, D.C.	40,190	+15	79,790	+14

Source: Associates for International Research, Inc., Cambridge, Massachusetts, October 1980.

provided do not include expenses for food, clothing, health care, and discretionary spending, Runzheimer's cost-of-living information is probably sufficient for a company or potential transferee to make an informed decision.

A specialist in domestic and international compensation consulting, **Associates for International Research Inc.** (AIRINC), provides a variety of data and counseling services to its corporate clients. One such service geared toward assisting with executive transfer decisions is the annual subscription publication entitled **Executive Living Costs.** Based on data collected about executive living patterns, the survey is designed to provide cost-of-living comparisons and a measure of price increases from year to year for approximately 20 metropolitan areas.

Each year AIRINC staff conduct price surveys for over 300 goods and services weighted to represent typical purchases of executive families at two income levels, $35,000 and $70,000. These surveys are conducted at shopping areas most frequently used in suburbs where these families typically live. The data are tabulated and converted into indexes that reflect the cost-of-living differences between each city.

AIRINC gives special emphasis to the effect of taxes on living costs, and the **Executive Living Costs** report provides detailed comparative information on how taxes will affect the income of a transferee in various locations. Table 2 displays the adjustments needed to maintain a given level of income for a transferee from Atlanta to other selected U. S. cities in 1980. AIRINC reports that Atlanta's living costs in 1980 were 4-7 percent below the U. S. average, with property values and taxes, utilities, and transportation accounting for part of Atlanta's lower expenditures. As with the Runzheimer data, the user should be aware that individual family experiences will vary from these average figures.

Conclusion

Current, reliable sources of regional cost-of-living comparisons are essential to any company or executive in trying to reach a "go" or "no go" decision to relocate. This article has pointed out

several reliable sources of living cost data and assessed some of their advantages and pitfalls. While all the sources mentioned here strive to report differences in living cost levels between cities, each has a different approach and methodology. The potential user should consider the advantages and limitations of each source before arriving at a decision to relocate.

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and William N. Cox III

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	FEB 1982	JAN 1982	FEB 1981	ANN. % CHG.		FEB 1982	JAN 1982	FEB 1981	ANN. % CHG.
UNITED STATES									
Commercial Bank Deposits	1,099,407	1,120,920	999,015	+10	Savings & Loans				
Demand	289,176	328,111	297,696	– 3	Total Deposits	521,213	518,445	507,725	+ 3
NOW	53,775	54,615	29,783	+81	NOW	8,377	8,562	3,304	+154
Savings	148,279	148,931	159,486	– 7	Savings	92,714	93,396	101,286	– 8
Time	634,166	625,036	538,090	+18	Time	420,617	417,429	402,356	+ 5
Credit Union Deposits	41,672	40,734	35,084	+19		DEC	NOV	DEC	
Share Drafts	2,683	2,645	1,751	+53	Mortgages Outstanding	508,685	510,009	494,179	+ 3
Savings & Time	36,405	35,580	31,577	+15	Mortgage Commitments	14,584	15,661	16,021	– 9
SOUTHEAST									
Commercial Bank Deposits	118,513	120,231	106,516	+11	Savings & Loans				
Demand	34,167	37,601	34,825	– 2	Total Deposits	76,566	76,020	73,670	+ 4
NOW	7,030	7,012	3,547	+98	NOW	1,372	1,398	477	+188
Savings	14,714	14,765	15,853	– 7	Savings	11,766	11,824	12,913	– 9
Time	65,431	64,599	55,140	+19	Time	63,471	62,928	60,033	+ 6
Credit Union Deposits	4,088	4,077	3,212	+27		DEC	NOV	DEC	
Share Drafts	278	281	204	+36	Mortgages Outstanding	74,487	74,606	71,098	+ 5
Savings & Time	3,487	3,486	2,803	+24	Mortgage Commitments	3,246	3,505	3,652	–11
ALABAMA									
Commercial Bank Deposits	13,409	13,621	12,028	+11	Savings & Loans				
Demand	3,504	3,795	3,536	– 1	Total Deposits	4,404	4,381	4,334	+ 2
NOW	612	612	328	+87	NOW	71	71	23	+209
Savings	1,530	1,527	1,664	– 8	Savings	579	581	665	–13
Time	8,190	8,168	6,855	+19	Time	3,782	3,756	3,655	+ 3
Credit Union Deposits	717	698	514	+39		DEC	NOV	DEC	
Share Drafts	55	56	44	+25	Mortgages Outstanding	4,004	4,002	3,948	+ 1
Savings & Time	617	604	476	+30	Mortgage Commitments	50	52	140	–64
FLORIDA									
Commercial Bank Deposits	39,240	39,682	35,828	+10	Savings & Loans				
Demand	12,180	13,341	12,988	– 6	Total Deposits	46,371	46,036	44,744	+ 4
NOW	3,106	3,043	1,541	+102	NOW	962	991	356	+170
Savings	6,374	6,409	7,019	– 9	Savings	7,893	7,909	8,716	– 9
Time	18,174	17,885	15,023	+21	Time	37,444	37,110	35,402	+ 6
Credit Union Deposits	1,845	1,861	1,487	+24		DEC	NOV	DEC	
Share Drafts	156	156	116	+34	Mortgages Outstanding	45,579	45,595	42,792	+ 7
Savings & Time	1,431	1,453	1,170	+22	Mortgage Commitments	2,846	3,090	2,983	+ 5
GEORGIA									
Commercial Bank Deposits	16,151	16,661	14,027	+15	Savings & Loans				
Demand	5,877	6,445	5,824	+ 1	Total Deposits	9,720	9,646	9,385	+ 4
NOW	997	989	506	+97	NOW	143	140	39	+267
Savings	1,573	1,575	1,601	– 2	Savings	1,183	1,187	1,346	–12
Time	8,634	8,604	7,002	+23	Time	8,430	8,360	8,004	+ 5
Credit Union Deposits	755	750	542	+39		DEC	NOV	DEC	
Share Drafts	23	24	12	+92	Mortgages Outstanding	9,368	9,441	9,315	+ 1
Savings & Time	703	700	517	+36	Mortgage Commitments	112	107	183	–39
LOUISIANA									
Commercial Bank Deposits	21,511	21,610	18,917	+14	Savings & Loans				
Demand	6,227	6,812	5,928	+ 5	Total Deposits	7,519	7,469	6,924	+ 9
NOW	941	937	465	+102	NOW	83	82	23	+261
Savings	2,380	2,381	2,456	– 3	Savings	1,216	1,240	1,219	– 0
Time	12,493	12,244	10,521	+19	Time	6,238	6,181	5,689	+10
Credit Union Deposits	114	114	80	+43		DEC	NOV	DEC	
Share Drafts	8	8	4	+100	Mortgages Outstanding	7,114	7,138	6,777	+ 5
Savings & Time	106	106	74	+43	Mortgage Commitments	176	182	216	–19
MISSISSIPPI									
Commercial Bank Deposits	9,799	9,849	8,767	+12	Savings & Loans				
Demand	2,336	2,550	2,427	– 4	Total Deposits	2,378	2,387	2,343	+ 1
NOW	521	515	274	+90	NOW	37	38	11	+236
Savings	731	733	798	– 8	Savings	222	232	243	– 9
Time	6,449	6,332	5,536	+16	Time	2,131	2,130	2,088	+ 2
Credit Union Deposits	N.A.	N.A.	N.A.			DEC	NOV	DEC	
Share Drafts	N.A.	N.A.	N.A.		Mortgages Outstanding	2,197	2,206	2,181	+ 1
Savings & Time	N.A.	N.A.	N.A.		Mortgage Commitments	18	19	60	–70
TENNESSEE									
Commercial Bank Deposits	18,402	18,808	16,949	+ 9	Savings & Loans				
Demand	4,044	4,659	4,122	– 2	Total Deposits	6,173	6,101	5,940	+ 4
NOW	852	864	433	+97	NOW	75	76	25	+200
Savings	2,125	2,139	2,315	– 8	Savings	673	675	724	– 7
Time	11,491	11,366	10,203	+13	Time	5,445	5,389	5,195	+ 5
Credit Union Deposits	657	654	589	+12		DEC	NOV	DEC	
Share Drafts	36	37	28	+29	Mortgages Outstanding	6,225	6,224	6,085	+ 2
Savings & Time	630	623	566	+11	Mortgage Commitments	44	55	70	–37

Notes: All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Wednesday of the month. This data, reported by institutions with over $15 million in deposits as of December 31, 1979, represents 95% of deposits in the six state area. Savings and loan mortgage data are from the Federal Home Loan Bank Board Selected Balance Sheet Data. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.

N.A. = fewer than four institutions reporting.

UNITED STATES

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	106,250	106,864	104,778	+ 1	Nonfarm Employment– thous.	92,015	92,272	91,750	+ 0
Total Employed – thous.	97,442	98,393	97,545	– 0	Manufacturing	19,854	20,115	20,238	– 2
Total Unemployed – thous.	8,807	8,470	7,233	+22	Construction	4,156	4,368	4,343	– 4
Unemployment Rate – % SA	8.9	8.4	7.4		Trade	21,403	21,131	21,138	+ 1
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	16,156	16,164	16,435	– 2
Insured Unempl. Rate – %	N.A.	N.A.	N.A.		Services	18,771	18,794	18,149	+ 3
Mfg. Avg. Wkly. Hours	40.0	39.6	40.8	– 2	Fin., Ins., & Real Est.	5,345	5,345	5,237	+ 2
Mfg. Avg. Wkly. Earn. – $	330	324	314	+ 5	Trans. Com. & Pub. Util.	5,167	5,182	5,150	+ 0

SOUTHEAST

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	13,083	13,149	12,772	+ 2	Nonfarm Employment– thous.	11,562	11,532	11,447	+ 1
Total Employed – thous.	11,950	12,038	11,951	– 0	Manufacturing	2,257	2,274	2,288	– 1
Total Unemployed – thous.	1,133	1,111	822	+38	Construction	707	713	722	– 2
Unemployment Rate – % SA	9.3	9.1	7.0		Trade	2,726	2,678	2,696	+ 1
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	2,207	2,214	2,198	+ 0
Insured Unempl. Rate – %	N.A.	N.A.	N.A.		Services	2,192	2,185	2,089	+ 5
Mfg. Avg. Wkly. Hours	40.4	40.2	41.4	– 2	Fin., Ins., & Real Est.	630	628	619	+ 2
Mfg. Avg. Wkly. Earn. – $	288	283	272	+ 6	Trans. Com. & Pub. Util.	691	688	689	+ 0

ALABAMA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	1,643	1,638	1,637	+ 0	Nonfarm Employment– thous.	1,348	1,349	1,367	– 1
Total Employed – thous.	1,441	1,450	1,497	– 4	Manufacturing	348	350	358	– 3
Total Unemployed – thous.	202	188	140	+44	Construction	70	70	71	– 1
Unemployment Rate – % SA	12.5	11.9	8.7		Trade	276	274	279	– 1
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	300	300	304	– 1
Insured Unempl. Rate – %	N.A.	N.A.	N.A.		Services	208	209	208	0
Mfg. Avg. Wkly. Hours	40.2	39.7	41.1	– 2	Fin., Ins., & Real Est.	58	58	59	– 2
Mfg. Avg. Wkly. Earn. – $	291	284	282	+ 3	Trans. Com. & Pub. Util.	71	71	72	– 1

FLORIDA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	4,135	4,165	3,981	+ 4	Nonfarm Employment– thous.	3,868	3,826	3,712	+ 4
Total Employed – thous.	3,834	3,850	3,782	+ 1	Manufacturing	477	477	468	+ 2
Total Unemployed – thous.	301	315	199	+51	Construction	277	278	282	– 2
Unemployment Rate – % SA	7.7	7.6	5.3		Trade	1,033	1,003	986	+ 5
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	653	655	629	+ 4
Insured Unempl. Rate – %	N.A.	N.A.	N.A.		Services	915	905	848	+ 8
Mfg. Avg. Wkly. Hours	41.5	40.7	42.3	– 2	Fin., Ins., & Real Est.	273	271	261	+ 5
Mfg. Avg. Wkly. Earn. – $	285	275	264	+ 8	Trans. Com. & Pub. Util.	231	226	227	+ 2

GEORGIA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	2,456	2,462	2,388	+ 3	Nonfarm Employment– thous.	2,165	2,166	2,176	– 1
Total Employed – thous.	2,288	2,296	2,246	+ 2	Manufacturing	510	513	519	– 2
Total Unemployed – thous.	168	166	142	+18	Construction	97	97	104	– 7
Unemployment Rate – % SA	7.0	6.8	6.1		Trade	499	492	510	– 2
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	439	442	436	+ 1
Insured Unempl. Rate – %	N.A.	N.A.	N.A.		Services	358	360	348	+ 3
Mfg. Avg. Wkly. Hours	39.8	39.7	41.1	– 3	Fin., Ins., & Real Est.	114	114	113	+ 1
Mfg. Avg. Wkly. Earn. – $	265	262	250	+ 6	Trans. Com. & Pub. Util.	140	140	140	0

LOUISIANA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	1,771	1,781	1,747	+ 1	Nonfarm Employment– thous.	1,653	1,650	1,617	+ 2
Total Employed – thous.	1,619	1,631	1,629	– 1	Manufacturing	210	212	218	– 4
Total Unemployed – thous.	152	150	118	+29	Construction	154	155	148	+ 4
Unemployment Rate – % SA	8.9	8.6	7.1		Trade	374	370	368	+ 2
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	327	327	315	+ 4
Insured Unempl. Rate – %	N.A.	N.A.	N.A.		Services	288	287	276	+ 4
Mfg. Avg. Wkly. Hours	42.5	42.3	42.4	+ 0	Fin., Ins., & Real Est.	77	76	75	+ 3
Mfg. Avg. Wkly. Earn. – $	374	367	343	+ 9	Trans. Com. & Pub. Util.	127	128	126	+ 1

MISSISSIPPI

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	1,023	1,020	1,015	+ 1	Nonfarm Employment– thous.	821	821	839	– 2
Total Employed – thous.	928	928	940	– 1	Manufacturing	214	215	220	– 3
Total Unemployed – thous.	95	92	76	+25	Construction	39	40	43	– 9
Unemployment Rate –·% SA	9.1	9.5	7.5		Trade	170	167	171	– 1
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	190	190	198	– 4
Insured Unempl. Rate – %	N.A.	N.,A.	N.A.		Services	123	124	123	0
Mfg. Avg. Wkly. Hours	38.7	39.0	40.2	– 4	Fin., Ins., & Real Est.	33	33	33	0
Mfg. Avg. Wkly. Earn. – $	241	240	230	+ 5	Trans. Com. & Pub. Util.	41	42	41	0

TENNESSEE

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Civilian Labor Force – thous.	2,056	2,083	2,004	+ 3	Nonfarm Employment– thous.	1,706	1,719	1,737	– 2
Total Employed – thous.	1,841	1,883	1,857	– 1	Manufacturing	498	507	506	– 2
Total Unemployed – thous.	215	200	147	+46	Construction	70	73	73	– 4
Unemployment Rate – % SA	10.4	10.0	7.2		Trade	374	371	383	– 2
Insured Unemployment – thous.	N.A.	N.A.	N.A.		Government	298	301	317	– 6
Insured Unempl. Rate – %	N.A.	N.A.	N.A.		Services	300	300	286	+ 5
Mfg. Avg. Wkly. Hours	39.8	39.7	41.2	– 3	Fin., Ins., & Real Est.	75	75	78	– 4
Mfg. Avg. Wkly. Earn. – $	274	270	265	+ 3	Trans. Com. & Pub. Util.	81	82	84	– 4

Notes: All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.
Only the unemployment rate data are seasonally adjusted.
The Southeast data represent the total of the six states.
The annual percent change calculation is based on the most recent data over prior year.

CONSTRUCTION

12-Month Cumulative Rate	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.		DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
UNITED STATES									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	150,189	149,232	148,393	+ 1	Value – $ mil.	60,063	61,998	63,668	– 6
Nonresidential Contracts					Number of Units – Thous.	1,123.7	1,170.1	1,331.4	–16
Value – $ mil.	58,249	58,234	52,491	+11					
Sq. Ft. – mil.	1,166.3	1,179.5	1,200.4	– 3	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	557.5	575.8	704.0	–21
Value – $ mil.	31,877	29,001	32,234	– 1	Number multi-family	411.6	424.4	466.9	–12
SOUTHEAST									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	25,597	25,843	26,326	– 3	Value – $ mil.	12,296	12,829	13,107	– 6
Nonresidential Contracts					Number of Units – Thous.	262.3	274.6	312.2	–16
Value – $ mil.	8,383	8,188	7,688	+ 9					
Sq. Ft. – mil.	195.5	194.2	183.7	+ 6	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	117.9	123.5	154.4	–24
Value – $ mil.	4,919	4,825	5,530	–11	Number multi-family	100.9	106.7	124.1	–19
ALABAMA									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	1,774	1,792	1,919	– 8	Value – $ mil.	847	864	903	– 6
Nonresidential Contracts					Number of Units – Thous.	21.7	22.3	25.0	–13
Value – $ mil.	577	566	558	+ 3					
Sq. Ft. – mil.	14.0	13.3	13.9	+ 1	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	5.4	5.8	9.2	–41
Value – $ mil.	350	361	458	–24	Number multi-family	5.5	6.0	7.4	–26
FLORIDA									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	12,299	12,598	12,847	– 4	Value – $ mil.	6,860	7,301	7,458	– 8
Nonresidential Contracts					Number of Units – Thous.	146.4	155.8	176.6	–17
Value – $ mil.	3,732	3,614	2,928	+27					
Sq. Ft. – mil.	90.8	89.5	78.5	+16	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	70.4	74.6	89.1	–21
Value – $ mil.	1,707	1,683	2,461	–31	Number multi-family	72.9	77.9	86.2	–15
GEORGIA									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	3,841	3,896	3,939	– 2	Value – $ mil.	1,755	1,819	1,820	– 4
Nonresidential Contracts					Number of Units – Thous.	37.0	38.3	44.4	–17
Value – $ mil.	1,202	1,193	1,320	– 9					
Sq. Ft. – mil.	33.4	32.9	36.3	– 8	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	21.1	21.4	26.7	–21
Value – $ mil.	884	885	799	+11	Number multi-family	8.8	8.3	8.6	+ 2
LOUISIANA									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	3,775	3,526	3,270	+15	Value – $ mil.	1,321	1,316	1,136	+16
Nonresidential Contracts					Number of Units – Thous.	24.5	25.2	24.0	+ 2
Value – $ mil.	1,508	1,341	1,213	+24					
Sq. Ft. – mil.	24.4	23.8	18.5	+32	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	9.9	10.1	11.6	–15
Value – $ mil.	946	869	921	+ 3	Number multi-family	8.1	8.3	8.3	– 2
MISSISSIPPI									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	1,343	1,406	1,561	–14	Value – $ mil.	556	551	601	– 7
Nonresidential Contracts					Number of Units – Thous.	12.6	12.6	14.9	–15
Value – $ mil.	307	356	629	–51					
Sq. Ft. – mil.	7.1	8.4	9.6	–26	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	3.5	3.6	5.1	–31
Value – $ mil.	480	499	331	+45	Number multi-family	1.7	1.8	5.1	–67
TENNESSEE									
Total Construction Contracts					Residential Contracts				
Value – $ mil.	2,565	2,625	2,789	– 8	Value – $ mil.	956	979	1,189	–20
Nonresidential Contracts					Number of Units – Thous.	20.1	20.5	27.3	–26
Value – $ mil.	1,056	1,117	1,040	+ 2					
Sq. Ft. – mil.	25.7	26.3	26.9	– 4	Residential Permits – Thous.				
Nonbuilding Contracts					Number single-family	7.6	8.0	12.7	–40
Value – $ mil.	553	528	560	– 1	Number multi-family	3.9	4.5	8.4	–54

Notes: Contracts are calculated from the F. W. Dodge Construction Potentials. Permits are calculated from the Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts. The Southeast data represent the total of the six states. The annual percent change calculation is based on the most recent month over prior year.

UNITED STATES

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	2,412.9	2,340.5	2,155.8	+12
Retail Sales - $ mil.- SA	87.1	87.2	83.4	+ 4
Plane Passenger Arrivals (thous.)	N.A.	N.A.	N.A.	
Petroleum Prod. (thous. bls.)	8,607.6	8,613.3	8,541.1	+ 2
Consumer Price Index				
1967=100 (JAN.)	282.5	281.5	260.5	+ 8

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Prices Rec'd by Farmers				
Index (1967=100)	130.0	128.0	145.0	-10
Broiler Placements (thous.)	78,942	77,961	79,388	- 1
Calf Prices ($ per cwt.)	57.90	57.80	69.80	-17
Broiler Prices (¢ per lb.)	27.1	24.6	30.2	-10
Soybean Prices ($ per bu.)	6.05	6.00	7.54	-20
Broiler Feed Cost ($ per ton)	211	210	237	-11

SOUTHEAST

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	282.1	272.8	249.2	+13
Taxable Sales - $ mil.	N.A.	N.A.	N.A.	
Plane Passenger Arrivals (thous.)	4,239.7	3,719.3	4,026.2	+ 5
Petroleum Prod. (thous. bls.)	1,407.8	1,412.0	1,436.3	- 2
Consumer Price Index				
1967=100	N.A.	N.A.	N.A.	

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Prices Rec'd by Farmers				
Index (1967=100)	117.9	111.6	129.2	- 9
Broiler Placements (thous.)	31,337	31,078	31,198	+ 0
Calf Prices ($ per cwt.)	52.70	53.78	66.71	-21
Broiler Prices (¢ per lb.)	25.6	23.5	28.9	-11
Soybean Prices ($ per bu.)	6.21	6.09	7.66	-19
Broiler Feed Cost ($ per ton)	207	203	234	-12

ALABAMA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	32.4	31.4	29.1	+12
Taxable Sales - $ mil.	N.A.	N.A.	N.A.	
Plane Passenger Arrivals (thous.)	105.2	102.4	113.5	- 7
Petroleum Prod. (thous. bls.)	59.4	60.0	61.0	- 3
Consumer Price Index				
1967=100	N.A.	N.A.	N.A.	

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Farm Cash Receipts - $ mil.				
(Dates: NOV, NOV)	1,886	–	1,806	+ 4
Broiler Placements (thous.)	9,684	9,691	10,525	- 8
Calf Prices ($ per cwt.)	54.40	54.20	62.00	-12
Broiler Prices (¢ per lb.)	23.5	22.5	28.5	-18
Soybean Prices ($ per bu.)	6.21	6.12	7.66	-19
Broiler Feed Cost ($ per ton)	230	215	230	0

FLORIDA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	102.4	98.3	88.8	+15
Taxable Sales - $ mil. (JAN.)	66,806	66,715	59,194	+13
Plane Passenger Arrivals (thous.)	2,109.3	1,725.5	2,182.1	- 3
Petroleum Prod. (thous. bls.)	90.4	93.0	116.5	- 22
Consumer Price Index - Miami	**JAN**	**NOV**	**JAN**	
Nov. 1977 = 100	155.2	153.6	137.3	+13

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Farm Cash Receipts - $ mil.				
(Dates: NOV, NOV)	3,610	–	3,759	- 4
Broiler Placements (thous.)	1,904	2,006	1,728	+10
Calf Prices ($ per cwt.)	54.40	57.30	65.70	-17
Broiler Prices (¢ per lb.)	25.0	24.0	29.0	-14
Soybean Prices ($ per bu.)	6.21	6.12	6.97	-11
Broiler Feed Cost ($ per ton)	220	215	240	- 8

GEORGIA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	48.7	47.6	43.7	+11
Taxable Sales - $ mil.	N.A.	N.A.	N.A.	
Plane Passenger Arrivals (thous.)	1,599.1	1,464.9	1,697.5	- 6
Petroleum Prod. (thous. bls.)	N.A.	N.A.	N.A.	
Consumer Price Index - Atlanta	**DEC**	**OCT**	**DEC**	
1967 = 100	282.2	281.5	258.3	+ 9

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Farm Cash Receipts - $ mil.				
(Dates: NOV, NOV)	2,913	–	2,514	+16
Broiler Placements (thous.)	12,344	12,162	12,346	- 0
Calf Prices ($ per cwt.)	49.20	50.80	61.80	-20
Broiler Prices (¢ per lb.)	25.5	23.0	28.5	-11
Soybean Prices ($ per bu.)	5.99	5.95	7.40	-19
Broiler Feed Cost ($ per ton)	194	194	240	-19

LOUISIANA

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	40.4	39.1	35.3	+14
Taxable Sales - $ mil.	N.A.	N.A.	N.A.	
Plane Passenger Arrivals (thous.)	255.2	259.6	253.8	+ 1
Petroleum Prod. (thous. bls.)	1,164.0	1,165.0	1,160.5	+ 0
Consumer Price Index				
1967 = 100	N.A.	N.A.	N.A.	

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Farm Cash Receipts - $ mil.				
(Dates: NOV, NOV)	1,546	–	1,109	+39
Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Calf Prices ($ per cwt.)	56.60	52.90	66.50	-15
Broiler Prices (¢ per lb.)	28.5	25.5	30.0	- 5
Soybean Prices ($ per bu.)	6.27	6.17	7.83	-20
Broiler Feed Cost ($ per ton)	245	240	250	- 2

MISSISSIPPI

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	18.3	17.7	16.5	+11
Taxable Sales - $ mil.	N.A.	N.A.	N.A.	
Plane Passenger Arrivals (thous.)	30.8	30.0	33.7	- 9
Petroleum Prod. (thous. bls.)	94.0	94.0	98.3	- 4
Consumer Price Index				
1967 = 100	N.A.	N.A.	N.A.	

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Farm Cash Receipts - $ mil.				
(Dates: NOV, NOV)	2,041	–	1,598	+28
Broiler Placements (thous.)	6,102	5,873	5,619	+ 9
Calf Prices ($ per cwt.)	50.70	54.30	71.00	-29
Broiler Prices (¢ per lb.)	29.0	25.5	30.5	- 5
Soybean Prices ($ per bu.)	6.24	6.08	7.79	-20
Broiler Feed Cost ($ per ton)	183	188	225	-19

TENNESSEE

	DEC 1981	NOV 1981	DEC 1980	ANN. % CHG.
Personal Income-$ bil. SAAR				
(Dates: 3Q, 2Q, 3Q)	39.8	38.8	35.8	+11
Taxable Sales - $ mil.	N.A.	N.A.	N.A.	
Plane Passenger Arrivals (thous.)	140.1	136.8	140.1	0
Petroleum Prod. (thous. bls.)	N.A.	N.A.	N.A.	
Consumer Price Index				
1967 = 100	N.A.	N.A.	N.A.	

Agriculture	JAN 1982	DEC 1981	JAN 1981	ANN. % CHG.
Farm Cash Receipts - $ mil.				
(Dates: NOV, NOV)	1,607	–	1,539	+ 4
Broiler Placements (thous.)	1,303	1,346	1,178	+11
Calf Prices ($ per cwt.)	51.60	52.30	71.10	-27
Broiler Prices (¢ per lb.)	24.0	22.0	27.0	-11
Soybean Prices ($ per bu.)	6.21	6.07	8.02	-23
Broiler Feed Cost ($ per ton)	210	200	215	- 2

Notes:

Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N.A. = not available. The annual percent change calculation is based on most recent data over prior year.

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Address Correction Requested