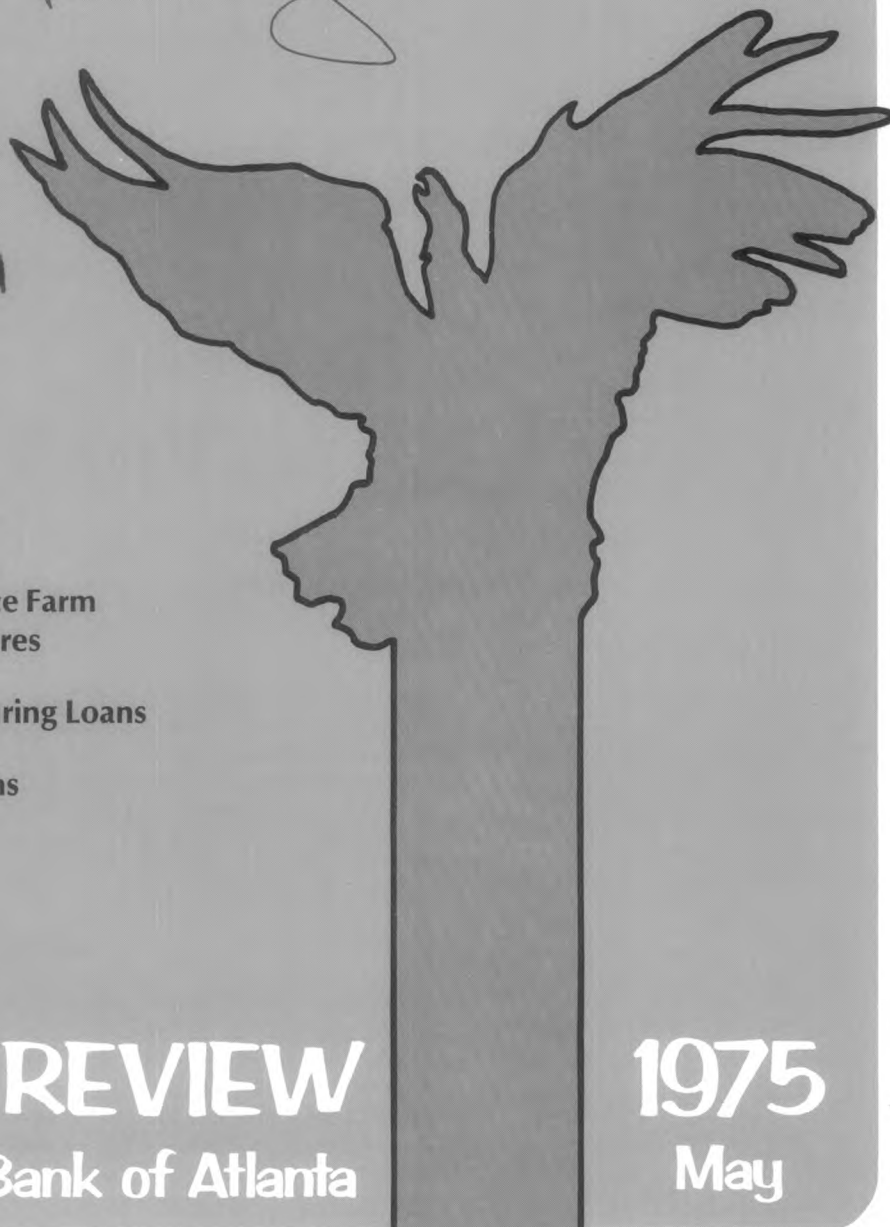


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FEDERAL RESERVE BANK OF PHILADELPHIA



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MONTHLY REVIEW

Federal Reserve Bank of Atlanta

1975

May

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Federal Reserve Station
Atlanta, Georgia 30303

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What Do Banks Produce?

by W. F. Mackara

One of the more frustrating problems facing financial economists is the measurement of bank output, i.e., what a bank produces. Based on volume of research, one might infer that economists have a clear idea of how to measure bank output. Rather than a consensus, however, there exists a variety of concepts and methods, none of which is without its disadvantages. This article examines several of these methods for their strengths and shortcomings, though no attempt is made at completeness. (For more detailed analyses, see the references cited at the end of the article.)

The Problems

It is useful to quantify bank output for several reasons.

In evaluating the productive efficiency of the banking industry, the average cost of output (total operating costs divided by the total product) can help analyze whether, on average, costs increase more than, less than, or by the same amount as output. This helps determine whether a large bank is less costly on average to operate than a smaller one, i.e., if "economies of scale" are present. If so, then by at least one measure, larger banks use resources more efficiently. This in turn is useful in evaluating issues in banking legislation and regulation. To measure average cost, however, one must first quantify total bank product.

Another use of output measures for banking legislation and regulation relates to the structure as well as to the size of banks. Is branch banking more efficient than unit banking or bank holding companies? How can we determine the competitive impact of the acquisition of a bank into a branching system or a holding company? Would the entry of a new bank be preferable to that of a branch? Does existing legislation promote or impede an efficient

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banking system? These are questions which may be analyzed if we have some way to measure bank output. A measurement of bank output is also useful in national product accounting for determining how much the banking industry contributes to the gross national product.

Before we can measure the output of any industry, we have to define what we want to measure, no small problem in the case of banking. For example, suppose firm X manufactures a physical product which we shall call widgets. Assuming that all widgets are identical and that they are the only output, calculating the firm's daily total product would mean counting the number of widgets completed.¹

Now contrast this hypothetical firm with a bank. First, unlike the widget maker, banks for the most part produce no physical output. Rather, they "produce" services by functioning as a source of credit (loans and investments), providing customers with low or no-risk assets (time and savings deposits), protecting valuables (safe deposit boxes), providing accounting services (monthly statements), and maintaining investment portfolios for the public (trust department services).

Even less tangible are banking's intermediation services. Individuals with more money than they wish to spend can keep deposits in banks; those wishing to spend more than their presently available income can borrow there. In this way, banks act as a marketplace for lenders and borrowers. Instead of personally searching for someone to lend to or borrow from and accepting fully the related risks, the individual can go to a bank which pools the funds and the risks. Furthermore, by handling checking deposits, banks facilitate the exchange of goods and services, contributing to economic activity.

How are services measured? A service cannot be counted in units like a physical good without first specifying what a "unit" of service output is. There are, then, *two basic problems* to the bank output question: (1) *defining* precisely what constitutes bank output, and (2) *measuring* this output so defined.

A second major difference between banks and the hypothetical firm is the assumption that the firm makes only one product. Banks, however, provide many different services. To understand the significance of this, suppose the imaginary firm produced two goods—widgets and sadgets. Now, we must somehow take into consideration the fact that we are no longer producing just one good. Rather than physical units, the dollar value of output may be computed by multiplying (or "weighting") the physical number of each product

by its market price, and the weighted sum used as our measurement of "total product." Some economists have suggested a similar way of measuring bank output.

Banking's multiproduct nature compounds the problem of measuring output. Not only must a unit of service output be determined, but there are many different services to be so defined.

Moreover, banking's multiproduct nature creates problems not found in most other industries. Though it might be perfectly reasonable to treat business X as if it were two separate firms, one producing widgets and the other sadgets, there are economic and legal reasons why we might not want to do this for banks.

Economically there may be "jointness" or interdependence in the demand or supply of bank services. In other words, providing one service may entail providing others, and the demand for one bank service may necessarily accompany demand for another service. As an example, when an individual places money in a checking account, he is actually getting at least two conceptually separate services: safekeeping of his money and accounting services. By demanding one of these services, he gets the other; and by supplying one, the bank supplies the other. There is no way of separating these services and pricing them individually. Because of this interdependence, it has been argued that banks must be viewed as a single unit rather than as a collection of independent departments producing separate products.² The U. S. Supreme Court made this view official for regulating competition in banking, adding a legal rationale for seeking a single measure of bank output.³

There is yet a third complication. Suppose one of firm X's products isn't only an output good but also serves as an "input." In other words, widgets may not only be manufactured for their own sake but are also used to produce sadgets. Are widgets still an output or are they an input? There is no absolutely "right" way of treating this problem. If we substitute "bank" for "firm X," "deposits" for "widgets," and "earning assets" (loans and investments) for "sadgets," we see this problem in measuring bank output.

An individual can place money in a bank in the form of a checking or time deposit. In either case, the bank provides protection and accounting services. If the money is placed in a time deposit account, the individual has bought an interest-bearing asset. In this respect, the deposit is an output of the bank. But the bank uses this money (except that portion which must be held as

²See the paper by Adar, Agmon, and Orgler for an expansion of the "jointness" problem.

³**United States vs. Philadelphia National Bank**

¹This disregards the problem of partially completed widgets.

reserves) to make loans and investments, which are a source of income just as selling widgets is to firm X. Deposits are also inputs, then, providing the raw materials used to make loans and investments. To the degree that the treatment of deposits involves an arbitrary choice, so does the measurement of output.⁴

Despite these difficulties, a number of studies have tried to quantify bank output.⁵ If any single conclusion may be drawn from this large volume of literature, it is that the choice of an output measure depends largely on what aspect of banking is being investigated and what the primary function of a bank is considered to be.

With this in mind, let us examine some methods of measuring bank output, along with their individual strengths and shortcomings.

A Single-Valued Measure

Perhaps the simplest way of measuring output is to define it as a bank's total loans and investments (earning assets), the rationale being that loans and investments are by far the most important source of income to a bank. If firm X's output is the market value of its widgets and gadgets, the output of a bank would be the market value of its loans and investments. This output measure also stresses the credit function of banking, with the advantage of its being readily available from banking balance sheets.⁶

There are several drawbacks, however, in using earning assets. First of all, production is a "flow" concept, expressed as some amount per unit of time (such as 100 widgets per month). The total amount of earning assets, on the other hand, is a "stock" concept, representing a given amount at a particular point in time. For example, if on April 15, 1975, firm X had 100 widgets in its warehouse, that is its stock of inventory.

Using a stock to measure a flow concept can be misleading. Looking at firm X's stock of inventory would be virtually useless in measuring firm X's flow of output without such facts as how many widgets were in the warehouse, say, three months ago, and how many were sold in the meantime.

This is the problem in measuring bank output

by earning assets. How many loans and investments the bank has made depends not only on the amount outstanding when the balance sheet is computed but also on the extensions, repayments, and the amount outstanding reported in the previous balance sheet.⁷

Furthermore, using total earning assets makes no distinction as to size or type of asset. Thus, ten consumer loans of \$1,000 become equivalent to one \$10,000 business loan. There are some objections to this: Although the single business loan is equal to several consumer loans dollarwise, it does not necessarily follow that they are equally desirable in terms of social welfare and economic impact. The consumer loans may stimulate private consumption and increase demand. A business loan, on the other hand, may be used to expand plant facilities and increase supply. Moreover, since different loans and investments carry different interest rates, they may be of dissimilar value to society and of different costs (including risk) to the bank.

In essence, lumping together all earning assets without distinguishing types overlooks banking's multiproduct nature. Ignoring the fact that banks provide "products" (services) other than credit may be rationalized as a shortcut, since these other services represent only a relatively small part of bank income. But use of total earning assets fails to consider that lending and investing activities themselves are made up of many quite different "products."

Weighted Indexes of Output

To correct for these drawbacks, weighted indexes of earning assets have been used to measure output. The underlying concept is similar to that of firm X making two products, that is, weighting (multiplying) the number of each type unit by its market price.

A weighted index of earning assets works in an analogous way, with weights based on each type of asset's contribution to bank income. One of the weighted index's advantages is in providing a single-valued output measure, just as the first measure. Unlike it, however, the weighted index explicitly recognizes the multiproduct nature of bank credit operations. Also, because weights are based on the impact of earning assets on income, it takes account of the stock vs. flow problem.⁸

⁴Determining inputs and outputs depends in part on the scope of analysis. From a microeconomic viewpoint, i.e., concentrating on a bank as an individual unit, deposits are an input to banks and loans, and investments are an output. From a macroeconomic viewpoint, i.e., concentrating on the banking system's impact on the whole economy, loans and investments are inputs and deposits the output. A third concept sees banks as producing intermediation services, and the inputs are such things as labor and machinery.

⁵Individually, many of these problems are applicable to other industries. It is the convergence of all of them in banking that makes output measurement there so difficult.

⁶See Alhadef and Horvitz.

⁷In defense of this approach, however, it could be argued that stock measures can indeed serve as proxies of flow concepts. An obvious example is the use of the stock of houses as a measure of the flow of services provided by housing.

⁸Actually, such indexes don't completely eliminate the stock-flow problem. Earning assets are still balance sheet (stock) items. They are mathematically converted to a flow, but it would be preferable to use a flow measure to begin with.

However, the weighted-index measure is not without its flaws. Proponents of this method disagree among themselves as to the proper assignment of weights. Some say that the actual interest rates charged on each type of earning asset should be used as weights, for the interest rate reflects the value placed on that type of asset by society. As a corollary, it is argued that a bank which commands higher rates on loans and investments must be providing more services (higher output) than a bank charging lower rates; otherwise, customers wouldn't pay the higher rates.⁹

The chief objection to this weighting scheme is that higher rates for one bank may reflect imperfections in competition or differences in managerial efficiency rather than level of service. For this reason, more complicated weighting systems have been devised which utilize interest rates in a more roundabout way.¹⁰

In either case, however, the problem remains that interest rates are affected by the rate of inflation. If inflation increases, interest rates tend to rise, and conversely. An index whose weights are based on interest rates (directly or indirectly) would produce an output measure with an inflationary bias. Just as the value of output in any other industry must be deflated by the price level, so must one deflate the value of bank output to arrive at some "real" measure.¹¹

The weighted-index measures do a reasonably good job of recognizing bank lending's multiproduct nature but are relatively weak in doing so for noncredit bank output. In some versions, total bank income over and above that derived from loans and investments is simply thrown into the output equation. But this ignores the multiproduct nature of nonlending output.¹²

More fundamentally, however, all the above methods look at output almost entirely from the banks' viewpoint. Deposits are treated exclusively as an input.¹³ To the public and the economy in general, deposits also provide services: Time

deposits serve as an earning asset and checking accounts are a means of purchasing goods and services. There is a demand for these services, just as there is a demand for loans. Ignoring different types and sizes of loans disregards the differential impact of bank credit activity on society; so does the exclusion of deposits. For in the broader macroeconomic sense, deposits are a very important part of bank operations.¹⁴

Is there any measure of output which takes account of the multiproduct nature of banking, does not overlook the differential impacts of types of loans and nonlending output, lacks an inflationary bias, and which also includes deposits as output?

Number of Accounts Method

The number of accounts method has all these characteristics, yet is radically different in that it avoids as much as possible using dollar amounts in defining bank products.

By this approach, activity is broken down into several functions such as demand deposits, time deposits, business loans, instalment loans, trust department, safe deposit boxes, etc. The basic unit of output is then defined as the average number of accounts handled in each function per year (or month).

This method has been used in several studies of bank costs. By splitting bank activity into several functions, including deposits and other nonlending activities, both the multiproduct nature of banking and the output nature of deposits are taken into account. The inflationary bias is absent because numbers without a price dimension are used rather than dollar amounts and interest rates.¹⁵ Finally, because output is expressed as a flow concept (number of accounts per unit of time), the stock-flow problem is avoided.

Is this the ideal measure of bank output? Unfortunately not, for it, too, has its shortcomings.

This method measures output for separate bank "products," but it does not give a measure of aggregate bank output (the jointness problem). If bank services are not independent, then attempting to measure them individually would be incorrect. To arrive at a single number representing total output would require indexing and weighting and all the attendant problems.¹⁶

¹⁴Nevertheless, some writers question the validity of treating deposits as an output.

¹⁵Benston, Bell, and Murphy used such an approach. However, it should be noted that interest rates and dollar volumes do appear in their equations. Thus, some inflationary bias may affect these measures.

¹⁶It can be argued, however, that measures of individual bank products are useful for comparing banks' efficiency in producing a given product with that of a nonbank firm. For instance, one could compare banks' efficiency in providing consumer instalment loans with that of a consumer finance company.

⁹This is essentially the view taken by J. A. Powers.

¹⁰For instance, Greenbaum uses linear regression to derive a set of "average" interest rates charged on various categories of earning assets by a sample of banks. These average rates were then used as weights.

¹¹See p. 29 of the article by Speagle and Kohn.

¹²Another criticism of some of these weighted indexes is that they disregard the size of a credit transaction. This argument maintains that a loan of \$10,000 has a different impact on the economy than 10 loans of \$1,000 each. In a sense, then, failing to account for this is similar to ignoring the different types of earning assets. Furthermore, if larger customers tend to patronize large banks and if a single large loan to a well-established firm is cheaper to make in terms of paperwork, risk, and credit checking, then economies of scale would be overstated by not taking this factor into consideration. See the August 1967 article by Greenbaum for a discussion of this point.

¹³Powers presents a model weighting the various earning assets and nonlending outputs, including deposits.

National Product Accounting Method

Still another method is used by the Department of Commerce in constructing the national income and product accounts.¹⁷ These are made up of gross product (and income) originating in various categories of industries, including banking.

For most industries, the procedure for measuring gross product originating involves subtracting interfirm purchases from total sales. This yields the contribution to gross product by that industry (value added).

For banking, however, there are complicating circumstances. If one measures bank sales as total service charges and other explicit charges for bank services (such as safe deposit services) and subtracts from this total purchases from other firms, banking's value added is very low. This is because much of banking's product is not sold for an explicit price, e.g., demand deposits. Thus, some way of including this nonpecuniary product must be "imputed."

The basic assumption behind this is that banks do not explicitly charge depositors a price commensurate with the cost of services provided to them (in terms of bookkeeping and handling checks), and there must be some implicit charges. These are viewed as the income which banks earn on lending and investing deposits (or more correctly, the amount of deposits over and above required reserves), and which they do not pay out fully to the owners of these deposits. The imputed price of the service banks sell, then, is the total interest banks receive on loans and investments minus the interest they pay out to depositors.¹⁸

When imputed service charges are added to explicit service charges and interfirm purchases are subtracted out, the result is gross product originating in banking.

There is an additional complication. In order to establish what the ultimate effect of bank product is on the national economy, the ownership of deposits must be considered. To the extent that deposits are owned by businesses, the imputed bank product is an intermediate purchase by businesses; it cancels out in the consolidated GNP accounts. To the extent, however, that these deposits are owned by private individuals, the imputed product represents a purchase of final goods; and GNP increases.

This method has been criticized as too complex and involving some dubious assumptions. Perhaps most questionable is the idea that all imputed benefits of banking services are enjoyed by

depositors. Others have maintained that borrowers also receive services over and above borrowing costs (such as investment advice), which are not otherwise counted as "product."

Moreover, the distribution of imputed benefits may depend on the usage of deposits. If a greater usage of deposits implies that more service, i.e., product, is being derived from a given volume, then ignoring deposit turnover (or some other measure of deposit usage) will yield an inaccurate measure of bank output.

Finally, unless the imputed price of bank services is deflated by an index of interest rates (since the interest income used for imputation will vary with the rates charged on loans and investments), as well as general prices, the national accounting procedure will misrepresent real bank output.

Conclusion

Each method of measuring bank output has its strengths and flaws. None provides a measure which simultaneously solves all problems: stock-flow, jointness-multiproduct nature, input-output treatment of deposits, inflationary bias, and distinguishing the impact of different sizes and types of bank credit and deposits.

Even if we cannot conclude that there is a measure of output, we needn't accept the contrary. There is a whole variety of such measures, and the choice of method will depend on what aspect of banking is under study. If a bank's main function is viewed as a source of general credit without worrying about to whom it goes, then perhaps the single-valued measure (total earning assets) will suffice. If one wants to study banks' impact on various sectors of the economy through credit granting, then a weighted-index measure might be useful. And if one wants to view banks as a producer of a "money good" (checking accounts), then perhaps the number of accounts methods could be used. ■

¹⁷Because of the complexity of the method, this discussion excludes many complicating factors.

¹⁸This is mathematically equal to gross operating expenses plus profits minus explicitly charged services.

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Planting Changes to Reduce Farm Production Expenditures

by Gene D. Sullivan

Farmers' production spending in Sixth District states will be down sharply in 1975. A 37-percent reduction in planned cotton acreage will produce the downturn. Increased acreages of other crops (indicated by the U.S.D.A. March survey) will only partially offset the impact of reduced production expenditures for cotton.

Comparisons with Prior Years

Cotton

Cotton plantings, first in use of production funds, but third in total acreage, will be cut sharply in 1975. Soaring production costs and low prices compared with other crops have caused farmers to plan acreage reductions of more than one-third from 1974's level (see chart). Most of the cut in cotton plantings will occur in Mississippi, which accounts for nearly one-half of the region's total cotton acreage.

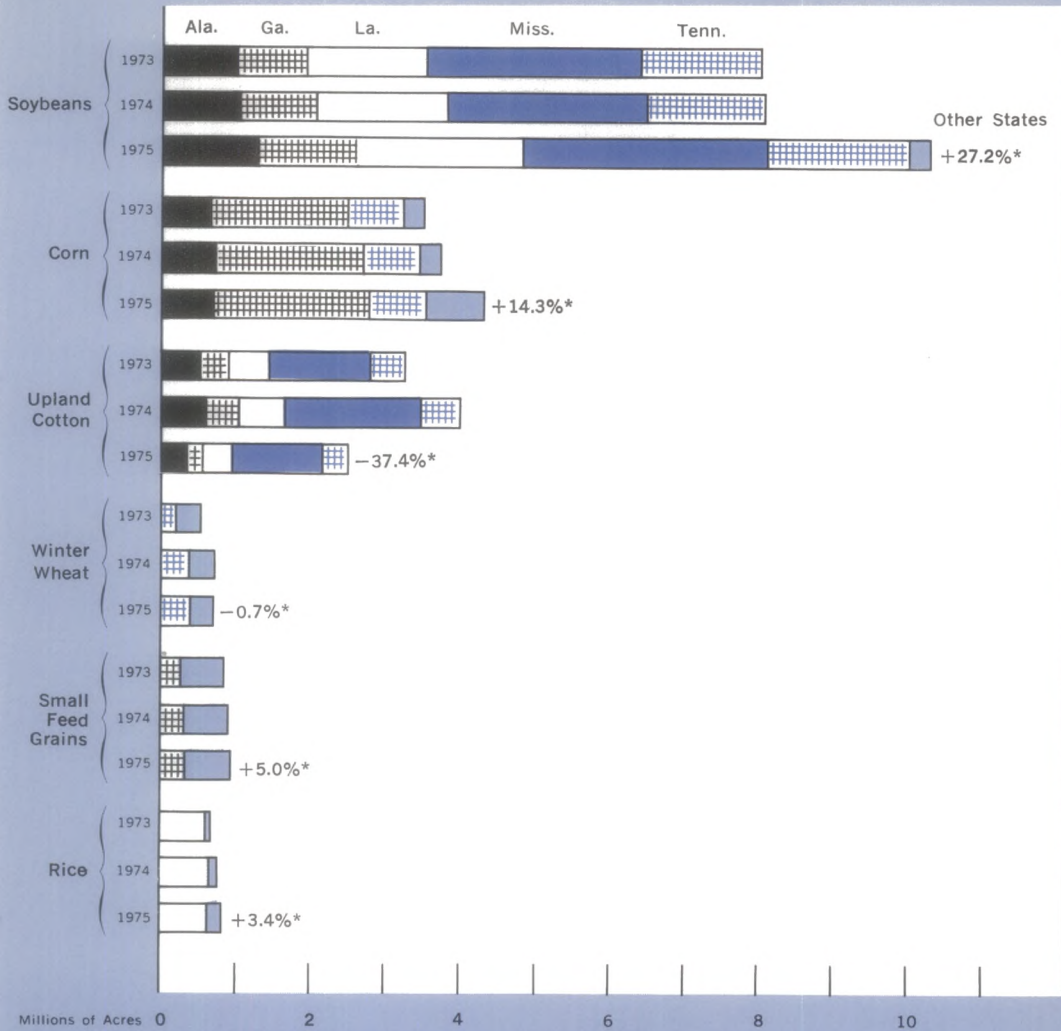
Soybeans

The planned soybean acreage stands out, not only because it is nearly double that of any other crop but also because it is an increase of 27 percent over last year's. Every District state is increasing plantings, especially Mississippi and Louisiana. In those two states, soybeans offer the most profitable alternative use for acreage removed from cotton production.

Corn

Corn plantings, second in total acreage in the region, will increase by 14

ACREAGE OF MAJOR CROPS PLANTED Sixth District States



*The percentage change from 1974 acreage indicated by the March survey of farmers' planting intentions.

percent in 1975. The unusually high feed grain prices in 1974 and early this year have apparently stimulated farmers to expand District corn acreage, about half of which is located in Georgia.

Rice, Wheat, and Other Small Grains

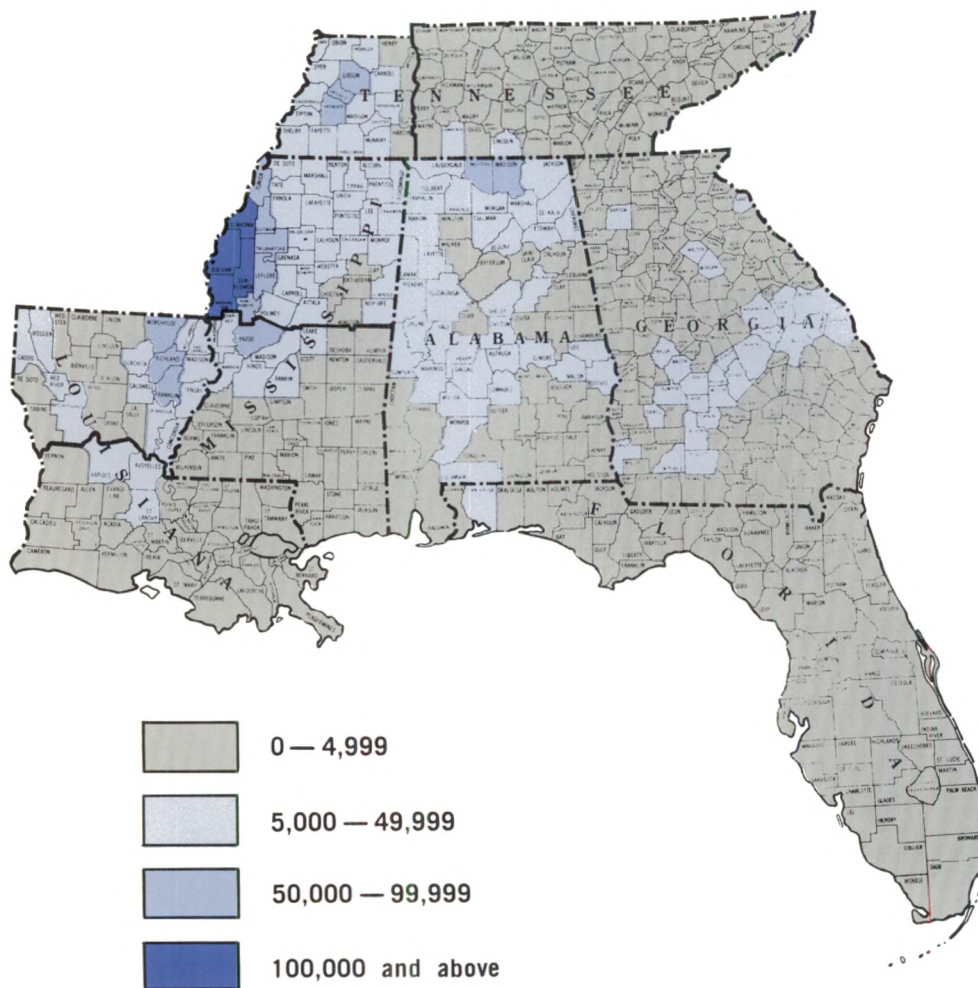
Wheat acreage is included in the chart, although it was planted in the fall of 1974 and will have reached maturity by late spring. The combined total acreage planted to rice, wheat, and small feed grains will increase moderately in 1975.

However, the changes in these plantings are dwarfed by the huge swings in soybean, corn, and cotton acreages.

District Differs from U. S.

Changes in intended plantings in the U. S. as a whole are much less dramatic than at the District level for all crops except cotton. Total U. S. cotton acreage is projected to decline by 28 percent (as compared with 37 percent in the

Cotton: Acres Harvested, 1972



District) in 1975. A small acreage reduction is indicated for corn; however, the return of normal weather to major grain-producing areas should boost 1975's corn production sharply above 1974's drought-reduced output. Increases in soybean and small feed grains plantings will approximately offset acreage reductions in cotton and corn.

Reduced District Production Expenditures

Farmers' production expenditures will be sharply altered, both in distribution and in quantity, by

the announced adjustments in crop acreages. Cotton production expenditures in 1975 will be reduced an estimated \$276 million, or about one-third of 1974 expenditures, by the 1.5-million-acre cut in cotton plantings (see table). The fertilizer, insecticide, and ginning industries doing business in cotton-producing counties (see map) will bear the major impact of this reduction. Most of the products and services marketed to the cotton producer are only slightly, if at all, adaptable to other types of agriculture. Some ginners have even indicated that they do not plan to operate at all in 1975.

**EFFECT OF PLANNED ACREAGE CHANGES ON 1975'S
PRODUCTION EXPENDITURES
(SIXTH DISTRICT STATES)**

Cotton: Down 1,508,000 Acres¹

	Cost Per Acre ²	Total Change in Expenditures ³
Seed	\$ 5	\$- 7,540,000
Fertilizer and lime	35	- 52,780,000
Fuel, lubricants, and repairs	26	- 39,208,000
Insecticides	37	- 55,796,000
Herbicides	14	- 21,112,000
Ginning and wrapping	30	- 45,240,000
Other	36	- 54,288,000
Total variable costs	\$183	\$-275,964,000 or - 37% ⁴

Soybeans: Up 2,212,000 Acres¹

	Cost Per Acre ²	Total Change in Expenditures ³
Seed	\$ 8	\$ 17,696,000
Fertilizer and lime	16	35,392,000
Fuel, lubricants, and repairs	12	26,544,000
Herbicides and insecticides	6	13,272,000
Other	9	19,908,000
Total variable costs	\$ 51	\$ 112,812,000 or + 27% ⁴

Corn: Up 541,000 Acres¹

	Cost Per Acre ²	Total Change in Expenditures ³
Seed	\$ 4	\$ 2,164,000
Fertilizer and lime	29	15,689,000
Fuel, lubricants, and repairs	13	7,033,000
Herbicides and insecticides	4	2,164,000
Other	12	6,492,000
Total variable costs	\$ 62	\$ 33,542,000 or + 14% ⁴

Rice: Up 27,000 Acres¹

	Cost Per Acre ²	Total Change in Expenditures ³
Seed	\$ 20	\$ 540,000
Fertilizer	24	648,000
Fuel, lubricants, and repairs	16	432,000
Insecticides and herbicides	17	459,000
Irrigation	24	648,000
Drying	36	972,000
Other	49	1,323,000
Total variable costs	\$186	\$ 5,022,000 or + 3% ⁴

Net Change, Four Crops **\$-124,588,000**

¹Changes from 1974 acreage indicated by the U.S.D.A. March survey of farmers' planting intentions

²Based on variable costs published by Economic Research Service, U.S.D.A., adjusted for increases in prices paid by farmers

³The cost per acre times the planned change in acreage

⁴Percentage changes in expenditures resulting from planned acreage adjustments from 1974 levels.

The acreage expansions intended for soybeans, corn, and rice will generate increased expenditures, but these increases will only partially offset the effects of the contraction in cotton acreage. Since many inputs utilized by cotton producers are not transferable to other crops, the indicated \$125-million net reduction in expenditures for the four crops combined probably understates the economic impact of these expected changes. The effects will undoubtedly be reflected in reduced farm credit demand. In addition, the impact will be felt by bankers and other lenders who finance farm supply and processing industries associated with the cotton industry. ■

Bank Announcements

March 1, 1975

UNITED SECURITY BANK

Church Hill, Tennessee

Opened for business as a par-remitting nonmember. Officers: John Keyes, president and cashier; David M. Whitley, vice president. Capital \$500,000; surplus and other funds, \$750,000.

March 4, 1975

THE BANK OF FLORENCE

Florence, Alabama

Opened for business as a par-remitting nonmember. Officers: Edward F. Mauldin, chairman of the board; James B. Flemming, president; J. Robert Murray, III, vice president and cashier. Capital, \$375,000; surplus and other funds, \$562,500.

March 10, 1975

ELLIS NATIONAL BANK OF WEST HILLSBOROUGH

Tampa, Florida

Opened for business as a member. Officers: A. D. Wilburn, chairman and president; Philip H. Chesnut, Jr., executive vice president and cashier. Capital, \$500,000; surplus and other funds, \$250,000.

March 14, 1975

MARINE NATIONAL BANK OF WEST JACKSONVILLE

Jacksonville, Florida

Opened for business as a member. Officers: Jerry Thomas, chairman; Louis J. Marotta, president; Andrew P. Ignatowicz, cashier. Capital, \$400,000; surplus and other funds, \$600,000.

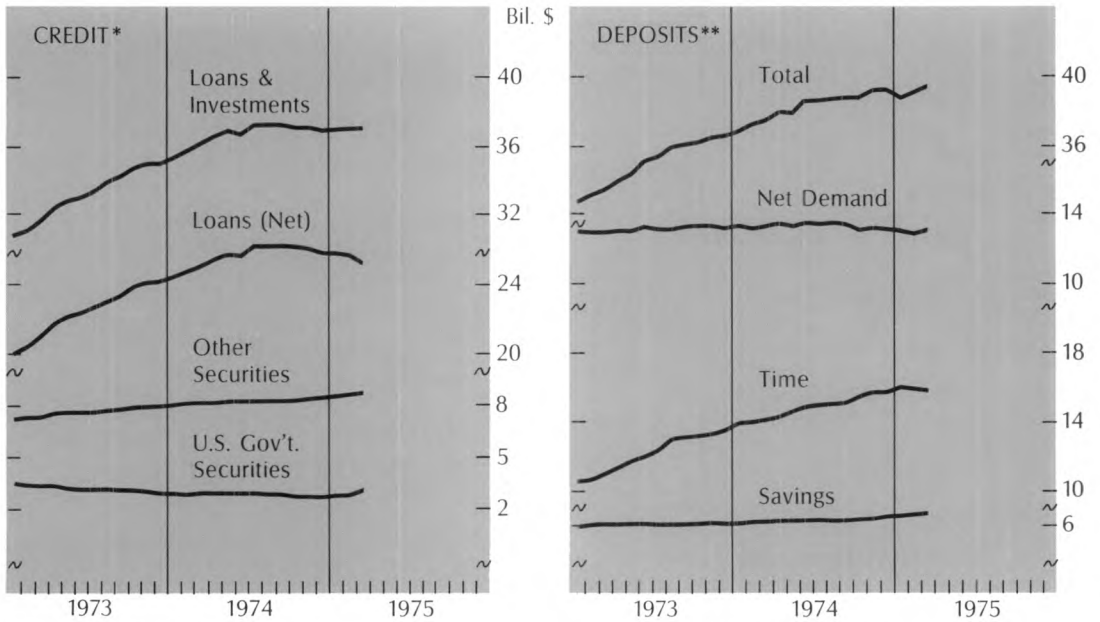
March 17, 1975

PAN AMERICAN BANK OF KENDALE LAKES, NATIONAL ASSOCIATION

Miami, Florida

Opened for business as a member. Officers: Neil Schiff, chairman; Charles G. Sheffield, president; Ronald G. Potter, vice president and cashier; Virginia L. Arnold, assistant vice president and secretary; Judith L. Kirsin, assistant cashier. Capital, \$500,000; surplus and other funds, \$500,000.

BANKING STATISTICS



LATEST MONTH PLOTTED: MARCH

*Figures are for the last Wednesday of each month
**Daily average figures

SIXTH DISTRICT BANKING NOTES

A Note on Manufacturing Loans

CORRELATION BETWEEN CHANGES IN NATIONAL INVENTORIES AND CHANGES IN COMMERCIAL AND INDUSTRIAL LOANS 1970 - 1974

Industry	United States		New York		Atlanta	
	\$ Changes	% Changes	\$ Changes	% Changes	\$ Changes	% Changes
Primary Metal	-.236	.174	-.094	.026	-.289	-.163
Machinery . . . . .	.727	.721	.750	.734	.264	.260
Transportation Equipment . . . . .	.581	.498	.421	.367	.107	.043
Food, Liquor, Tobacco . . . . .	.477	.367	.426	.318	.446	.447
Petroleum Refinery . . . . .	.199	.134	.230	.163	-.159	-.161
Chemicals, Rubber . . . . .	.282	.181	.354	.215	.016	.013
Textiles, Apparel, Leather* . . . . .	.395	.428	.321	.258	.258	.306

*Inventory data for this series available only through December 1973.

Sources: Quarterly inventory stock data, U.S. Department of Commerce and Federal Reserve Bank sample of large U.S. member banks that provide an industry breakdown of commercial and industrial loans.

An earlier Banking Note suggested that business borrowing at Southeastern banks seems out of step with national patterns.¹ Factors which apparently induce corporations to borrow from banks across the country do not seem to have the same impact upon similar corporations borrowing from Southeastern banks.

The same analysis indicated little, if any, relationship between national inventories and borrowings at Southeastern banks. While a strong relationship was found between *national* loans and national inventories, neither dollar nor percentage changes in national inventories produced corresponding changes in borrowings at Southeastern banks.

Since Southeastern banks seem to march to a different drummer, it seems reasonable to determine just how much they are out of step. To determine this, we used the approach of the earlier analysis. Member bank loans to corporations in seven selected industries for each of the twelve Federal Reserve Districts were compared with national industrial loan and inventory activity. Percentage and dollar changes were calculated for each of the seven industries for a period between mid-1973 and mid-1974; and comparisons were made by calculating rank correlation coefficients (see Table 1). (A coefficient close to zero indicates little correspondence between the two characteristics; a coefficient close to one implies a close fit.)

Results show that Southeastern banks differ very much from other regions. Most other Districts showed a closer relationship between loan activity and national inventories. In addition, most showed a close relationship between regional and national lending.

As one might expect, the New York area recorded the strongest relationship, based on either percentage or dollar changes, between loans and national inventories. While the eastern United States—represented by the First Federal Reserve District (Boston)—registered a perfect correlation between loans and inventories based upon dollar changes, the same relationship computed on a percentage change basis indicates a very loose relationship.

In comparing regional with national loans, New York again showed the strongest relationship, both in dollar and percentage changes. The Sixth Federal Reserve District (Atlanta), however, placed near the bottom, measured in both percentage and dollar changes.

Since the earlier analysis found a difference in borrowing patterns at Southeastern banks, we decided to determine whether inventories carried by firms across the nation have an influence on borrowing from Southeastern banks, particularly over a longer period of time than was used in the first analysis.

The results indicate that, in general, changes in

¹William N. Cox, III, "Loans to Manufacturers," this *Review*, October 1974.

Table 1
RANK CORRELATION COEFFICIENTS
Loans vs. National Inventories
(July 1973 to July 1974)

	Percent Change	Dollar Change
All Districts	0.57	0.86
Federal Reserve District		
Boston	0.21	1.00
New York	0.75	0.82
Philadelphia	0.57	0.61
Cleveland	0.00	0.89
Richmond	-0.75	0.21
Atlanta	0.04	0.36
Chicago	0.18	0.71
Minneapolis	-0.46	-0.04
St. Louis	0.07	0.75
Kansas City	0.29	0.61
Dallas	0.71	0.04
San Francisco	0.18	0.71
Loans, Each District vs. All Districts (July 1973 to July 1974)		
Boston	0.54	0.86
New York	0.89	0.96
Philadelphia	0.79	0.75
Cleveland	0.64	0.96
Richmond	-0.32	0.14
Atlanta	0.32	0.68
Chicago	0.79	0.86
Minneapolis	-0.57	-0.21
St. Louis	0.57	0.93
Kansas City	0.82	0.68
Dallas	0.57	0.29
San Francisco	0.71	0.86

national inventories have very little, if any, direct influence upon borrowing at Southeastern banks (see opposite page). This conclusion is based upon comparisons of loans made by 23 large Southeastern banks to corporations in seven selected industries with information on national inventory activity in these industries. Quarterly dollar and percentage changes in loans from 1970 to 1974 were matched with similar changes in inventories by calculating correlation coefficients. (This coefficient always lies between -1 and +1. Positive coefficient values indicate a tendency for the two factors to move together; however, a negative coefficient indicates movement in opposite directions.) For comparison, the same analysis was made of large banks country-wide and for large banks in New York.

Additional information presented here supports the generalization that manufacturing loans at Southeastern banks do not follow national patterns. With only one exception, Southeastern manufacturing loans are little influenced by national inventory levels.

On the other hand, New York's loans do show a close relationship with national inventories and national loans, as one might expect from that area's acknowledged position as the country's financial center. Though regional financial centers, including those in the Southeast, are growing in size and stature, this study strengthens the contention that the Southeast imports funds in the form of bank loans. Many industrial firms headquartered outside the District who operate plants here would logically seek funds from the national financial center—New York—or the region in which they are headquartered.

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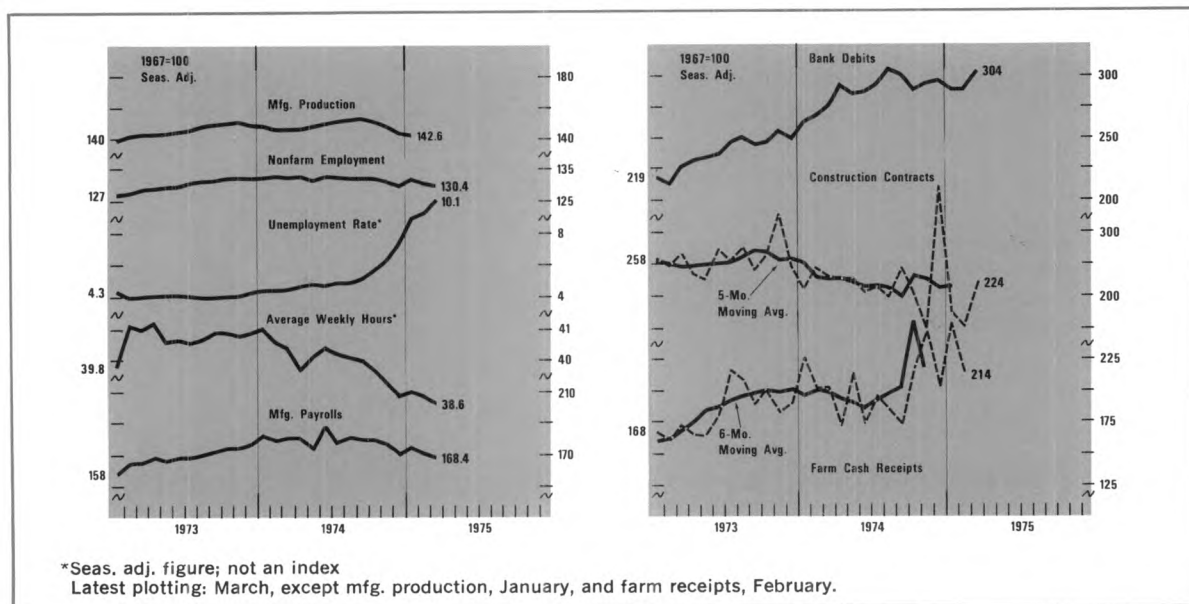
Sixth District Statistics

Seasonally Adjusted

(All data are indexes, unless indicated otherwise.)

	Latest Month 1975	One Month Ago	Two Months Ago	One Year Ago		Latest Month 1975	One Month Ago	Two Months Ago	One Year Ago
SIXTH DISTRICT					Unemployment Rate (Percent of Work Force) Mar. 10.2 9.5 8.7 5.3				
INCOME AND SPENDING					Avg. Weekly Hrs. in Mfg. (Hrs.) Mar. 38.5 39.0 39.6 40.9				
Manufacturing Payrolls	Mar. 168.4	170.2	174.3	173.7	FINANCE AND BANKING				
Farm Cash Receipts	Feb. 214	254	203	202	Member Bank Loans Mar. 267 267 270 243				
Crops	Feb. 308	354	245	216	Member Bank Deposits Mar. 214 212 209 200				
Livestock	Feb. 188	194	172	206	Bank Debits** Mar. 294 280r 277r 247				
Instalment Credit at Banks* (Mil.\$)					FLORIDA				
New Loans	Mar. 537	628r	621	595	INCOME				
Repayments	Mar. 587	714r	711	573	Manufacturing Payrolls Mar. 180.8 179.4 180.7 182.4				
EMPLOYMENT AND PRODUCTION					Farm Cash Receipts Feb. 249 229 158 173				
Nonfarm Employment	Mar. 130.4	131.1	132.0	134.5	EMPLOYMENT				
Manufacturing	Mar. 107.7	109.1	111.6	119.7	Nonfarm Employment Mar. 149.6 150.1 150.7 156.0				
Nondurable Goods	Mar. 106.1	108.0	110.3	116.8	Manufacturing Mar. 117.2 118.5 120.9 128.5				
Food	Mar. 104.6	104.0	104.1	107.5	Nonmanufacturing Mar. 155.9 156.2 156.4 161.3				
Textiles	Mar. 95.1	96.5	98.8	113.5	Construction Mar. 161.5 167.4 170.5 220.2				
Apparel	Mar. 101.5	104.3	107.2	116.0	Farm Employment Mar. 80.8 75.3 77.2 84.3				
Paper	Mar. 105.9	107.5	110.6	113.6	Unemployment Rate (Percent of Work Force) Mar. 10.7 9.5 9.6 4.9				
Printing and Publishing	Mar. 125.3	126.0	127.3	131.6	Avg. Weekly Hrs. in Mfg. (Hrs.) Mar. 39.9 39.5 39.1 40.4				
Chemicals	Mar. 105.7	107.9	109.2	110.0	FINANCE AND BANKING				
Durable Goods	Mar. 109.7	110.5	113.3	123.3	Member Bank Loans Mar. 301 308 306 303				
Lbr., Wood Prods., Furn. & Fix.	Mar. 94.3	95.9	98.6	112.1	Member Bank Deposits Mar. 242 241 239 240				
Stone, Clay, and Glass	Mar. 117.7	119.1	122.2	135.0	Bank Debits** Mar. 311 296r 288 307				
Primary Metals	Mar. 103.6	106.6	110.0	113.2	GEORGIA				
Fabricated Metals	Mar. 121.7	122.8	124.2	135.2	INCOME				
Machinery	Mar. 150.7	151.4	155.3	163.1	Manufacturing Payrolls Mar. 149.7 151.5 157.3 163.1				
Transportation Equipment	Mar. 97.5	96.5	99.1	107.2	Farm Cash Receipts Feb. 218 244 280 221				
Nonmanufacturing	Mar. 138.4	138.9	138.4	139.7	EMPLOYMENT				
Construction	Mar. 136.6	141.0	144.1	160.7	Nonfarm Employment Mar. 125.3 125.9 127.5 131.4				
Transportation	Mar. 123.7	124.8	126.5	127.8	Manufacturing Mar. 97.7 98.2 101.4 111.8				
Trade	Mar. 135.0	135.6	136.1	137.9	Nonmanufacturing Mar. 137.9 138.3 139.4 140.3				
Fin., ins., and real est.	Mar. 149.9	151.1	151.7	153.5	Construction Mar. 128.0 133.2 135.4 150.1				
Services	Mar. 154.4	154.7	154.5	151.4	Farm Employment Mar. 104.0 104.6 99.0 117.1				
Federal Government	Mar. 106.0	106.2	106.4	104.3	Unemployment Rate (Percent of Work Force) Mar. 11.5 11.2 10.4 5.2				
State and Local Government	Mar. 143.6	142.8	141.7	136.8	Avg. Weekly Hrs. in Mfg. (Hrs.) Mar. 38.0 38.3 38.5 40.4				
Farm Employment	Mar. 94.1	93.8	92.2	98.5	FINANCE AND BANKING				
Unemployment Rate (Percent of Work Force)	Mar. 10.1	9.3	9.0	5.1	Member Bank Loans Mar. 250 256 264 262				
Insured Unemployment (Percent of Cov. Emp.)	Mar. 6.7	6.1	5.5	2.1	Member Bank Deposits Mar. 191 190 189 181				
Avg. Weekly Hrs. in Mfg. (Hrs.)	Mar. 38.6	38.9	39.0	40.4	Bank Debits** Mar. 353 326 343r 309				
Construction Contracts*	Mar. 224	153	175	230	LOUISIANA				
Residential	Mar. 131	110	119	245	INCOME				
All other	Mar. 316	195	230	216	Manufacturing Payrolls Mar. 169.8 166.3 172.6 158.7				
Cotton Consumption**	Feb. 54	53	50	90	Farm Cash Receipts Feb. 181 346 176 199				
Manufacturing Production	Feb. 141.8	142.6	145.2	148.1	EMPLOYMENT				
Nondurable Goods	Feb. 144.7	144.4	146.4	146.7	Nonfarm Employment Mar. 121.1 121.2 121.1 120.1				
Food	Feb. 135.3	135.0	133.2	130.9	Manufacturing Mar. 108.4 108.0 108.1 110.7				
Textiles	Feb. 137.4	137.0	134.2	149.0	Nonmanufacturing Mar. 123.7 124.0 123.9 122.1				
Apparel	Feb. 120.7	125.1	126.7	138.2	Construction Mar. 107.6 109.2 110.4 108.1				
Paper	Feb. 136.1	135.5	137.9	136.6	Farm Employment Mar. 102.5 102.7 64.5 93.8				
Printing and Publishing	Feb. 127.2	127.9	129.2	133.3	Unemployment Rate (Percent of Work Force) Mar. 8.4 8.8 8.4 7.0				
Chemicals	Feb. 159.7	156.7	162.5	152.7	Avg. Weekly Hrs. in Mfg. (Hrs.) Mar. 39.3 38.8 40.3 40.5				
Durable Goods	Feb. 136.8	139.7	143.6	150.5	FINANCE AND BANKING				
Lumber and Wood	Feb. 126.8	120.2	122.1	152.9	Member Bank Loans* Mar. 261 253 253 244				
Furniture and Fixtures	Feb. 117.0	121.4	129.3	150.2	Member Bank Deposits* Mar. 207 201 203 186				
Stone, Clay, and Glass	Feb. 142.2	144.8	149.7	160.0	Bank Debits** Mar. 259 253 245 223				
Primary Metals	Feb. 103.1	105.2	106.9	110.5	MISSISSIPPI				
Fabricated Metals	Feb. 112.5	116.1	117.0	133.5	INCOME				
Nonelectrical Machinery	Feb. 154.5	156.7	157.3	148.7	Manufacturing Payrolls Mar. 192.6 195.4 196.0 196.6				
Electrical Machinery	Feb. 227.5	232.4	246.0	246.4	Farm Cash Receipts Feb. 215 329 233 243				
Transportation Equipment	Feb. 121.8	128.1	130.7	128.9	EMPLOYMENT				
FINANCE AND BANKING					Nonfarm Employment Mar. 127.6 128.3 130.0 130.8				
Loans*					Manufacturing Mar. 120.0 121.3 124.1 134.4				
All Member Banks	Mar. 276	278	278	269	Nonmanufacturing Mar. 131.1 131.5 132.7 129.2				
Large Banks	Mar. 255r	261	263	248	Construction Mar. 135.0 140.5 144.7 154.4				
Deposits*					Farm Employment Mar. 86.2 85.2 84.6 92.1				
All Member Banks	Mar. 219	216	215	208					
Large Banks	Mar. 193r	188	189	180					
Bank Debits**	Mar. 304	287r	289	276					
ALABAMA									
INCOME									
Manufacturing Payrolls	Mar. 171.2	176.4	183.0	183.1					
Farm Cash Receipts	Feb. 233	300	244	247					
EMPLOYMENT									
Nonfarm Employment	Mar. 118.8	120.1	121.2	122.1					
Manufacturing	Mar. 106.2	109.3	111.6	118.4					
Nonmanufacturing	Mar. 124.6	125.0	125.5	123.8					
Construction	Mar. 133.9	134.3	138.7	145.2					
Farm Employment	Mar. 113.6	112.7	115.6	125.0					

District Business Conditions



The bad news for the Southeast's economy shows some signs of diminishing. Despite general weakness in employment, some sectors have improved. Construction contracts advanced; consumer instalment credit declined less rapidly. Member banks continued to report large deposit advances. Farm cash receipts, though trending downward, were helped by high income from sugar cane.

Labor markets weakened further in March. Employment declined in nearly every industry, and the unemployment rate advanced to 10.1 percent. In manufacturing, both average weekly hours and payrolls declined. There were some bright spots, however. Automobile manufacturers recalled several thousand workers previously idled. Food processing and state and local government employment also gained slightly.

Residential construction contracts advanced in March and nonresidential construction gained considerably. However, construction activity remains well below year-ago levels. The Federal income tax credit for new homes is sparking fresh interest in home purchases. Consumer savings inflows at banks and savings and loan associations approached record levels for the first quarter and should ensure the availability of mortgage funds.

Encouraging developments appeared in consumer instalment debt owed to commercial banks. Although total outstanding instalment loans continued to drop in March, the size of the decline decreased relative to that of previous months. Non-automotive consumer goods and personal loans fell only slightly, following substantial decreases earlier.

Almost all the decline in total instalment credit reflected reduced auto loans. Department store sales rose slightly from the year-ago level.

Many banks experienced strong deposit gains during April. With loan demand still weak, banks continued to purchase sizable amounts of U. S. Government securities. Member banks are also becoming less dependent on Federal funds purchases and interest-sensitive deposits. In early May, many larger banks were posting a 7 1/2-percent prime rate, the lowest since mid-1973.

Prices received by farmers fell again in March but may have stabilized since then, according to preliminary data. Some recovery in cattle and soybean prices offset continuing declines for feeder calves and wheat. Slaughter of livestock, especially hogs, dropped markedly from month-ago levels, reflecting curtailed production from unfavorable feed-price ratios. Broiler placements still lagged year-ago levels through April, although they were nearly unchanged from a month ago. The decline in interest rates on short-term agricultural loans has slowed. Unusually large gains from the sugar cane crop in Louisiana and Florida helped push District farm cash receipts above year-ago levels.

Note: Data on which statements are based have been adjusted whenever possible to eliminate seasonal influences.