

FEDERAL RESERVE BANK OF RICHMOND

MONTHLY REVIEW

**Forecasting Accuracy in the Sixties
Survey of Time and Savings
Deposits
The Fifth District*



APRIL 1970

Forecasting Accuracy in the Sixties

For all the criticism levied upon it by skeptics, economic forecasting nevertheless plays an important role in determining both government and business policies. One measure of its importance is the millions of dollars spent annually in efforts to specify, however roughly, the economy's future course. Another is the growing amount of professional time and talent in attempts to improve forecasting techniques. The development of the computer has given sharp impetus to these latter efforts, and in recent years advanced econometric techniques, coupled with computer simulations, have been brought to bear on the problem. Today, literally hundreds of models are used to predict future economic conditions. Many of these are intricate multiple equation econometric models, while others represent less formal applications of professional judgment.

One approach to the task of improving economic forecasts is through a comprehensive evaluation of forecasting accuracy. The National Bureau of Economic Research, with financial support from some leading industrial firms, has produced extensive literature on techniques for evaluating the validity of economic forecasts. It is through careful and systematic evaluation that forecasting errors and biases can be brought to the foreground.

Although forecasting techniques have improved since the early fifties, the most casual examination of forecasting performance reveals a need for further improvement. This study focuses on the accuracy of short-term forecasts of two important economic variables, gross national product (GNP) and the consumer price index (CPI). The data for this evaluation were collected from *Business Forecasts*, published annually by the Federal Reserve Bank of Richmond, and "Predictions," prepared annually by the Federal Reserve Bank of Philadelphia. These publications summarize the annual forecasts of leading business firms, educational institutions, research organizations, and individuals. The evaluations that follow are based on the annual changes in GNP and the CPI predicted by forecasters whose efforts are summarized in these publications.

Although there is some disagreement concerning

the best way to evaluate forecasts, it is preferable in most instances to convert absolute level forecasts into predicted changes before evaluation. Since predictions are made at different times before revised figures are available, the actual levels of the variables at the time of the forecasts are not known. The evaluation should therefore be based on the accuracy of predicting the changes in the variables rather than predicting the levels themselves.

Statistical Concepts One of the most widely used concepts for depicting the accuracy of forecasts is the prediction-realization diagram. This diagram shows the actual change in the variable plotted against the predicted change in the variable. Perfect forecasting would be represented by a 45 degree line through the origin. This 45 degree line is called the line of perfect forecasts (LPF). The predictions of all forecasters can be plotted on the same chart and visualized in comparison with the LPF (see charts).

Particular importance is also given to the mean point, i.e., the point in the prediction-realization diagram, the coordinates of which are the arithmetic means of the predicted and actual changes. If the mean point lies on the LPF, the average predicted change over the entire time span is equal to the average actual change over the same time span. If the means are significantly different, the mean point will not lie on the LPF and the forecasts are said to be biased; i.e., the forecasts consistently underestimate or overestimate the actual changes.

Annual Changes in GNP The prediction-realization diagram for GNP indicates that forecasters have been quite inaccurate in predicting annual GNP changes during the past decade. This diagram and the accompanying table analyzing forecasting results show that the range of predictions for all forecasters included the actual change in only four of the ten years (i.e., the range of annual forecasts represented by the horizontal scatter of points actually crosses the LPF). In two of these years, the actual change was near one of the extreme points in the range. Another method of showing the inaccuracy is by

comparing the mean of the predicted change with the actual change. In only two years, 1962 and 1967, was the mean close to the actual change. Furthermore, the variation of observations around the LPF was large in all years except 1962 and 1967.

One hazard of forecasting changes in data having upward trends is the tendency to underestimate the

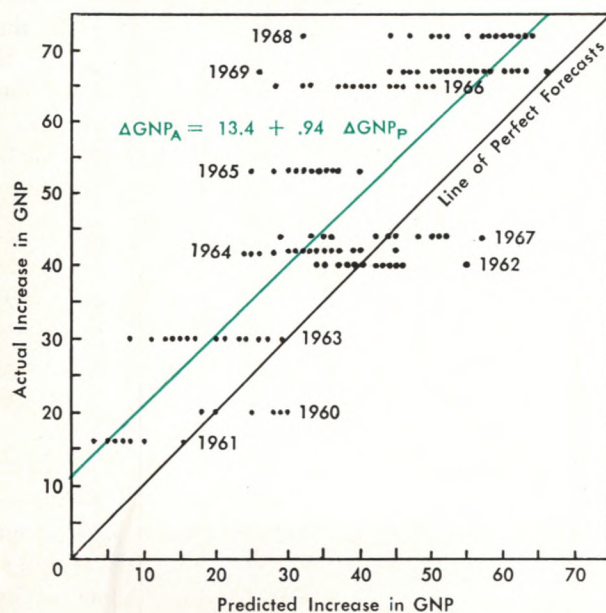
ACCURACY STATISTICS FOR SELECTED FORECASTS OF ANNUAL CHANGES IN GNP 1960-1969

(Billions of Dollars)

	Range of Predictions for Δ GNP	Mean Predicted Δ GNP	Mean Actual Δ GNP
1969	26.0 - 66.0	52.8	66.7*
1968	32.0 - 64.0	54.1	72.2
1967	29.0 - 57.0	45.8	43.6
1966	27.8 - 50.0	41.2	65.0
1965	25.0 - 40.0	33.2	52.5
1964	23.7 - 45.0	32.6	41.9
1963	8.0 - 28.5	17.8	30.2
1962	34.0 - 55.0	41.1	40.2
1961	3.4 - 16.0	7.9	16.3
1960	17.5 - 30.0	24.4	19.9
1960-1969	3.4 - 66.0	39.2	50.3

*Preliminary estimate.

GROSS NATIONAL PRODUCT
PREDICTION-REALIZATION DIAGRAM, 1960-1969
(Billions of Dollars)



changes.¹ Underestimation bias is clearly seen in this analysis. Seven of the ten means of the predicted GNP changes were smaller than the actual changes, that is, the means of the annual predicted changes were to the left of the LPF. Significant overestimation of the predicted change occurred only in 1960.

Annual Changes in the CPI Forecasters have had almost as little success in predicting price changes as they have in predicting GNP changes. Again, an analysis of the accompanying diagram and table indicates that predictions were approximately correct in only two years, 1963 and 1964. In five years, predictions were underestimated and in three years they were overestimated. The tendency was to overestimate small changes and underestimate large changes. Dispersion around the LPF was relatively large. Since variations in price increases of one or two percentage points may have widely varying policy implications, the annual predictions of the forecasters would appear to be less accurate than is desirable for policy purposes.

Results for the Decade Forecasting accuracy for the entire decade can be measured by basically the same methods that were used to determine the accuracy in predicting the annual changes. In the case of perfection, all points in the prediction-realization diagram would lie on the LPF. In the diagrams for GNP and the CPI, the scatter of points in general does not fall on the LPF. If a line were constructed through the scatter of points connecting the midpoint of the range of values for each year, the constructed line would be nonlinear. Non-linearity of the scatter indicates different degrees of accuracy at different levels of actual changes. The scatter of points on both the GNP and the CPI diagrams tend to lie farther from the LPF for large actual changes in the variables than for small actual changes. In each case, there is a definite tendency to underestimate large changes.

Another characteristic of the underestimation of changes is the divergence of the mean of the actual changes for the ten year period from the mean of the predicted changes for the same period. The concept of bias, as previously discussed, refers to the inequality of the two means. For the entire period, the mean actual yearly change in GNP was \$50.3 billion and the mean predicted yearly change was \$39.2 billion, indicating a substantial under-

¹See Jacob Mincer and Victor Zarnowitz, "The Evaluation of Economic Forecasts," Jacob Mincer (ed.), *Economic Forecasts and Expectations*, (New York: National Bureau of Economic Research, Inc., 1969), pp. 3-46.

estimation bias in predicting annual GNP changes for the decade. The mean actual change in the CPI was 3.2% per year and the mean predicted change was 2.5% per year, again indicating a large underestimation bias in predicting annual CPI changes for the ten year period.

A least-squares straight line was fitted to the prediction-realization diagrams for GNP and the CPI. This line, which is the straight line that fits the data better than any other straight line, is shown on each diagram by a broken line. If all predictions were perfect and thus all points fell on the LPF, the least-squares line would be identical to the LPF in each diagram. The intercept would be zero and the slope of the line would be equal to one. Furthermore, since all of the points fall on a straight line, there would be perfect correlation of actual and predicted changes.

The least-squares line for the GNP and the CPI forecasts did not correspond with the LPF in either diagram, indicating bias. Since unbiased forecasts are more accurate than biased forecasts if the distances between the points in the diagram remain constant, the forecasts can be made more accurate by correcting for the bias. Graphically, removal of the bias can be accomplished by a parallel shift in the least-squares line until it intersects the mean of the actual changes on the LPF. The same results are achieved by subtracting an amount equal to the size of the bias from each point on the least-squares line. In the GNP diagram, the constant is the difference between the mean of the actual changes and the mean of the predicted changes, or \$11.1 billion. The constant for the CPI diagram, found by the same method, is 0.7%. If the economy continues to expand and prices continue to rise in a pattern similar to that of the past decade, future results could probably be improved in the long run if the forecaster raises his estimates by an amount equal to the size of the bias.

Composition of Forecasts Removal of the bias in forecasting will, in most instances, improve the accuracy of predictions. However, correcting the final results does not indicate the sources of the bias. To improve the forecasting model, it is often useful to determine the source and magnitude of the forecasting error.

Errors in aggregate forecasts are usually the result of individual errors in the various components determining the aggregate variable. Some of the individual component errors are reinforcing and others are offsetting. Two different forecasts, each of which yields the same aggregate results, could have widely

varying policy implications. In general, a forecasting technique that yields two small reinforcing errors in the component parts is superior to a technique that has one large positive error and one large negative error yet gives the same aggregate results. In fact, many policy makers would prefer a technique with small errors in the various elements even though the

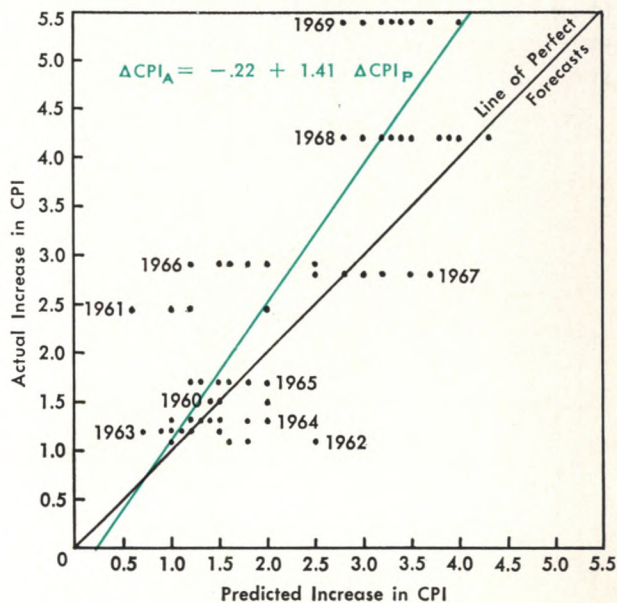
ACCURACY STATISTICS FOR SELECTED FORECASTS OF ANNUAL CHANGES IN CPI 1960-1969

(Per Cent)

	Range of Predictions for Δ CPI	Mean Predicted Δ CPI	Mean Actual Δ CPI
1969	2.8 - 4.0	3.3	5.4*
1968	2.8 - 4.3	3.3	4.2
1967	2.5 - 3.7	3.2	2.8
1966	1.2 - 2.5	1.9	2.9
1965	1.2 - 2.0	1.5	1.7
1964	1.0 - 2.0	1.4	1.3
1963	0.7 - 1.5	1.1	1.2
1962	1.0 - 2.5	1.6	1.1
1961	0.6 - 2.0	1.4	2.4
1960	1.4 - 2.0	1.8	1.5
1960-1969	0.6 - 4.3	2.5	3.2

*Preliminary estimate.

CONSUMER PRICE INDEX PREDICTION-REALIZATION DIAGRAM, 1960-1969 (Per Cent)



error in the aggregate measure was larger than that given by another method. For example, in 1969, the most accurate aggregate forecast in this sample predicted prices to increase by 3.6% and real GNP to increase by 4.8%. Actually, prices increased more than 5% and real GNP growth was less than 3%. Since inflation was the major problem confronting policy makers, those forecasts predicting price increases of 4.5% to 5.0% might have been more useful. Of course, the consequence of the trade-off between accuracy in predicting the aggregate and accuracy in predicting the elements is a matter determined by the use of the forecast.

Certainly, one major part of the total forecasting error in GNP predictions has been the error in predicting prices. Earlier, it was shown that GNP forecasts were relatively accurate in 1962 and 1967, and that the forecasters overestimated the GNP change only in 1960. An examination of the price statistics indicates that these were the only years in the decade when the predictions for the CPI were significantly greater than the actual changes in the CPI. Inaccurate projections for prices accounted for approximately one-third of the overestimation in the average 1960 GNP forecast. The 1962 and 1967 GNP forecasts remained reasonably accurate since the figures, adjusted for price inaccuracies, merely changed from a slight overestimation to a slight underestimation of the actual changes in the two years. In the other seven years, both the real changes in GNP and the changes in the CPI were underestimated. Corrections for inaccurate price predictions would still result in a significant underestimation of real GNP growth.

Another major part of the total forecasting error has been the cumulative error of predicting quarter to quarter changes. Most of the GNP forecasts are made in the third or fourth quarter of the preceding year before final data for that year are available.

Errors from inaccurate estimates of base period data may cause cumulative errors in the quarters ahead. Other studies have shown that forecasting errors increase with the length of the predicted time span. In trend dominated series, such as GNP growth, increasing reliance on the historical trend will often eliminate some of the downward bias and result in more accurate long-term forecasts.

Summary Forecasting of economic aggregates has improved since the Korean War. Recently developed models are now able to incorporate intricate economic relationships that were "assumed away" before the era of high-speed computer technology. Data are now available with more accuracy, in greater detail, and at earlier dates than twenty years ago. However, with all these improvements in data and technology, forecasting economic aggregates beyond one or two quarters is very difficult. Economic relationships are difficult to determine for the near future and become increasingly complex over longer periods of time. Unforeseen changes in fiscal and monetary policy add to the uncertainty of future events. Nevertheless, the forecaster, as complicated as his task may be, can improve his long-run accuracy.

An analysis of annual forecasts for the decade of the sixties indicates a clear tendency to underestimate changes in GNP and the CPI. Since GNP projections were made in current dollars, underestimation of price changes accounted for part of the error in predicting GNP. However, a distinct downward bias remained. Since projections for trend dominated series generally contain substantial bias, forecasting accuracy can be improved by greater use of trend projections to reduce the downward bias.

Clyde H. Farnsworth, Jr.

Survey of Time and Savings Deposits

In the early postwar years, bankers displayed a rather neutral attitude toward time and savings deposits, accepting such deposits as were offered but not aggressively seeking them. For the past decade, however, bankers have been more aggressive in their competition. In so far as permitted by the Federal Reserve's Regulation Q, larger banks, at least, have tended to keep rates paid on time and savings deposits competitive with rates paid by other intermediaries and with rates available on market instruments. In addition, they have ingeniously designed many new types of time deposits in order to appeal to diverse public preferences and have advertised their new wares extensively.

Reflecting this aggressive attitude, time and savings deposits have tended to expand rapidly during periods when banks were able, under Regulation Q ceilings, to compete effectively with market rates. Conversely, outstandings have tended to decline, often precipitously, when Regulation Q ceilings foreclosed effective competition, as was the case

throughout 1969 and in early 1970. Under the impact of strong credit demands and restrictive monetary policy, market interest rates rose to extremely high levels relative to the Q ceilings, and attrition of time and savings deposits became massive.

The ebb and flow of time and savings deposits has important implications for monetary policy. Since the behavior of such deposits depends on the interaction of market interest rates, Regulation Q ceilings, and banker competitiveness, the Federal Reserve has attempted to learn more about the structure and functioning of the market for time and savings deposits. To obtain timely information, the Federal Reserve System in cooperation with the Federal Deposit Insurance Corporation instituted a quarterly survey of time and savings deposits which provides data on amounts outstanding and rates paid. The survey conducted in the fall of each year covers all insured commercial banks. Information for the other quarters is derived from a sample containing all such banks having \$20 million or more of time

TABLE

PERCENTAGE CHANGES IN TIME
at 84 Fifth District Banks
October 31, 1969 to

	Number of Banks	Savings Deposits	Certificates of Deposit		
			Total	Under \$100,000	\$100,000 or more Negotiable
Total Fifth District	84	-1.0	- 2.2	- 1.2	7.0
Deposit Size of Bank:					
Less than \$100 million	57	-0.9	- 0.9	- 0.2	-13.6
\$100 million and over	27	-1.0	- 2.4	- 1.5	8.1
By State:					
District of Columbia	7	-5.1	0.2	- 2.8	20.1
Maryland	22	0.4	3.1	- 0.8	26.2
North Carolina	10	0.4	- 8.0	- 2.9	-26.0
South Carolina	3	-1.1	- 1.6	4.3	none
Virginia	34	-0.5	0.2	- 0.5	6.7
West Virginia	8	-4.1	- 4.1	4.7	- 6.2
By SMSA:					
Washington	24	-3.3	0.3	- 2.8	21.5
Baltimore	12	0.2	- 2.7	- 3.0	6.1
Charlotte	4	-1.1	-11.9	- 8.9	-24.7
Richmond	10	1.1	- 0.4	- 2.9	17.2
Norfolk	5	1.0	2.5	2.6	5.3
Charleston, West Virginia	3	1.0	-14.6	-16.8	0.3
Roanoke	3	-8.6	- 3.0	- 1.9	- 6.3

*Includes Christmas Clubs and similar accounts.

and savings deposits of individuals, partnerships, and corporations, plus a selected number of smaller banks.

The most recent universe survey was conducted on October 31, 1969, and the latest sample survey on January 31, 1970. Between these dates, on January 21, the Board of Governors of the Federal Reserve System amended Regulation Q permitting banks to raise rates on most classes of time and savings deposits. Because of this regulatory change, the recent sample survey is of special interest. This article describes the results of the January survey of 84 Fifth District member banks and makes comparisons with data from the same 84 banks in October.

Continued Attrition Amounts outstanding of savings deposits and most types of time deposits continued to decline between October and January. The change in Regulation Q came too late in the period to affect outstandings to any appreciable extent, and in any case, the new ceilings remained well below market rates. The Board did not want to permit banks to raise rates to levels which would

pull large quantities of funds into the banking system and lead to an upsurge in bank lending.

Table I shows in detail the percentage change in savings deposits and the various classes of time deposits between October and January at banks in the Fifth Federal Reserve District. Declines in savings deposits were quite general throughout the District at both large and small banks. Since savings deposits represent about three-fifths of total time and savings deposits at Fifth District banks, the 1% decline at the sample of 84 banks was quite significant. In absolute terms, savings deposits declined about \$30 million, almost exactly equal to the decline in total time and savings deposits. Hence, for all banks in the sample, time deposits remained roughly unchanged with increases in some categories being matched by declines in others.

Interestingly, negotiable CD's of \$100,000 or more at Fifth District banks increased 7% even though rates on such deposits were below yields on market instruments. This contrasts with a 9.2% nationwide decline in large CD's outstanding. Among time deposits open account, only consumer-type deposits increased, presumably because of the proliferation

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AND SAVINGS DEPOSITS, IPC
 istrict Banks
 January 31, 1970

Time Deposits, Open Account

and over	Time Deposits, Open Account					Total Time and Savings Deposits
Nonnegotiable	Total	Special*	Consumer-type	Other under \$100,000	Other \$100,000 and over	
-19.6	7.1	-10.8	30.6	-35.0	-30.6	-0.6
- 1.7	13.6	-29.7	28.5	-31.6	- 9.6	0.5
-21.7	5.9	- 9.4	31.3	-35.5	-36.3	-0.8
-25.2	3.7	14.5	4.6	-93.5	-43.8	-2.5
-10.4	-10.8	-28.4	6.5	25.5	-70.2	-0.1
-18.8	4.4	- 4.2	7.6	4.7	-15.0	-2.2
-16.5	21.1	- 2.4	none	none	none	0.6
2.7	15.2	-14.8	37.9	-17.5	-21.3	1.0
-78.0	23.2	-30.2	35.3	none	none	-0.8
-23.4	5.9	9.8	76.5	-73.4	-51.4	-1.3
-86.8	-14.5	-27.5	none	37.2	none	-1.1
-11.9	4.2	2.7	4.7	6.6	-16.4	-3.9
- 3.1	3.9	-16.9	28.3	- 6.8	6.3	0.8
-19.5	- 5.2	- 3.6	13.0	-14.0	-37.9	1.2
-76.3	2.7	-23.8	7.2	none	none	-0.4
-76.0	85.3	66.0	87.0	none	none	1.8

of such deposit accounts and the fact that they have been highly advertised.

In broad outline, the experience of both large and small banks was roughly the same. Both experienced small declines in savings deposits and CD's, and both had fairly sizable gains in time deposits open account, with the result that total time and savings deposits were little changed. Further, for both size classes of banks the increase in time deposits open account was due entirely to gains in consumer-type time deposits which more than offset declines in all other categories. Both large and small banks experienced relatively small declines in small denomination CD's, but there was an apparent difference in their experience with respect to large denomination CD's. However, if all large denomination CD's are lumped together ignoring the negotiability feature, which frequently is more a technical than substantive matter, both classes of banks experienced small declines.

The scatter of pluses and minuses indicates some regional diversity in the behavior of time and savings deposits, but more striking is the evidence of strong trends which transcend regional boundaries. For example, the similarity among regions in time deposits open account is very arresting. All regions experienced significant increases in consumer-type time deposits which in most instances outweighed declines in other open account deposits. Also, banks throughout the Fifth District generally had small declines in CD's under \$100,000 and fairly sharp drops in large denomination CD's of a nonnegotiable nature. The only obvious regional diversity occurred in the behavior of large denomination negotiable CD's and of savings deposits.

Rates Paid on Large Denomination CD's In the survey, which was conducted as of January 31, banks were asked to report the most common rate offered on new savings deposits and on time deposits of various kinds. The most common rate was defined as that rate which generated the largest dollar inflow of deposits during the 30 days preceding the reporting date, or, if a rate change was made during this 30-day period, that rate prevailing *on the survey date* which generated the largest dollar inflow. Since the Regulation Q ceilings were raised on most classes of time and savings deposits on January 21,¹ banks at least had an opportunity, and probably strong incentive, to change their rates during the last ten days of the month.

Table II shows for large denomination CD's the number of banks reporting increases in "most common rates" since October 31 and also the distribution of banks by most common rate paid. Taken at face value, the table implies that banks in general did not take aggressive advantage of the opportunity to raise their rates. Considering the high yield on market instruments relative to previous Q ceilings, the extent and pervasiveness of CD attrition, and the continued strength of loan demand, it is somewhat surprising that more banks did not report higher rates. We have evidence from a supplemental survey that many bankers waited until February 1 to raise rates on their savings deposits and consumer-type time deposits. Perhaps they also waited until February 1 before raising rates on other classes of time deposits. Furthermore, because of the overlapping of the new and old ceilings, a bank could have raised rates to the new ceilings on all maturities of large denomination CD's and still have reported the same most common rate that it reported in October. For example, on January 31 the 6.25% rate on very short maturities very conceivably could have pulled in the most deposits. In such a case, the bank would have reported 6.25% as the most common rate, perhaps the same rate it reported on October 31. Thus, the table probably understates bank response to the new Regulation Q ceilings.

About half of the banks issuing large negotiable CD's reported higher rates, and of these, about half reported that the 7.50% rate on CD's maturing in

¹Regulation Q Ceilings:

	New Ceilings per cent	Old Ceilings per cent
Savings	4.50	4.00
Multiple maturity time deposits		
30-89 days	4.50	4.00
90 days to 1 year	5.00	5.00
*1 year to 2 years	5.50	5.00
*2 years and over	5.75	5.00
Single maturity time deposits		
Less than \$100,000		
30 days to 1 year	5.00	5.00
1 year to 2 years	5.50	5.00
2 years and over	5.75	5.00
\$100,000 and over		
30-59 days	6.25	5.50
60-89 days	6.50	5.75
90-179 days	6.75	6.00
180 days to 1 year	7.00	6.25
1 year or more	7.50	6.25

*These ceilings were raised on March 3, 1970, but made retroactive to January 21, 1970.

one year or more was exerting the greatest pulling power. As expected, higher rates were somewhat more common among large banks than small banks. Interestingly, a larger fraction of banks in Virginia and the District of Columbia reported higher rates than was the case elsewhere.

Only about 40% of banks issuing nonnegotiable CD's reported higher rates on these instruments, despite the fact that most banks throughout the Fifth District reported significant declines in outstandings since the October survey. Again, rate increases tended to be concentrated somewhat more heavily among large banks and banks in Virginia.

Rates Paid on Savings Deposits and Consumer-Type Time Deposits as of February 2 In order to determine the aggressiveness with which commercial banks competed for savings deposits and so-called "consumer-type" time deposits, the Federal Reserve conducted a supplementary survey of rates paid as of February 2. Table III summarizes the results of that survey. The inescapable conclusion is that banks generally, and large banks in particular, jumped at the opportunity to engage in rate competition for consumer savings. Almost all large banks raised rates to the new ceilings, and the vast majority of small banks did likewise. In addition, a few banks

TABLE II
MOST COMMON RATES PAID ON TIME AND SAVINGS DEPOSITS, IPC,
By a Sample of Fifth District Banks, January 31, 1970

TIME CD'S—\$100,000 AND OVER	Total Number of Banks Having Particular Type of Deposit	Number of Banks Reporting Rates Higher than on 10/31/69	Interest Rate (%)					
			Under 6.25	6.25	6.50	6.75	7.00	7.50
<u>Negotiable</u>			(Number of Banks)					
Total Fifth District	31	15	12	8	1	2	1	7
By Deposit Size of Bank:								
Less than \$100 million	12	5	6	4	—	1	1	—
\$100 million and over	19	10	6	4	1	1	—	7
By State:								
District of Columbia	3	2	—	1	—	1	—	1
Maryland	4	1	3	—	—	—	—	1
North Carolina	5	1	4	1	—	—	—	—
South Carolina	—	—	—	—	—	—	—	—
Virginia	16	10	3	5	1	1	1	5
West Virginia	3	1	2	1	—	—	—	—
By SMSA:								
Washington	7	4	2	2	—	1	—	2
Baltimore	3	—	3	—	—	—	—	—
Charlotte	3	1	2	1	—	—	—	—
Richmond	5	4	1	1	1	—	—	2
Norfolk	2	2	—	—	—	—	—	2
Roanoke	2	—	—	2	—	—	—	—
<u>Nonnegotiable</u>								
Total Fifth District	43	17	20	13	2	1	2	5
By Deposit Size of Bank:								
Less than \$100 million	25	8	12	8	2	—	—	3
\$100 million and over	18	9	8	5	—	1	2	2
By State:								
District of Columbia	6	2	2	3	—	1	—	—
Maryland	7	1	4	2	1	—	—	—
North Carolina	6	3	2	2	—	—	1	1
South Carolina	2	—	2	—	—	—	—	—
Virginia	21	10	9	6	1	—	1	4
West Virginia	1	1	1	—	—	—	—	—
By SMSA:								
Washington	15	4	5	7	1	1	1	—
Baltimore	1	—	1	—	—	—	—	—
Charlotte	1	—	1	—	—	—	—	—
Richmond	6	5	2	2	1	—	—	1
Norfolk	4	2	2	1	—	—	—	1
Roanoke	1	—	1	—	—	—	—	—

that were paying rates well below those of other banks raised rates, but not to the new ceilings. Thus, there occurred a general upward adjustment of rates paid for consumer savings.

Conclusion The supplemental survey strongly suggests that banks have taken advantage of the leeway under the new Regulation Q ceilings to compete more aggressively for time and savings deposits. This fact was obscured somewhat by the January 31

survey, both because of its timing and because the questionnaire asked for the most common rate rather than the maximum rate being paid.

The increase in rates offered by banks on their deposits in conjunction with a general decline in other short-term market rates has created a climate favorable to the revival of intermediation and a turnaround in time and savings deposits outstanding.

Jimmie R. Monhollon

Jane F. Nelson

TABLE III
INTEREST RATES PAID ON SAVINGS DEPOSITS AND
ON SINGLE MATURITY TIME DEPOSITS OF LESS THAN \$100,000

As of February 2, 1970

	Total	Paying 4½% Maximum	Paying 4%		
SAVINGS DEPOSITS					
Total Fifth District	84	64	20		
By Deposit Size of Bank:					
Less than \$100 million	57	41	16		
\$100 million and over	27	23	4		
By State:					
District of Columbia	7	5	2		
Maryland	22	9	13*		
North Carolina	10	10	—		
South Carolina	3	2	1		
Virginia	34	32**	2*		
West Virginia	8	6	2		
				Paying 5½% Maximum	Paying 5% or Less
MATURITY OF 1 YEAR BUT LESS THAN 2					
Total Fifth District	84	68	10	6	
By Deposit Size of Bank:					
Less than \$100 million	57	43	9	5	
\$100 million and over	27	25	1	1	
By State:					
District of Columbia	7	6	—	1	
Maryland	22	9	8	5	
North Carolina	10	10	—	—	
South Carolina	3	2	1	—	
Virginia	34	34	—	—	
West Virginia	8	6	1	1	
					Paying 5% or Less
MATURITY OF 2 YEARS OR MORE					
Total Fifth District	84	59	1	6	18
By Deposit Size of Bank:					
Less than \$100 million	57	35	1	6	15
\$100 million and over	27	24	—	—	3
By State:					
District of Columbia	7	5	—	—	2
Maryland	22	8	—	4	10
North Carolina	10	8	—	—	2
South Carolina	3	2	—	—	1
Virginia	34	30	1	1	2
West Virginia	8	6	—	1	1

*Includes one bank indicating maximum would be paid April 1, 1970.

**Includes one bank paying 4¼%.

The Fifth District



Personal Income

The upward trend of total and per capita personal income continued last year in the Fifth District as well as in the nation as a whole. But while personal income continued to grow in 1969, the gains became slimmer as the year progressed. In the final months of the year the national growth in personal income failed to keep pace with the rising cost of living.

For the United States, the year-to-year growth in total personal income declined from 9.3% in 1968 to 8.3% in 1969; comparable figures for the Fifth District were 9.3% and 8.8% respectively. Within the District, West Virginia and the District of Columbia showed greater advances in 1969 than in 1968. Total personal income increased 6.4% in West Virginia in 1969, up from the 5.8% advance registered in 1968; it rose 8.8% in the District of Columbia in 1969, compared to an 8.0% increase in 1968.

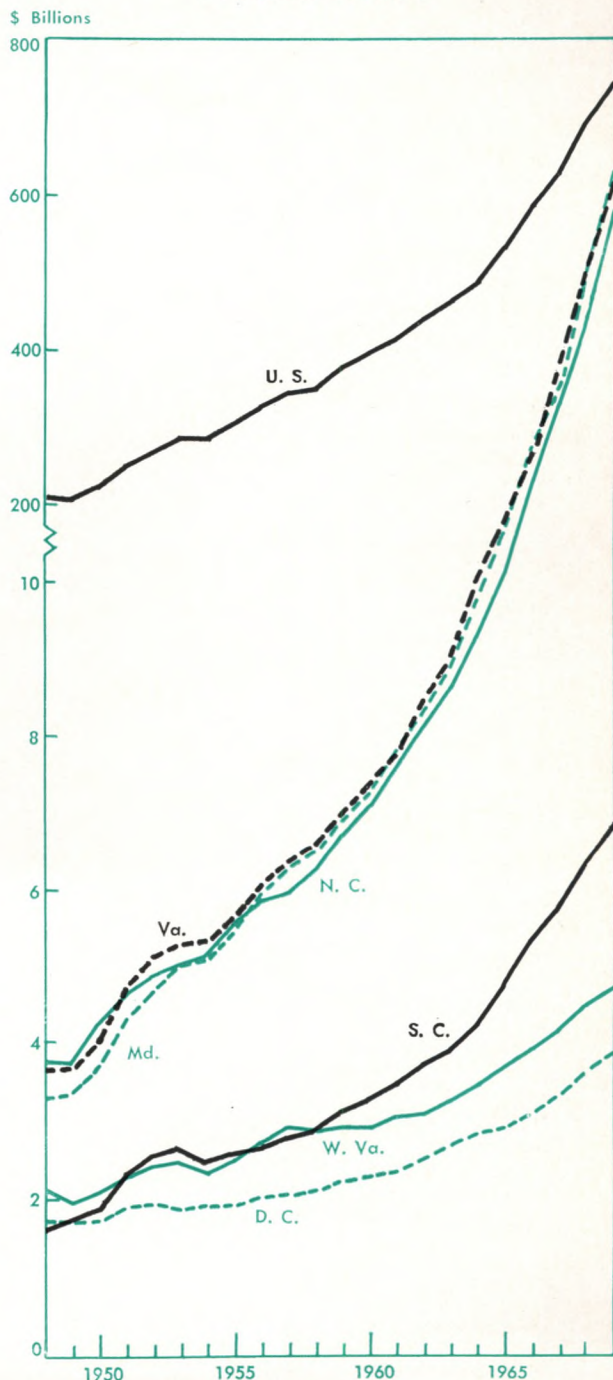
Personal income in Maryland, Virginia, and the two Carolinas rose by a smaller percentage in 1969 than the year before. Maryland's advance of 10.5% in 1969 was down from 11.5% in 1968. For the same periods, Virginia had increases of 9.5% and 10.3%; North Carolina, 9.4% and 10.0%; and South Carolina, 9.0% and 9.9%.

During the past two decades, Maryland, Virginia, North Carolina, and South Carolina have more than tripled their total personal income while the District of Columbia and West Virginia have doubled theirs.

PERSONAL INCOME

	Total			Per Capita		
	1949	1969	Average Annual Growth 1949-'69	1949	1969	Average Annual Growth 1949-'69
	\$ mil.	\$ mil.	per cent	\$ mil.	\$ mil.	per cent
Md.	3,392	15,454	7.9	1,456	4,105	5.3
D. C.	1,700	3,894	4.2	2,107	4,880	4.3
Va.	3,648	15,395	7.5	1,108	3,297	5.6
W. Va.	1,994	4,738	4.4	1,033	2,605	4.7
N. C.	3,675	14,926	7.3	940	2,868	5.7
S. C.	1,724	6,910	7.2	850	2,567	5.7
5th Dist.	16,133	61,317	6.9	1,128	3,236	5.1
U. S.	205,791	740,761	6.6	1,384	3,669	5.0

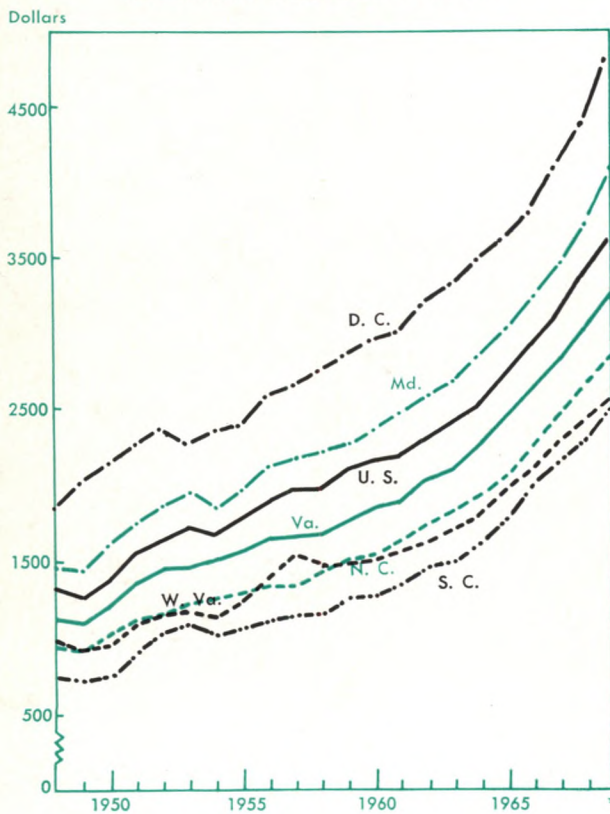
PERSONAL INCOME



Source: Data for 1949-1968, *Survey of Current Business*, U. S. Department of Commerce. 1969 data reprinted from March 7, 1970 issue of *Business Week* by special permission. Copyrighted (c) 1970 by McGraw-Hill, Inc.

The average annual growth rate of 6.9% for the Fifth District compares favorably with the 6.6% for the nation. The average growth rates in four of the District states were above the national average. These were Maryland (7.9%), Virginia (7.5%), North Carolina (7.3%), and South Carolina (7.2%). Growth rates for West Virginia and the District of Columbia were below the national average, at 4.4% and 4.2% respectively.

PER CAPITA PERSONAL INCOME



*1969 estimated.

Source: Survey of Current Business, U. S. Department of Commerce.

The Fifth District's per capita personal income, which is a better measure than total personal income of the economic well-being of the District's population, has increased at an average yearly rate of 5.1% from 1949 to 1969, compared to a 5.0% rate for the nation. Personal income per person in the Carolinas and Virginia out-paced the nation with average annual growth rates of 5.7% in each of the Carolinas and 5.6% in Virginia. Maryland and the District of Columbia had growth rates below the 5% national average; even so, they maintained the highest levels of per capita income in the District throughout the period.

In 1968, the latest year in which complete breakdowns are available, 67.5% of total personal income in the United States represented wages and salaries, 24% represented property and proprietors' income, and 9% was in the form of transfer payments such as Social Security and welfare payments. In the Fifth District North Carolina, South Carolina, Virginia, and Maryland all received a larger percentage of their income in the form of wages and salaries than the national average—70%, 73%, 74%, and 75% respectively. Wages and salaries represented 66% and 67% of total personal income in the District of Columbia and West Virginia.

Property and proprietors' income was a smaller fraction of total personal income in the Fifth District than in the nation, ranging from 19% in Virginia and Maryland to 22% in North Carolina.

The percentage of personal income from transfer payments was larger than the national average in the District of Columbia (14%) and West Virginia (13%), but smaller in North Carolina (8%), South Carolina (8%), Virginia (7.5%) and Maryland (7.2%).

M. Grace Haskins