



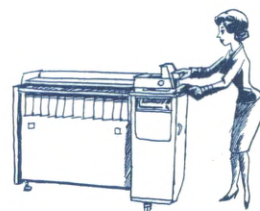
MAY 1960

BUSINESS *REVIEW*

How Banking Tames Its Paper Tiger

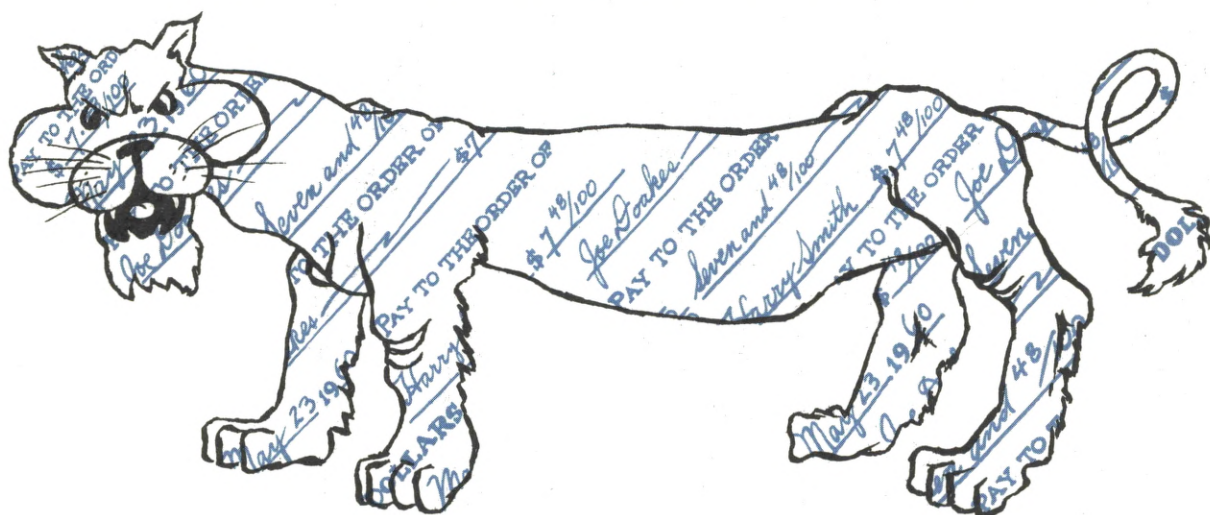
Will Manufacturers Practice What They Preach?

Our 1960 Housing Market



FEDERAL RESERVE BANK OF PHILADELPHIA

HOW



This is the first of a series on bank mechanization. Subsequent articles will discuss the results of a survey of Third District member banks. Here we introduce

THE TASK AND THE TOOLS.

Banking is on the edge of an exciting new age, the electronic age. Devices that actually read, machines that sort checks faster than the eye can see, computers that analyze loan applications—these already exist and there is no telling what is on the drawing board.

It's what these miracle machines will do *for* the industry that is exciting most bankers. They will help stabilize rising costs which have been pinching profits. By doing this, they will make it easier for banking to raise the extra capital it must have in the 1960's.

Electronic machines will lessen the personnel

problems that plague many banks. "We just can't find all the people we need," is a common lament. And the new equipment may help banish an old bugaboo, handling checks.

There is also the question of what the electronic age will do *to* banking. What will be its impact on the merger movement, on the structure of the banking system? Can small banks keep up with electronics? How? We hope our survey will shed light on questions such as these. But we are not limiting our study to electronics. Far from it. We are interested in, and will report on, most of the major types of machines that banks use today.

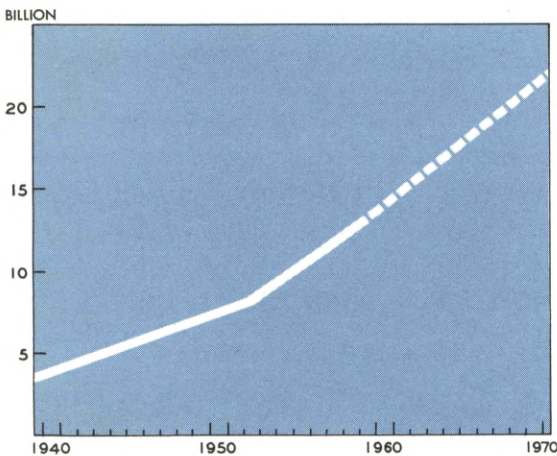
THE CHALLENGE

The age of tubes and transistors is arriving in the nick of time. Banking is not now a highly mechanized industry. It will have to use considerably more and better machines if it is to continue to serve properly our expanding economy. The banking paperwork load is already heavy and it's growing all the time. Take checks, for example.

Processing checks is banking's biggest job. Each check passes through 2 1/3 banks on its way home and is handled up to 20 times. In 1952 about 8 billion checks were written. Today the figure is 13 billion and by 1970 it will soar to over 22 billion. A staggering total! That many checks taped end to end would reach to the moon and back 6 times.

CHECK AND DOUBLE CHECK

Estimated number of checks written each year.



Growth right down the line

The coming cascade of checks is not the only reason why banking will need more mechanization. Almost all other bank operations will be growing too, generating tons of additional paperwork. Look what's happened in commercial banks during the postwar period. . . .

The number of savings accounts is up 33 per cent.

Commercial loans have grown by 113 per cent. Checking account activity (debits) has increased 163 per cent.

Mortgages have swelled 290 per cent.

Consumer instalment credit has mushroomed 850 per cent.

And there's more expansion to come. Over the next decade our population will be increasing almost 2 per cent each year. Incomes probably will move up even faster. Economic activity as measured by gross national product is slated for a 40 to 50 per cent increase during the 1960's according to many experts. All this growth means more bank customers and a greater demand for bank services.

Two trends within banking itself should further fatten the paper tiger. First is the development of intricate new services such as revolving check credit, charge-account banking, lock-box collection plans, and many others. Second is a shift into activities that require more detailed processing. Banks are clipping fewer coupons and making more commercial loans, mortgages, and loans to consumers. Instead of concentrating on a few big clients from a downtown office, banks now are wooing millions of small customers from myriad suburban branches. All these trends are well-established and expected to continue.

Help wanted

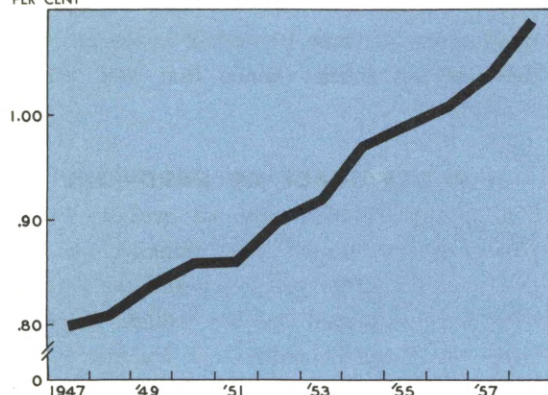
Since World War II banks apparently have expanded operations more by hiring extra people than by using better equipment. Commercial bank employment has increased 65 per cent since 1946 compared with 20 per cent for total nonagricultural employment. Some people wonder why future expansion can't be accomplished

in the same manner, with humans rather than hardware.

MORE PEOPLE WORK IN BANKS

Employment in all insured commercial banks as a percentage of nonagricultural employment.

PER CENT



The answer is that there just won't be enough people. If banking employment continues to grow the way it has in the past fifteen years, everybody then in the labor force would be working in a bank by the year 2100. In fact, banking is having trouble finding enough workers right now. Clerical help is scarce. The low birth rates of the 1930's plus earlier marriages and motherhood have trimmed the supply of young female workers. Demand, on the other hand, has swelled tremendously. With operations growing in size and complexity, business and industry need more and better information and they need it fast. Reflecting this demand, one out of every four help-wanted ads in a recent Sunday edition of a Philadelphia newspaper offered clerical employment. In the face of this supply-demand situation it looks as though banking will have to pay higher and higher salaries to expand employment significantly.

The personnel situation leads one to expect additional mechanization and so does the profit situation.

The after-tax profits of commercial banks

have been hovering near 8 per cent of total capital accounts since 1950. Banks, however, have been earning more on their loans and investments—gross earnings per dollar of assets have increased 50 per cent from 1950 to 1957.¹ The reason that this extra income hasn't boosted profits more is, of course, that expenses have risen also. Wage and salary costs, for example, rose 98 per cent from 1950 to 1957.

If inflating costs continue to pinch profits, banking may have trouble getting enough additional capital in the future. Retained earnings would be a smaller source and the sale of additional stock might be more difficult. Investors tend to put their money where it will earn the highest return. They may slight banking in favor of other industries with a better profit record. Banking must raise many billions of dollars of new capital in the coming decade in order to keep pace with our growing economy. If it doesn't, the quality of banking services could suffer and this could, in the end, impinge on our nation's ability to grow.

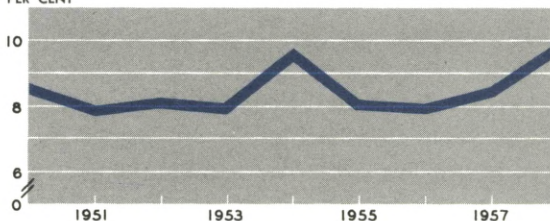
Many bankers, therefore, are looking to mechanization as a method of stabilizing costs and preserving profits. Mechanization can reduce the need for additional labor and increase over-all efficiency to boot.

NO BOOM IN BANK PROFITS

Net profits as a percentage of capital accounts.

Figures are for all insured commercial banks.

PER CENT



¹ We chose 1957 as a comparative date because 1958 was distorted by the recession and by unusual profits on the sale of securities. Figures for 1959 are not yet available.

"What will happen to my job?"

The specter of layoffs worries many bank employees who recognize the trend to machinery. It's a very natural fear. Ever since the industrial revolution, workers have been concerned about being replaced by machines. Weavers in England and France got so scared that they banded together and smashed the "pernicious engines" they thought were taking their jobs.

Economists assure us that machines don't create unemployment in the long run. The reasoning, amply substantiated by experience, goes something like this. The use of machinery means lower costs. Lower costs mean any one or a combination of higher profits, higher wages, and lower prices. All three increase over-all spending power. This extra demand will create new jobs for the workers who were originally displaced by the machines.

Bank workers have little cause to worry, even about short-run unemployment. There is such a strong demand for bank labor, regardless of mechanization, that any reasonably competent employee who is replaced by a machine will very likely be absorbed elsewhere in the same bank. Banking has a very high labor turnover rate and jobs open frequently—it's the young ladies again, getting married and having babies.

The installation of machinery tends to upgrade some workers in both prestige and pay. Banks tend to draw on their existing staff for personnel to operate new equipment and this applies even to electronic computers. Thus many workers are rescued from routine, boring jobs and given something that makes better use of their true skills. Charles Babbage, a pioneer in the development of calculating machines, called arithmetic "one of the lowest operations of the human intellect." Nor are humans very good at it—they make mistakes, daydream, take coffee

breaks, chatter. Why not let the machines take over the dull, stultifying jobs and save people for the thing they do best—thinking?

So, if you worry about what will happen to your job when they tote in that new machine—don't. Your job may be shifted or upgraded but there is not much chance that you will be eliminated.

A CAVALCADE OF HARDWARE

The first piece of equipment ever used by a banker was a pointed stick. Banking was born in Babylonia 4,000 years ago and the first records were scratched on clay tablets. Centuries later toga-draped bankers in Phoenicia were posting papyrus scrolls with pens made from reeds. Chinese bankers used the first calculating machine—the abacus—around 600 B.C., and they also were first to use paper.

The ancient Greeks and Romans had a highly developed banking system but they contributed little to the advancement of the tools of the trade. In fact, the next major milestone in record-keeping wasn't passed until the Middle Ages. Then the decimal system and Arabic numerals replaced Roman numerals throughout much of Europe. This greatly simplified calculation. Imagine trying to figure the interest on MCLXXIV denarii at VI per cent per annum!

In 1642, Blaise Pascal built a machine that could add figures, and Gottfried Leibnitz followed with a multiplying device in 1693. During the next 200 years many inventors worked on the problem of substituting "brass for brains" but few practical machines were developed during the period.

As late as 1890 banking did most of its work by hand. Clerks perched on high stools and inked entries in ponderous ledgers. Male secretaries copied letters in "fine round hands." Officers

scratched interest computations with goose-quill pens.

The mechanical revolution started in offices and banks shortly before the turn of the present century. Once begun, it gained momentum rapidly. First came the writing machine, the typewriter, then the adding machine, and then a whole procession of equipment. By 1914 a book on office management found the following among the machinery in general use: cash registers, punched-card tabulators, addressing machines, billing machines, duplicating machines, photo copiers, automatic typewriters, check-signing equipment, and folding machines.

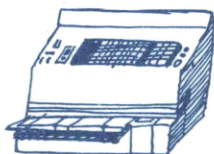
Sounds like an inventory of a modern office or bank, doesn't it? It well could be, because between 1914 and after the end of World War II no really new machines were introduced. Many modifications and improvements were made, of course, but most of the equipment used during these years belonged to long-established families.

In the mid-1950's the first electronic computer was installed in a bank and in 1957 electronic bookkeeping machines were introduced. A new age began to dawn in banking.

Meeting the machinery

Banks use a wide range of machines from postage meters to pencil sharpeners, from computers to coin changers. There are far too many types to discuss or even mention here. We shall confine ourselves to the mainstream machines, those through which a major operation flows.

Window posting machines. These are the "front men" for banking's gang of working machines. They greet the public from their perch in the teller's window. Their job is to print a receipt or record in the customer's saving account pass-



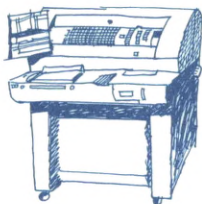
book and to post simultaneously the bank's ledger card. The customer hands the teller his deposit or his withdrawal ticket and passbook. The teller inserts the book and a ledger card into the machine. He then keys in the old balance plus the current transaction, strikes a button and, presto—the transaction and new balance are entered on both book and card. Mortgage and instalment loan payments may also be recorded by this machine.

Proof machines. Sorting is their specialty. The operator takes a mixed-up pile of documents and drops them one by one in the proper pocket or bin in the machine. The operator indexes the amount of each document on the keyboard and the machine keeps track of the total in each pocket plus a grand total.

Conventional bookkeeping machines. These are members of the adding machine family but they also have some typewriter blood in them. Bookkeeping machines can enter dates and symbols as well as amounts on a ledger card. Some species even have a typewriter keyboard so that the operator can fully describe an entry. One of their most important uses in banking is keeping track of checking accounts. Each account has a ledger card on which a summary of all transactions and a running balance is maintained. The operator inserts the card into the machine, picks up the old balance, deducts checks, adds deposits, and the machine computes and prints a new balance.



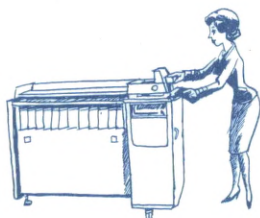
Electronic bookkeeping machines. Bankers know these machines as "tronics." Maybe you've seen their calling card—black stripes on the



back of a checking account statement. These stripes contain finely powdered iron and carry information in the form of magnetic charges. The operator slips the ledger card (part of which becomes your statement) into the machine. Then she keys in the account number from a check or deposit ticket. The machine compares this number to the one it reads from the magnetic stripes to make sure the right account is being posted. If the numbers match, the operator may proceed to enter the check or deposit. After automatically picking up the old balance from the stripes, the machine either adds or subtracts the entry, computes a new balance and magnetizes it on the stripes. The machine also prints a record of each transaction on the front of the card in regular ink for human eyes to read.

Punched-card tabulating equipment. These machines get their information from holes punched in a card. The position of the holes stands for letters and numbers. As the cards feed into the machine, "fingers" of electricity feel where the holes are, like a blind man reading Braille. The equipment can do many types of computations and turns out the answers on carpets of paper.

The idea of using punched cards to introduce information into a machine is not new. Joseph Jacquard used them to guide the operation of a



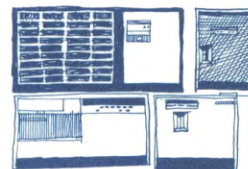
loom in 1780. Air was blown through holes in the cards to trigger levers and, under this guidance, the looms were able to weave the most intricate patterns.

Punched cards first met paper work during the processing of the Census of 1890. The country was growing fast and tabulating the Census was becoming a staggering manual job. The Census of 1880 wasn't published until after 1884 and it was estimated that the results of the 1890 Census wouldn't be available until after the 1900 Census had been taken. Herman Hollerith, an engineer, was engaged to solve the problem and he did so by inventing a calculating machine that used punched paper cards. The machine chewed up the mountain of reports and the census was published in good time. Thereafter, punched-card equipment spread to business, industry, and banking.

Many kinds of machines can be used in a modern punched-card installation. The basic types, however, are the key punch which is used to translate original information into holes in a card; the sorter, of late quiz show fame, which distributes a deck of punched cards into designated pockets; the tabulating and printing machine which does the arithmetic and writes down the answers. While these machines are the backbone of any installation, you also may find such supporting equipment as collators, verifiers, and card reproducers on the job.

Electronic computers. Computers are wonderfully fast and accurate.

A large computer can do in less than a second a job that would take the fastest clerk a week to do by hand. But don't be overawed by computers. They are just dumb machines; in fact, the only thing they can do is count. By counting, they can add and subtract and with these abilities, they can multiply and divide. And that's all. That's enough in most cases, for the most complicated mathematical



problems can be broken down into these grammar school essentials.

The first electronic computer, the ENIAC, was made right here in Philadelphia during World War II. It was constructed by two University of Pennsylvania professors to solve ordnance problems for the Army. The ENIAC was a ponderous pioneer containing some 30,000 vacuum tubes in a space as big as a house. It toiled long and well, however, and was retired only a few years ago.

The ENIAC and its first brothers were used to solve scientific problems and it was not until 1951 that a computer was applied to office work. The Census again showed the way. In 1953, a private company installed a computer and the rush was on.

In the latter 1950's computer design took a giant step forward. Tiny transistors replaced vacuum tubes with great reduction in space requirements, maintenance, and heat generated—both in the computer and under the operator's collar. Today there are about 2,500 computer systems in use. About one-third of these are used primarily for scientific purposes. The remainder tackle the paper work of business.

The Bank of America was the first bank to install a computer. It put its famous ERMA to work in 1956. At the present time, only a handful of banks operate computers but the number is expected to grow rapidly in the next few years. Several new models have been introduced which are especially appropriate for bank accounting and banks are showing plenty of interest. There is quite a time lag between interest and operation, however. The bank can spend several years just making studies to determine if it wants a computer and what kind. Then, if the bank places an order, it may have to wait another year or two before the computer is de-

livered. It is estimated that several hundred banks are at some stage in this gestation process.

A new, solid-state (this means it uses transistors) computer looks for all the world like a bunch of square, pastel-hued refrigerators scattered around a room. It has four basic parts: (1) the input units shoot information into the computer from punched cards, magnetic tape or, with modifications, from checks and other original documents; (2) the processing section is where the actual computations are performed; (3) the storage unit remembers figures that are being calculated and instructions that the machine has been given; (4) the output devices spew out the answers on punched cards or magnetic tape or sometimes printed on paper for humans to read. This, greatly simplified, is what those "refrigerators" do.

Let's see how one kind of computer might handle the job of posting demand deposit accounts. A prerequisite is that every account be numbered. When a batch of checks and deposit tickets is received, it is put in numerical order. The account number, the amount of the item, and whether it is a debit or credit are magnetized on a tape. This tape is run into the machine with another showing yesterday's account balances. The machine matches the account numbers, deducts checks, adds deposits, strikes a new balance and magnetizes it on another tape—all in the wink of an eye. The new tape is then run through a high-speed printer to get a readable record in case anybody wants to know his exact deposit balance. The machine also can be instructed to handle checks on which payment has been stopped, and those with insufficient funds behind them.

We have described the popular "sequenced" type of computer which stores basic records on reels of magnetic tape. There is another way a

computer can be used for deposit accounting. It is called "random access." Here the master records—the current balance for each account, etc.—stay inside the computer itself in an extra-large memory unit. The computer can pick out any account at random and up-date it in a fraction of a second.

Computers have other important banking jobs besides deposit accounting. They are, or soon will be, keeping track of consumer and mortgage loans, figuring payrolls, and accounting for trusts.

In fact, there are almost unlimited possibilities for using computers in banking. There is no reason why they can't do market research or credit analysis. And why not ask a computer to pick the best possible location for a new branch or to solve management and policy problems? It is possible, for example, for a computer to figure how to run a bank so as to maximize profits and minimize risks.

Breaking the check barrier

Banking is at last on the verge of a major breakthrough in check handling. Machines to do this job have recently been developed. They can sort checks as to the bank on which they are written, or by accounts within a bank. The new equipment can run totals, prove batches and pass information along to a computer that posts accounts. And it's all automatic—virtually untouched by human hands.

It sounds like magic but it's really magnetism. Each check wears a "dog tag" written in ink that contains minute particles of iron. As the checks pass through the machines at speeds from 750 to 1,500 per minute, the ink is magnetized. An "eye" reads the impulses set up by the ink, translates them into numbers, and the machine acts according to the information received.

The magnetic inscription may include a number to identify the bank, the depositor's account number, and the amount of the check. Inasmuch as deposit tickets also may be processed by the same machinery, there is a code to distinguish debits from credits.

These identifying numbers are printed in a common language developed by the American Bankers Association. This means the same type face will be used in the same way all over the country. The characters can be read by people as well as by machines. They may look a bit weird at first, but they are really only lumpy Arabic numerals. For example, this is the year 1980

Magnetic ink checks can, of course, be handled by old methods, too. They are just the same as any other check except for the inscription.

Printing in magnetic ink is not expensive. It now adds slightly to the cost of a check but as printers get more experience and volume, the extra cost may disappear entirely. There is, however, another problem that could inhibit the wide use of magnetic ink.

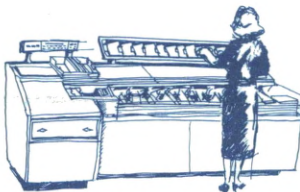
The most important 5/8ths inch in banking

Many checks will have to be redesigned because the magnetic inscription pre-empts a strip five-eighths of an inch wide along the bottom of the check. Redesigning won't be too much of a problem on the checks that banks issue themselves but there may be more difficulty in cases where companies print their own. Some firms like to work advertising into their checks. We have seen checks shaped like motor boats and sausages, checks with pictures of factories and company presidents, checks the size of half a newspaper page. You could even write a valid

check on a golf ball if you want to. Bankers will have to sell their customers on the necessity of using the more standardized magnetic ink checks—not that magnetic ink rules out imagination in check design but it does impose restrictions. Checks should be of a size that fits into the machines and regular printing should stay five-eighths of an inch from the bottom.

In addition, some bankers themselves may have to be sold on magnetic ink. The reading machines are expensive and many of the smaller banks will not be able to afford them.

So, some small-bank executives might wonder, “Why should I go to the trouble of getting my checks printed with magnetic ink when I can’t use the equipment? What’s in it for my bank?” Simply this: the maintenance of an efficient check-collection system is an obligation of the banking industry. It will benefit all banks and, more important, it will enable them to give better service to their customers.



We now have a smooth collection system. Checks speed to their home banks in several days or less. People who deposit checks in their accounts get the use of the money quickly or if a check bounces they learn about it in time to take prompt action.

The present system won’t remain efficient indefinitely, however. The billions of additional checks that will be written in the 1960’s could clog the collection pipelines. Primary pressure points will be the Federal Reserve Banks and the large correspondent banks because these are the funnels through which many checks on the move must pass.

Luckily, these banks soon will be installing magnetic ink reading equipment. These machines should be able to handle the greatly increased check traffic of the 1960’s, and will prevent the collection system from bogging down, provided enough banks cooperate and get magnetic ink on their checks. A high percentage of incoming checks must bear their bank’s code number to make the use of magnetic ink equipment efficient on a check-transit operation.

“Buck Rogers” banking

A computer plus magnetic ink reading equipment can bring automation to all phases of check processing. Here’s one way it might work, assuming the best of all possible worlds where every check is preprinted with magnetic ink bank and account numbers. When the checks are received, the batch totals are proved and the dollar amounts are printed on the checks in magnetic ink, all in the same operation. Then the checks go into a sorter-reader, which by reading the magnetic ink, separates them into “transit items” which are drawn on other banks, and “on us” items or checks written on accounts within the bank.

The “transit items” are further sorted by machine and sped on their journey to their home banks. The “on us” items are arranged in account number order—automatically, of course. Then the reading machine tells their number and dollar amount to the computer. The computer posts the items to the proper accounts and figures a new balance. Deposit tickets are handled in essentially the same manner. At the end of the month the proper tapes are run through the printer and customers’ statements are prepared. There even are machines to stuff envelopes and “lick” stamps.

As far as we know only one or two banks now

WE'RE GOING TO BE A GUINEA PIG

The Federal Reserve wants to find out which magnetic ink equipment and systems will best suit its check-clearing operations. Pilot installations will be established in five Reserve Banks. Each one will use the machinery of a different manufacturer and the Stanford Research Institute will coordinate the whole project.

The Federal Reserve Bank of Philadelphia is going to participate in the experiment. We will try out equipment made by the International Business Machines Corporation. Delivery is expected in late 1960 and the trial will last 6 months.

In order to get maximum information from the test, we should use as many "live" checks as possible. The success of the experiment, therefore, depends in part on how many checks we receive with their A.B.A. routing symbol-transit number preprinted in magnetic ink in the approved 5/8 inch strip.

Our "laboratory" may turn up information that will be of value to commercial banks planning to use similar equipment. We will welcome visitors when things get rolling. The *Business Review* will announce the date.

have such a system, but many others have the equipment on order. It won't be too long before automated check processing is widely used by the largest banks.

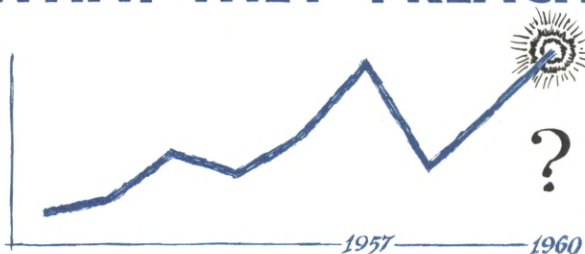
Coming attraction

You have seen some of the ways banking is trying to tame its paper tiger. Of course, we can't recommend any of the above-mentioned ma-

chines as appropriate for a specific bank. Each bank must study its own situation and decide what new equipment, if any, best suits its needs.

In making such decisions it may be helpful for banks to know what machines other banks of the same size have. We are making a survey of the machinery in use in all Third District member banks and shall publish the results in subsequent issues of the *Business Review*.

WILL MANUFACTURERS PRACTICE WHAT THEY PREACH?



This Bank's surveys of manufacturers' capital spending in 1960 indicate that the high levels originally planned will be surpassed. New orders, however, show no sharp upturn. Can this be reconciled with optimism concerning capital spending?

Last fall, manufacturers indicated their expenditures for plant and equipment in 1960 would be almost as high as the highest ever achieved. This spring, checking back, we found plans revised all along the line. Most of the changes are upward.

The findings for Philadelphia parallel those for the nation. Manufacturers in the Philadelphia area expect to spend \$410 million for plant and equipment in 1960. That is 15 per cent more than in 1959; for the United States, the comparable figure is about 25 per cent. Firms here have increased their planned capital spending in 1960 by 8 per cent since last fall; national surveys report upward revisions of about the same magnitude.

The capital expenditures predicted for 1960 by Philadelphia area manufacturers exceed by 4 per cent the previous high of \$394 million in 1957. Firms producing durable goods expect to spend 26 per cent more this year than last; nondurables manufacturers plan to spend 6 per cent more.

Other Third District areas show increases

The upsurge in spending for plant and equipment extends to establishments in the Trenton, Wilmington, and Lehigh Valley areas, which in comparison to 1959 are up 61, 31, and 11 per cent, respectively. In each region, the spring recheck disclosed substantial upward revisions of last fall's estimates for 1960.

Two industries run counter to the general pattern

Examining the findings for Philadelphia, one is struck by the uniformity of the improvement. Even where industries indicate declines in capital expenditures since 1959, the totals now given represent increases from the projections for 1960 they made last fall.

Only the apparel and petroleum industries fail to show either an increase in capital spending over 1959 or an upward revision of last fall's estimates for 1960. Expenditures by apparel manufacturers are relatively small, but petroleum is especially important in the Philadelphia

ESTIMATED CAPITAL EXPENDITURES OF MANUFACTURERS IN THE DELAWARE AND LEHIGH VALLEYS 1959 AND 1960

	Expenditures (Millions \$)		Per cent change	Per cent change in 1960 estimate
	1959	1960	1959-1960	Fall—Spring
Philadelphia Metropolitan Area				
All manufacturing	357.2	409.9	14.8	7.6
Durables	157.8	198.8	26.0	11.1
Lumber & furniture	1.3	1.7	30.8	21.4
Stone, clay & glass	16.4	9.0	— 45.1	9.8
Primary metals	41.2	70.2	70.4	37.1
Fabricated metals	19.5	20.2	3.6	— 16.5
Machinery (excl. elec.)	21.3	27.6	29.6	— 21.6
Electrical machinery	37.5	47.6	26.9	30.8
Transportation equipment	10.8	15.2	40.7	— 3.2
Instruments & misc.	9.7	7.3	— 24.7	10.6
Nondurables	199.4	211.1	5.9	4.5
Food & tobacco	27.8	33.7	21.2	0.0
Textiles	3.6	7.3	102.8	135.5
Apparel	6.0	1.6	— 73.3	— 11.1
Paper	25.4	31.5	24.0	— 1.9
Printing & publishing	14.2	6.5	— 54.2	47.7
Chemicals	64.0	69.0	7.8	36.6
Petroleum	47.7	43.3	— 9.2	— 28.2
Rubber	10.3	17.5	69.9	10.1
Leather	0.3	0.7	133.3	133.3
Trenton				
All manufacturing	13.8	22.2	60.9	32.1
Wilmington				
All manufacturing	39.5	51.7	30.9	38.2
Lehigh Valley				
All manufacturing	45.8	50.8	10.9	53.0

capital spending totals. The increase in capital spending by nondurables manufacturers is much smaller in Philadelphia than in the nation. Cutbacks by the local petroleum industry explain most of this lag.

Where are the new orders?

So far in 1960, the news concerning business has been mixed, in contrast to the very optimistic

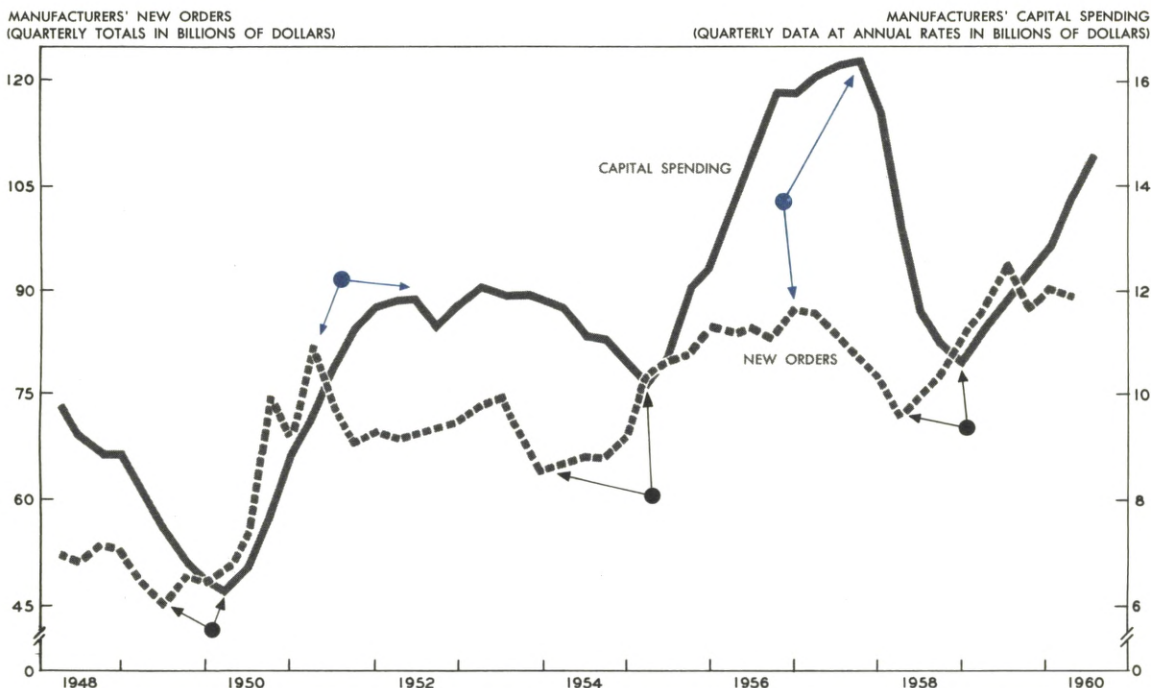
estimates made at the turn of the year. Capital spending is an important ingredient of prosperity, and therefore the news that it is likely to increase in 1960 is welcome indeed. Some observers nevertheless are troubled by the seeming lag in manufacturers' new orders. If capital spending really is to reach new heights in 1960, shouldn't new orders be spurting upward?

The fact is that manufacturers' new orders

On the graph below, the broken line shows manufacturers' new orders for the U.S. since 1948 quarterly, as reported by the U.S. Department of Commerce. The solid line represents capital spending by manufacturers quarterly, as reported by the Department of Commerce and the Securities and Exchange Commission. Both series are seasonally adjusted.

The blue arrows indicate important upturns in new orders and in capital expenditures. The black arrows point to important downturns. Two conclusions are evident: upturns and downturns in capital spending have lagged several quarters behind the turns in new orders; when capital spending has swung upward for several quarters, as now, new orders at the same point in time have maintained an approximately level course, at a high rate.

MANUFACTURERS' NEW ORDERS AND CAPITAL SPENDING United States, 1948-1960.



have been higher than now only once before—in the second quarter of 1959. Orders lead capital spending considerably; sharp increases in new orders precede capital spending upturns by several months. When new orders reach a high level, they tend to stay there, while capital expenditures respond by continuing upward until they too level off, not to turn down again until some time after new orders drop. The chart above shows this relationship for the postwar era.

Reasoning from the patterns shown on the chart, the relationship between new orders and capital spending does not appear unusual; new orders already have increased rapidly, and the lagged rise in capital spending that should follow is occurring approximately as in earlier postwar years. Of course, to some extent both new orders and capital spending have been influenced by the long steel strike.

Past relationships suggest that capital expendi-

ESTIMATED DIRECTION OF CHANGE IN CAPITAL EXPENDITURES 1961 RELATIVE TO 1960

	Per Cent of Firms					
	Higher		No Change		Lower	
	Fall	Spring	Fall	Spring	Fall	Spring
Philadelphia Metropolitan Area						
All manufacturing	19	20	66	58	15	22
Durables	20	26	63	53	17	21
Lumber & furniture	27	31	66	54	7	15
Stone, clay & glass	5	21	62	53	33	26
Primary metals	9	38	77	33	14	29
Fabricated metals	15	24	65	58	20	18
Machinery (excl. elec.)	31	28	53	51	16	21
Electrical machinery	30	23	57	50	13	27
Transportation equipment	9	0	73	58	18	42
Instruments & misc.	17	29	75	71	8	0
Nondurables	18	16	68	63	14	21
Food & tobacco	18	21	58	48	24	31
Textiles	10	17	84	66	6	17
Apparel	16	6	82	94	2	0
Paper	23	16	50	56	27	28
Printing & publishing	16	18	60	64	24	18
Chemicals	24	24	47	38	29	38
Petroleum	55	33	36	34	9	33
Rubber & leather	19	4	75	69	6	27
Trenton						
All manufacturing	16	15	70	68	14	17
Wilmington						
All manufacturing	16	14	63	56	21	30
Lehigh Valley						
All manufacturing	16	19	63	52	21	29

tures should remain high until after new orders clearly turn downward. But the past never repeats itself exactly. A small straw in the wind may be found in our Delaware and Lehigh Valley surveys, in which manufacturers were asked to make . . .

Projections for 1961

Last fall, opinions concerning capital spending in 1961 were mixed. Firms understandably were

noncommittal. Most of them hedged by saying they thought they would spend in 1961 at about the same rate as in 1960. Those who specified a change leaned slightly in the direction of a rise in 1961. Now this pattern is different in two ways. First, although about half the firms still say, "No Change," more of them than before are willing to specify in what direction they expect their capital expenditures to move. Second, the

INVENTORY EXPECTATIONS OF PHILADELPHIA MANUFACTURERS IN 1960

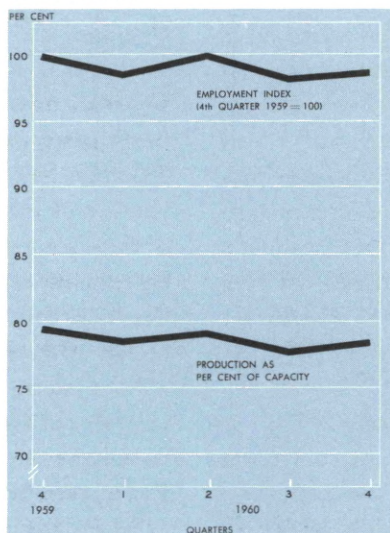
	Increase		No Change		Decrease	
	Fall	Spring	Fall	Spring	Fall	Spring
All manufacturing	19%	16%	69%	68%	12%	16%
Durables	24	18	63	62	13	20
Lumber & furniture	14	17	72	58	14	25
Stone, clay & glass	14	5	67	85	19	10
Primary metals	21	13	71	74	8	13
Fabricated metals	28	22	55	51	17	27
Machinery (excl. elec.)	23	17	64	59	13	24
Electrical machinery	41	20	54	60	5	20
Transportation equipment	8	9	67	64	25	27
Instruments & misc.	32	39	63	61	5	0
Nondurables	14	14	74	73	12	13
Food & tobacco	13	13	81	84	6	3
Textiles	8	8	75	68	17	24
Apparel	12	7	74	72	14	21
Paper	14	30	76	70	10	0
Printing & publishing	22	22	61	74	17	4
Chemicals	29	19	66	81	5	0
Petroleum	12	22	88	56	0	22
Rubber & leather	21	12	73	69	6	19

balance of opinion now is negative; more firms expect declines than expect increases. The differences from last fall are not large, but they do indicate some change in the direction and strength of opinions.

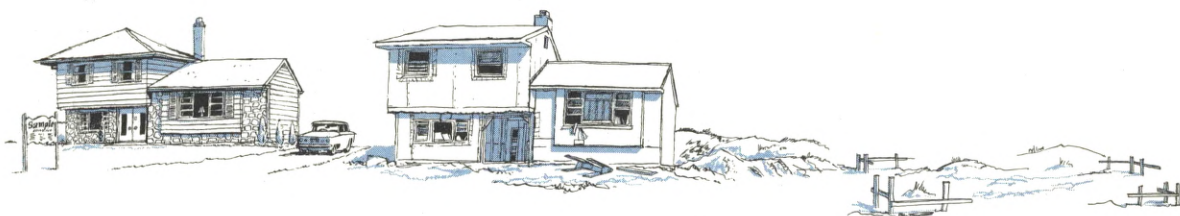
Inventories

Further slight evidence of caution concerning the future is apparent in the Philadelphia manufacturers' projections of inventory changes.

Manufacturing establishments in the Philadelphia area expect production and employment to hold approximately constant in 1960.



They are almost evenly divided between those who expect inventories to increase in 1960 and those who expect decreases, with the majority finding refuge in the "No Change" column. Again, the change since last fall in these predictions is negative. Last fall those who were willing to specify the direction in which their inventories would go in 1960 split three to two in favor of increases; now they split evenly.



OUR 1960 HOUSING MARKET

"What are 1960 housing prospects in this area?" We have asked that question and some others of builders, lenders, and realtors operating in the Philadelphia Federal Reserve District. No one has pat answers to any of our questions. Nearly everyone seems to feel the building sector of the economy is slowly recovering from the effects of last fall's exceptionally tight mortgage money and the highest home financing costs in over two decades.

Basically, the over-all situation this spring is described as healthy enough. Builders say they carried few completed houses over the winter; that they are adjusting their operations to a sales market just beginning to show promise of seasonal improvement. Lenders see some easing in the supply of mortgage money and expect an increasing flow of funds as the season progresses. Realtors tell us sales of existing properties that had been sticky are moving at a slightly faster pace. They also say rental trends are firm and they have very few listings of houses for this market.

Builders are making fewer starts

So far this spring builders have started fewer houses than a year ago. In extreme cases there are reports of cutbacks of as much as 50 per cent. In nearly all parts of the District project

size has been held down. A widespread practice seems to be to finish a sample, sell from this, then start a few more. "Testing the market" is the term builders apply to this type of operation. It's not the method they prefer, but in what many have described as a "thin market," it appears to be their only choice. In some areas the bulk of current activity is in the lowest price range; in others, builders seem to be concentrating on the middle bracket. Activity is probably slowest everywhere in houses built to sell for above \$25,000. Today these are mostly custom jobs, built on order from individuals' specifications.

Sales of new houses have been disappointing

Although builders have been encouraged by the number of persons inspecting new houses, most of them seem at a loss to explain why more sales agreements are not being written. Some think the high cost of borrowed money is a major factor. Others call attention to the behavior of the stock market, the miserable weather of early spring, or the fact that predictions of a booming economy in 1960 have not materialized. In any case, the sales picture this spring appears to be improving at something less than the normal seasonal rate.

Old houses are moving at a slightly faster pace

Most realtors tell us that old houses have been selling somewhat more promptly in recent weeks but that sales still are below the level of a year ago. No significant increases are reported in the number of old houses on the spring market. Earlier this year financing these properties seemed more of a problem than at present. In this area of the market, activity has improved most in houses not more than five years old. Existing properties in older neighborhoods close to commercial and industrial zones are described as persistently sticky, unless priced well below the market.

Rental trends continue firm

A slowly rising trend in rents persisted over much of last year but in recent months no significant changes have been reported. According to the Bureau of Labor Statistics, the 1959 increase in Philadelphia, for example, was a little less than 1½ per cent, compared with 2 per cent the preceding year and almost 4 per cent in 1957, following the removal of all wartime controls. Most realtors speak of very few listings in houses for rent, but of a fairly wide choice this spring in small apartments. Inquiries for all rental properties have increased and a fairly strong market is said to be in prospect this year.

Mortgage money has eased but rates remain high

Lenders describe the supply of mortgage money as generally adequate for all current needs. The situation, while still tight compared with the spring of 1959, has improved since last fall. Conventional loans are said to account for the bulk of new home financing and are preferred by

most builders because of the discounts prevailing on mortgages backed by Federal insurance and guarantees. Savings and loan associations are reported to be providing a substantial volume of conventional funds and both savings banks and life insurance companies are said to be increasing the size of their loan portfolios.

F.H.A. lending activity is picking up slowly in some areas. Discounts on these mortgages have diminished somewhat in recent weeks and on the average range from 2 to 3 points as compared with 5 points or more charged when the mortgage market was tighter. These loans are being employed more and more on existing properties. V.A. mortgages are said to finance a very small proportion of all sales. Prevailing high discounts ranging up to 8 to 10 points discourage builders from offering V.A. mortgages, and owners of existing properties object to the loss they must absorb in their selling price.

The price of mortgage money shows no sign of weakening, in spite of the somewhat larger supply currently available. Conventional loans bring 6 per cent in our area, with only scattered reports of 5¾ per cent on exceptionally good risks carrying down payments of 50 per cent or more. About the only easing reported in terms on conventionals is the fact that savings and loan associations are making more 90 per cent loans than formerly. In the case of F.H.A.'s, the newly implemented schedule of down payments permits a smaller amount of cash on houses costing more than \$14,000. This, however, is a minimum schedule, not necessarily applying in all markets.

Construction costs have climbed a little further

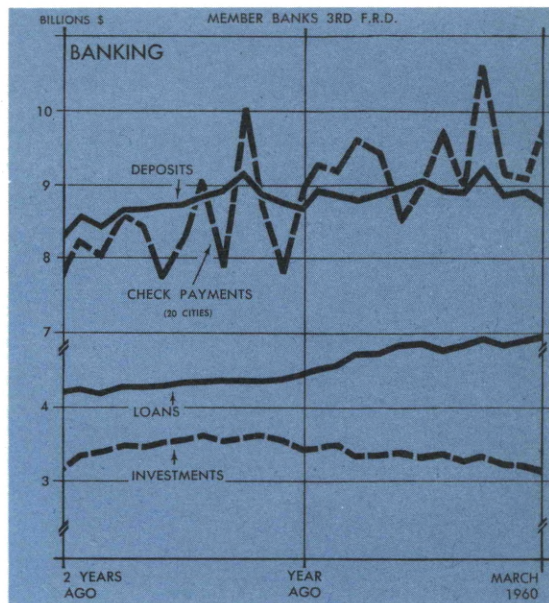
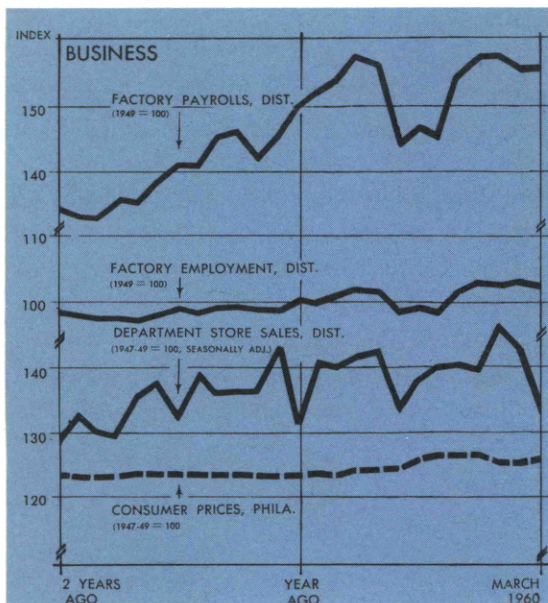
Building materials appear to be the only component of construction costs that has not continued to push upward. Builders say that today's

relatively small volume of homebuilding must be given most of the credit for this measure of stability. Wage rates in the building trades are expected to advance again in the near future and several instances of increases already have been reported in our area. Perhaps the greatest push on homebuilding costs this year is coming from land values and the expense of developing new homebuilding sites. Some builders tell us land prices have risen very steeply since last spring, particularly where suburban shopping areas are planned. Cutting through streets and the installation of water lines and sewers are said to be taking a significantly larger proportion of the construction dollar this year than last.

Builders' plans are on a modest scale

Although most of the builders we talked with appeared generally optimistic concerning 1960 as a whole, their watchword for the present was *caution*. Most of them say they have fairly substantial programs for this year but that new projects will be unshelved only as conditions in the sales market warrant. Land is being acquired more slowly than last spring and the development of new tracts is proceeding just ahead of actual construction needs. If sales of houses show the improvement some builders say they expect and all of them hope for, 1960 could still be a reasonably good homebuilding year.

FOR THE RECORD...



SUMMARY

	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	Mar. 1960 from		3 mos. 1960 from year ago	Mar. 1960 from		3 mos. 1960 from year ago
	mo. ago	year ago		mo. ago	year ago	
OUTPUT						
Manufacturing production...	0	+1	+2	-1	+5	+8
Construction contracts...	+45	-27	-21	+36	-9	-6
Coal mining...	-5	-2	-2	+2	+5	0
EMPLOYMENT AND INCOME						
Factory employment (Total)	-1	+2	+3	0	+3	+4
Factory wage income...	0	+4	+7	...	...	...
TRADE*						
Department store sales...	-7	+1	0	0	+1	0
Department store stocks...	-1	+3	...	0	+7	...
BANKING (All member banks)						
Deposits	-1	+1	+1	-1	-1	0
Loans	+1	+12	+12	+1	+12	+12
Investments	-2	-9	-9	-2	-13	-14
U.S. Govt. securities...	-2	-11	-12	-3	-17	-17
Other	-1	-3	-2	0	-3	-2
Check payments	+8†	+9†	+9†	+11	+10	+9
PRICES						
Wholesale	...	...	...	+1	0	0
Consumer	0†	+2†	+2†	0	+2	+1

*Adjusted for seasonal variation.

†20 Cities

†Philadelphia

LOCAL CHANGES

LOCAL CHANGES	Factory*				Department Store†				Check Payments	
	Employment		Payrolls		Sales		Stocks			
	Per cent change Mar. 1960 from		Per cent change Mar. 1960 from		Per cent change Mar. 1960 from		Per cent change Mar. 1960 from		Per cent change Mar. 1960 from	
	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago
Lehigh Valley	-2	+1	-6	+2	....	....	....	....	+11	+9
Harrisburg ...	-3	+6	-4	+9	....	....	....	....	+9	+8
Lancaster	0	+3	0	+4	-3	+9	+5	+10	-5	+7
Philadelphia .	0	+3	+2	+7	-6	-2	-1	+2	+8	+8
Reading	-1	+5	-3	+6	-6	+2	+6	+5	+12	+15
Scranton	0	-1	0	+4	+4	+6	+1	+4	+7	-1
Trenton	-3	+1	-4	+3	-7	+12	-3	+10	+2	+1
Wilkes-Barre .	-1	+1	-1	+3	-10	-4	-2	+9	+14	+7
Wilmington ..	-1	0	-2	-2	-7	+3	+1	+2	+11	+21
York	-1	+2	+1	+6	-12	-2	-6	+1	+6	+5

*Not restricted to corporate limits of cities but covers areas of one or more counties.

†Adjusted for seasonal variation.