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FEDERAL RESERVE BANK OF PHILADELPHIA

What Price Liquidity?

Philadelphia's Missing Jobs

SEPTEMBER

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WHAT PRICE LIQUIDITY?

Bankers are managing their cash assets with a sharper pencil.

Did you ever sit down and figure the return on $1,000,000 at 6 per cent interest for one year? It comes to $60,000, and $60,000 pays a lot of wages, salaries, electric bills, and other expenses that bankers and other businessmen incur in the process of earning a profit.

Now suppose you just happen to have $1,000,000 lying around in a bank vault or elsewhere which you may not need in the form of ready cash or its equivalent. If you lend it out or invest it, you get the $60,000. If you don't, you don't. Interested? More and more bankers have been interested in the past decade for they have steadily decreased the volume of cash assets they hold relative to the total assets they manage.*

EARNINGS VS. LIQUIDITY: THE BANKER'S AGE-OLD DILEMMA

In many respects a bank is much like any other business. It hires workers such as the tellers who stand at the front desk and accept deposits and pay out currency. It must buy or rent its business quarters and pay for heating, cooling, and lighting. It sells a "product" in the form of checking accounts, loans, and the like. Also, like any other business, a bank wants to maximize its revenues so it can meet its expenses and still turn a profit.

Unlike other businesses, however, a bank's primary stock in trade is the deposits of its customers which it uses to lend and invest. And a large proportion of these deposits, unlike the accounts payable of most businesses, must be paid out on demand.

The banker, for example, must stand ready on a moment's notice to pay out cash to his depositors and others. If he can't, he's in trouble. In the jargon of the trade, the banker must be "liquid." And here we have a seeming paradox. The most liquid asset—cash—provides no earnings. Assets which do provide earnings, on the other hand, (loans and investments) are less liquid; they are more difficult to turn into ready cash.

How does the banker cope with this two-sided problem, with simultaneous need to be (a) liquid enough to meet cash demand and (b) invested and loaned enough to derive a good return? Answer: he keeps sufficient cash assets and near-cash assets to meet the cash demand he may reasonably expect, and then he invests and lends the rest. He thereby obtains both liquidity and earnings.

Yet in recent years, as shown in Chart 1, banks have reduced the proportion of their total assets held in the form of cash, this at the same time that holdings of short-term Governments have been falling and loan-deposit ratios have been rising.

In this article we take a look at the reasons why commercial bankers have decided they can do with less cash. We also examine some of the wider implications of a declining cash-asset ratio.

TO MARKET, TO MARKET

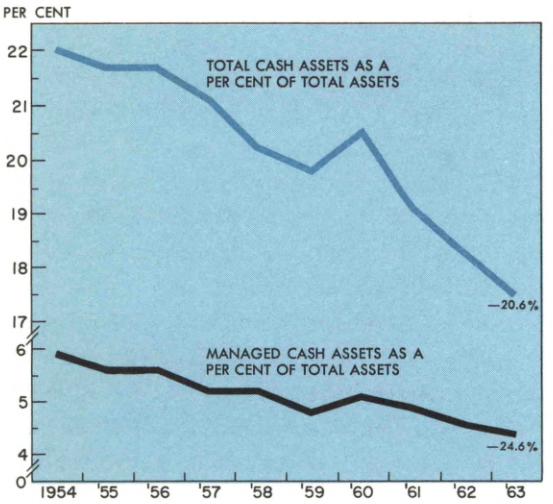
One reason why bankers have decided they can do with less in cash is simply that they can

* In this article, the term "cash assets" is used to mean cash in vault, deposits with correspondents, required and excess reserves held with Federal Reserve Banks and cash items (checks and the like) in process of collection.
The term "managed cash assets" includes vault cash, deposits with correspondents, and excess reserves held with the Fed.

CHART 1

CASH ASSETS AS A PERCENT OF TOTAL ASSETS

All Member Banks, United States.



Sources: Board of Governors, Member Bank Call Reports, data are averages of 4 Call dates.

"buy" or borrow funds if they run short, often with little loss or delay. With such funds available, bankers have found that they need not keep cash on hand at all times in amounts large enough to meet peak cash drains.

The traditional methods of obtaining funds to meet immediate cash needs include the sale of near-cash assets such as Treasury bills, borrowing from other banks, and borrowing from the Federal Reserve Banks (a privilege which member banks may exercise in accordance with regulations specified by Federal Reserve authorities).

Another alternative which has become increasingly important in recent years (both in terms of the volume of funds changing hands and in numbers and sizes of participating banks) is the so-called "federal funds market." Through the federal funds market, banks with excess funds may lend to deficit banks who are temporarily deficient. The loan is usually of short duration, say, overnight or for one or two days. A typical transaction might go something like this: Bank A finds that a larger dollar volume of checks have been drawn against it than have been deposited with it, with the result that Bank A experiences a net drain of funds. Bank A contacts a federal funds dealer who puts him in touch with Bank B (Bank B having experienced a net inflow of funds in excess of its immediate needs). Bank A borrows the funds for one or two days then returns them with interest to Bank B.

The federal funds market has made possible the mobilization of excess funds among an ever-widening circle of both large and small banks. In the Third Federal Reserve District, for example, the large Philadelphia reserve city banks stand ready to buy or sell federal funds for the account of their smaller correspondents. They will buy or sell regardless of their own deficit or surplus position, using any excess funds, for example, to cover their own deficiency (if they happen to have a deficiency) or selling these funds to others if they should have a reserve surplus. The majority of transactions are consummated by direct debit or credit to the correspondent account at the prevailing federal funds rate. Typically, the reserve city banks will sell funds to correspondents in amounts of $100,000 or over and will purchase funds in amounts of $200,000 to $250,000 and over. A market for federal funds in such relatively small amounts opens the federal funds mechanism to a very wide range of smaller banks and thus a growing number of institutions feel they may safely decrease the volume of cash they hold.

But this is only one side of the earnings-liquidity coin. Institutional developments such as the federal funds market provide the *oppor-*

tunity to reduce cash holdings, but the opportunity might be passed over and indeed a federal funds market might never have developed if there were not some *inducement* to economize on cash holdings. The inducement has come from the earnings side of the coin.

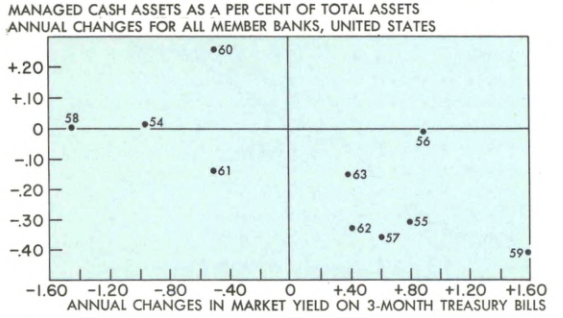
THE PULL OF INTEREST RATES

Interest rates increased significantly in the 1950's from the low levels associated with wartime financing. This rise in interest rates, in effect, has made it more costly for banks to hold cash assets.

Whereas it cost banks only about ⅜ of 1 per cent to hold cash instead of Treasury bills during the war (by holding cash, banks would give up the ⅜ of 1 per cent they could otherwise have made by investing in Treasury bills), it now costs them around 3½ per cent to hold cash instead of bills, and even more to hold cash instead of loans. Since banks are in business to make a profit, one might expect bankers to reduce their cash-asset ratios as interest rates rise (providing, of course, that bankers determine such action to be prudent and in keeping with liquidity needs).

CHART 2

CHANGES IN CASH ASSET HOLDINGS APPEAR TO BE RELATED TO CHANGES IN INTEREST RATES, BOTH IN THE NATION . . .



Sources: Board of Governors, Member Bank Call Reports.

In fact, changes in interest rates do appear to have influenced changes in cash-asset ratios. Charts 2 and 3 show that, more often than not in the 10-year period 1954–1963, bankers economized on the cash assets which they can control or "manage" (vault cash, deposits with correspondents, and excess reserves held with the Fed)* in years when interest rates were rising and raised these same cash-asset ratios more often than not in years when interest rates fell.** Thus the pull of earnings reflected in the shifting attractiveness of interest rates does appear to provide an inducement for bankers to adjust their cash assets.

But earnings are a function both of revenues

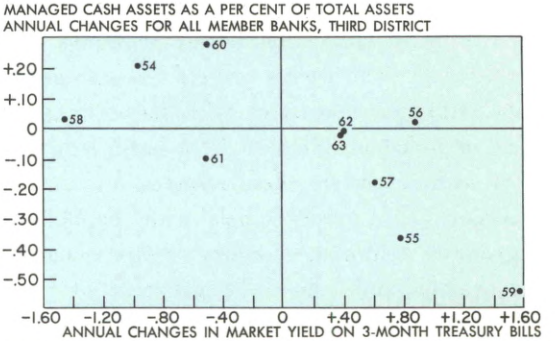
* The total of these items which can be "managed" or "controlled," (that is, which may more readily be converted from nonearning to earning assets) is actually less than their arithmetic sum at any one point in time. This is because correspondent balances, shifted into loans or investments, would then be subject on the liability side to reserve requirements. Since banks have been allowed to count vault cash as required reserves since 1960, vault cash too, is now less of a "manageable" asset.

** Despite the limited number of observations, the correlations observed are sufficiently high that they would seldom occur in sampling universes where no correlation existed.

	Number of Observations	Coefficient of Correlation	Correlation Significant at Level
Member Banks, U.S.	10	— .67	.025
Member Banks, Third District	10	— .72	.01

CHART 3

. . . AND IN THE THIRD FEDERAL RESERVE DISTRICT



Sources: Federal Reserve Bank of Philadelphia, Member Bank Call Reports.

and of costs. We have seen that bankers apparently are influenced by the pull of revenues (interest rates) in managing their cash position; could they also be pushed by rising costs?

THE PUSH OF COSTS

Costs in banking, as for many industries, have risen significantly in the past decade. Wages, salaries, occupancy expenses have increased, and banks also have experienced rising costs in the form of higher interest rates which they must pay to compete effectively for time and savings deposits.

As can be seen in Charts 4 and 5, bank costs have risen both in terms of revenues and assets. For each dollar of revenues earned in 1954, member banks incurred operating expenses of about 62 cents. In 1963, operating expenses took about 71 cents of each dollar of revenue. Operating expenses per dollar of assets, on the other hand, rose from 1.8 cents in 1954 to over 3.1 cents in 1963. It would not be at all surprising if the reduction in cash-asset ratios were partially related to rising bank costs.

RESERVES HELD WITH THE FED: A SHARPER PENCIL

As already mentioned, one important component of a member bank's cash assets is its cash reserves held with Federal Reserve Banks. Today's banker who wishes to hold his cash assets at a minimum consistent with basic liquidity needs is aided in doing so by a basic improvement with respect to these reserves.

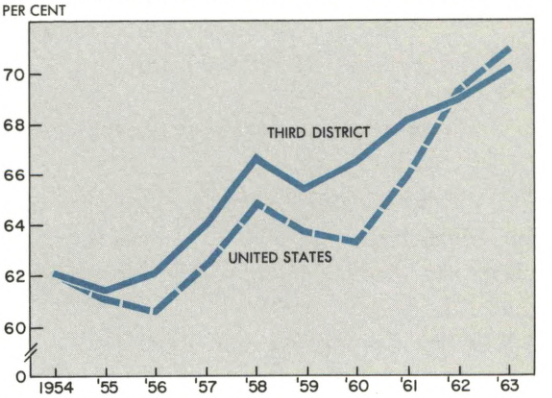
A portion of reserves held with the Fed is, of course, required. Country member banks, for example, must hold 12 per cent of their net demand deposits as required reserves and 4 per cent of their time deposits. The banker need not hold any *more* reserves than are required, however, and to the extent that the banker *does* keep a considerable sum in excess of required reserves, he bypasses loans and investments he might otherwise make and thereby earns less.

Question: how has the banker sharpened his pencil with respect to reserve balances?

CHART 4

TOTAL EXPENSES AS A PERCENT OF TOTAL REVENUE

All Member Banks, United States and Third District.

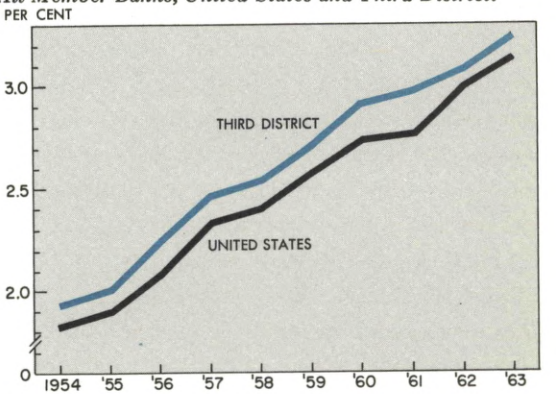


Source: Board of Governors.

CHART 5

TOTAL EXPENSES AS A PERCENT OF TOTAL ASSETS

All Member Banks, United States and Third District.



Source: Board of Governors.

Answer: he has become better informed of the day-to-day fluctuations in his reserves — whether he is about on the line with his requirements or whether he is building up a large deficit or surplus. If he is better informed, he is better able to minimize his reserve balances and thereby lend and invest more and improve his earnings.

The Philadelphia Federal Reserve Bank, for example, provides work sheets to member banks which aid them in computing, on a day-to-day basis, the reserves that they are *required* to hold at the Fed. Then, each day, the Philadelphia Fed sends each of its members a statement indicating reserves actually *maintained*. The difference between reserves maintained and reserves required gives the daily excess or deficiency. The member banker is thereby able to see each day if he is building up a considerable excess in his reserve position, and being thus informed, is able to take corrective action if he so desires. In effect, the Fed provides the member banker with a sharper pencil to manage his reserve position.

MANAGING CASH POSITIONS IN THE THIRD FEDERAL RESERVE DISTRICT

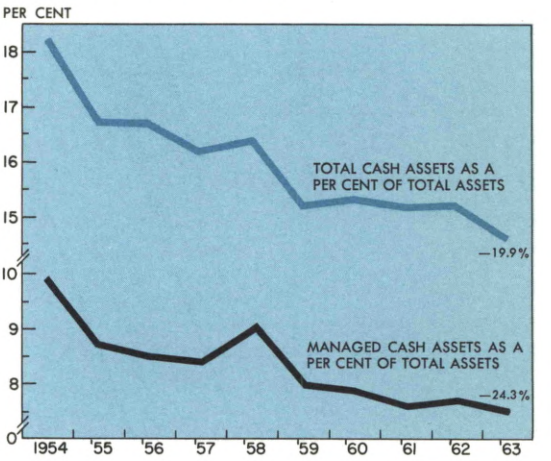
In keeping with their counterparts throughout the nation, Third District bankers have sharpened their pencils in the past decade and lowered their holdings of cash assets relative to the total assets they control. Indeed, Chart 6 shows that managed cash assets as a percentage of total assets have declined by a substantial 24 per cent in the past ten years.

What kinds of cash assets have banks reduced the most? What size banks have been most successful in minimizing cash holdings? What are some wider implications of the reduction in cash assets?

CHART 6

CASH ASSETS AS A PERCENT OF TOTAL ASSETS

Third District Member Banks.



Sources: Federal Reserve Bank of Philadelphia, Member Bank Call Reports, June dates.

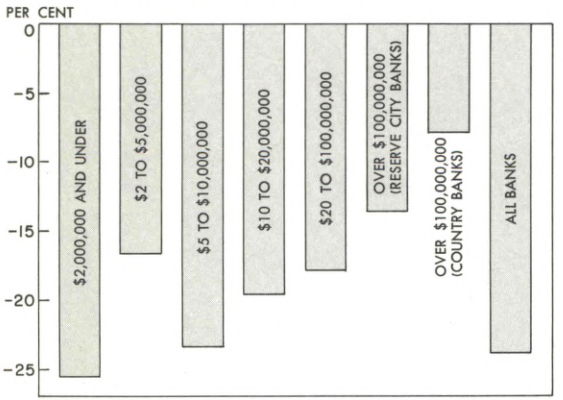
Big banks vs. their country cousins

Though larger banks have carried a smaller over-all ratio of managed cash assets to total assets, their country cousins have been gaining in the race to minimize cash holdings. For example, in 1963 banks with under $2 million in deposits held about 8½ per cent of their total assets in the form of managed cash, while the big reserve city banks of Philadelphia held only about 3⅓ per cent. In the decade 1954–1963, however, the $2 million banks reduced their managed-cash-assets ratio by a sizable 25.7 per cent while the city banks pulled down cash by only 13.8 per cent. Chart 7 shows a complete breakdown of the changes in the ratio by bank size. It is notable that all of the smaller-size banks were able to better the reduction achieved by the city banks. Still, it should be remembered that the city banks generally had less room to maneuver as they *started off* with a much lower absolute cash asset ratio.

CHART 7

MANAGED CASH ASSETS AS A PERCENT OF TOTAL ASSETS—PERCENTAGE DECLINE 1954–1963

Third District Member Banks by deposit size.



Sources: Federal Reserve Bank of Philadelphia, Member Bank Call Reports, June dates.

What kinds of cash assets were cut?

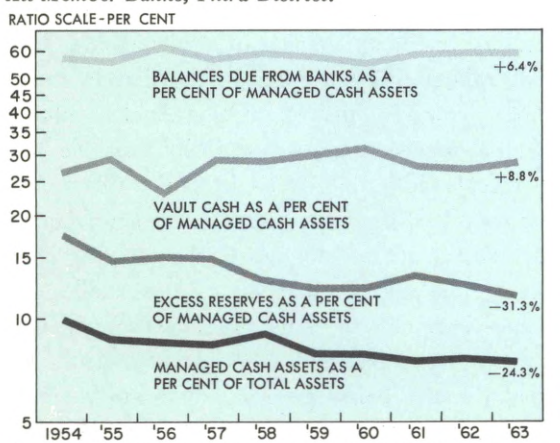
Of the three classes of managed cash assets (vault cash, deposit balances held with correspondents, and excess reserves held with the Fed) only the ratio for excess reserves showed a distinct downward trend during the period 1954–1963 (as shown in Chart 8). For all member banks, the ratio was down by 31.3 per cent while the ratio for balances due from banks actually rose by 6.4 per cent and vault cash as a percentage of managed cash assets increased by 8.8 per cent.

Chart 9 shows that city bankers were most successful in cutting the ratio of excess reserves (even though country banks sliced the total managed-cash-asset ratio most).

CHART 8

CASH ASSET RATIOS

All Member Banks, Third District.

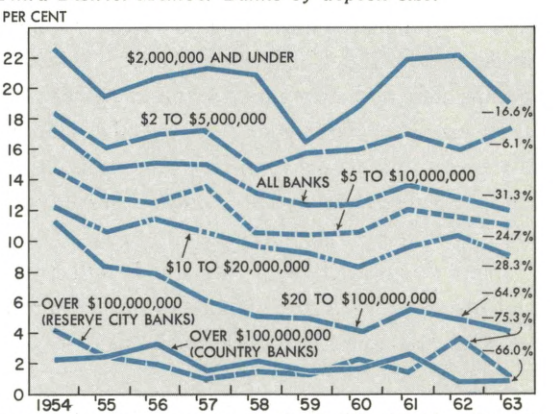


Sources: Federal Reserve Bank of Philadelphia, Member Bank Call Reports, June dates.

CHART 9

EXCESS RESERVES AS A PERCENT OF MANAGED CASH ASSETS

Third District Member Banks by deposit size.



Sources: Federal Reserve Bank of Philadelphia, Member Bank Call Reports, June dates.

For the entire period 1954–1963, city bankers reduced excess reserves by a sizable 75 per cent while country banks in the $2 million and under deposit class clipped excess reserves by 17 per cent and those with $10–20 million in deposits cut the same ratio by 28 per cent.*

The table shows a breakdown by size of bank of the classes of managed cash assets. The

* How can small banks have the largest decline in total managed cash assets while the only managed cash-asset ratio which declined consistently throughout the size classes declined most at larger banks? Explanation: Much of the percentage decline in the excess reserve ratio at larger banks is offset by increases in vault cash. It is also interesting that the rise in vault cash at larger banks—as at smaller ones—occurred largely before and thus is not explained by the recent law allowing member banks to count cash as required reserves.

HOW THIRD DISTRICT MEMBER BANKS CHANGED THEIR MANAGED-CASH-ASSETS RATIOS

Size Group—Total Deposits (Millions $)	Percentage Change, 1954–1963, in the ratio of Managed Cash Assets to Total Assets	Excess Reserves to Managed Cash Assets	Balances Due from Banks to Managed Cash Assets	Vault Cash to Managed Cash Assets
$2 and under	— 25.7%	— 16.6%	+ 11.5%	+ 2.3%
2 to 5	— 16.8	— 6.1	+ 2.5	+ 0.5
5 to 10	— 23.5	— 24.7	+ 3.2	+ 8.5
10 to 20	— 19.7	— 28.3	— 0.1	+ 17.5
20 to 100	— 18.0	— 64.9	+ 1.5	+ 21.4
Over 100				
Reserve City Banks	— 13.8	— 75.3	— 3.9	+ 21.9
Country Banks	— 8.0	— 66.0	— 1.8	+ 9.9
All Banks	— 24.3	— 31.3	+ 6.4	+ 8.8

Source: Federal Reserve Bank of Philadelphia, Member Bank Call Reports.

breakdown reveals the same pattern observed for all member banks—excess reserves fall for all size classifications while vault cash rises for all classes and deposits held with correspondents increase for most.

Do time deposits make a difference?

Earlier it was suggested that costs influence the way a bank manages its cash position. If this suggestion indeed has merit, one would expect the relative importance of time deposits to affect significantly the way the individual bank manages its cash assets. The reason: banks pay interest on their time deposits, thus where time deposits are a relatively large proportion of total deposits, a bank is saddled with a heavier expense burden than would otherwise be the case. To meet this larger expense burden and still make a reasonable profit, the bank with a large proportion of time deposits might economize on cash and thus maintain a heavier position in earning assets. Moreover, since time deposits are generally considered less volatile than demand, the banker with high time deposits may be able to cut his cash asset ratio with less concern for the decline in his liquidity.

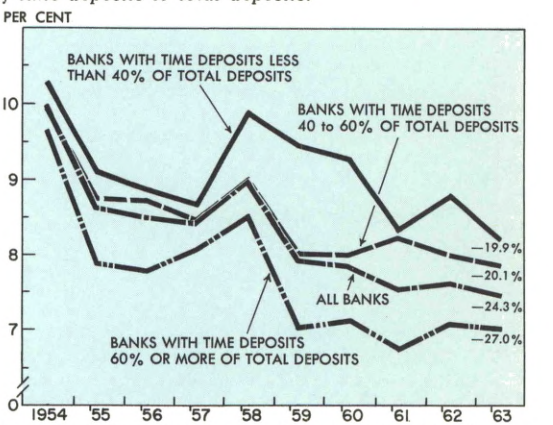
Chart 10 shows that this pattern indeed holds true. During the entire 10-year period 1954–1963, banks with a higher percentage of time deposits maintained lower managed-cash-asset ratios. Conversely, banks with lower time deposits held higher managed cash assets.* Moreover,

* This behavior is especially significant when one realizes that (a) the over-60 per cent time deposit category contains banks of smaller size on average, and (b) smaller banks tend to have **higher** not **lower** cash-asset ratios, other things remaining the same. In other words, the small bank tendency toward high cash assets is offset when the small banks also have high time deposits.

CHART 10

MANAGED CASH ASSETS AS A PERCENT OF TOTAL ASSETS

Third District Member Banks, grouped by the proportion of time deposits to total deposits.



Sources: Federal Reserve Bank of Philadelphia, Member Bank Call Reports, June dates.

the higher the time-deposit ratio, the greater the percentage cut in managed cash assets.

The Third District vs. the United States

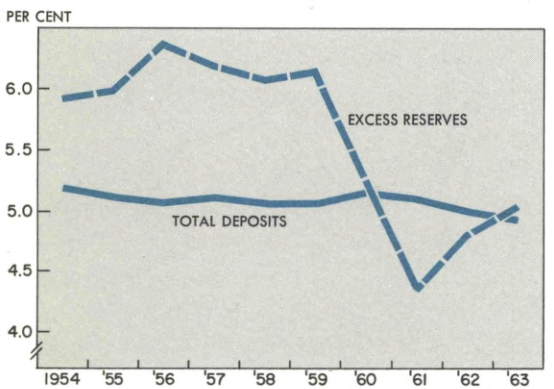
As we have seen, Third District bankers reduced the relative size of their managed cash assets significantly during the past decade. This reduction in managed cash assets was carried out by all sizes of banks—from the small, $2 million country bank to institutions along Chestnut and Broad Streets which count their assets in the hundreds of millions. We have seen also that District bankers looked primarily to their excess reserves as they clipped cash assets in favor of more loans and investments. What are some of the wider implications of these trends?

Excess reserves of Third District banks have fallen not only in relation to District cash assets but, as shown in Chart 11, also relative to excess reserves held by all member banks in the nation, and relative to the District's proportion of total deposits. From a high of almost

CHART 11

TOTAL DEPOSITS AND EXCESS RESERVES

Third District Member Banks as a percent of United States.

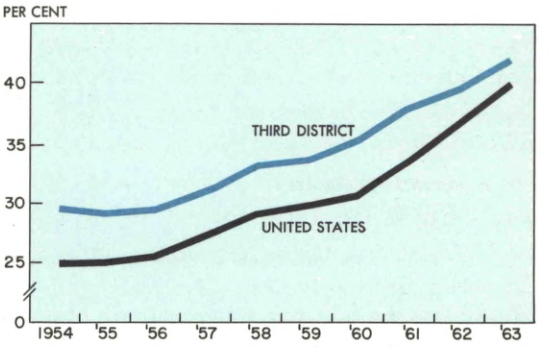


Sources: Board of Governors, Federal Reserve Bank of Philadelphia.

CHART 12

TIME DEPOSITS AS A PERCENT OF TOTAL DEPOSITS

All Member Banks, United States and Third District.



Sources: Board of Governors, Federal Reserve Bank of Philadelphia.

6.4 per cent of total excess reserves in 1956, excess reserves of Third District banks fell to a low of around 4.4 per cent in 1961 and in 1963, were around 5 per cent of total excess reserves.

There are several reasons why District bankers have shifted their preference more in the direction of earning assets than have their national counterparts. Probably one of the most important is the increasing proportion of time deposits relative to total deposits in the Third District, which increases bank costs and, as we have seen, stimulates bankers to reduce cash holdings. Time deposits, as shown in Chart 12, have increased over the 10-year period 1954–1963 from less than 30 per cent to over 40 per cent of total deposits at Third District banks. Moreover, time-deposit ratios of Third District banks have remained consistently higher than the comparable national figure. The higher time-deposit ratios have probably been a significant influence in inducing banks to bring their excess reserves down.

Another factor which may help to explain the decline in excess reserves of Third District banks relative to the rest of the nation is the improved information and accounting technique with respect to maintained and required reserves. As already noted, the banker using these techniques is better informed of day-to-day fluctuations in his reserve account, and thus is better able to minimize his reserve balance. The reserve-accounting program was begun quite early in the Third District, in the spring of 1960 to be exact, and it is likely that the sharp decline in the District's proportion of total excess reserves after 1959 is partially related to the reserve accounting improvements.

Finally, it is likely that the widening of the federal funds market in the Philadelphia area to include transactions between country correspondents and reserve city banks has contributed to the district's declining excess reserves. Philadelphia banks were among the first to move more fully into this business and it is likely that their efforts have helped to differentiate the District from the nation.

One further implication of bank cash management in the Third District

In conclusion, the downtrend in excess reserves of Third District banks has some interesting implications for the money and credit policies of the Federal Reserve System. It is quite possible that the declining excess reserve cushion will serve to accentuate any future swings in monetary policy. A move toward greater credit ease by the Fed, for example, would be more quickly and more fully translated into increased earning assets if banks are reluctant to hold excess reserves. A move toward greater credit restraint, on the other hand, would more quickly result in a general tightening, including greater pressure to liquidate Governments as federal funds became less readily available, and perhaps more active utilization of the Fed's discount window.

PHILADELPHIA'S MISSING JOBS

Metropolitan Philadelphia has been adding people almost as fast as the nation, but for a decade employment in the area has increased far less than in the country generally. Analysis of this employment gap reveals that surprisingly little of it is traceable to the region's mix of economic activities. Rather, in industry after industry, employment is growing more in other parts of the country than it is here. Conditions were worst early in the decade, however; the situation has improved substantially in recent years.

Apart from farming, the economy of metropolitan Philadelphia is remarkably similar to that of the United States. Both are diversified, both are based largely on manufacturing industries, and every major classification of manufacturing activity is represented. Since the Philadelphia Metropolitan Area is a kind of economic representation of the United States, it seems that it ought to follow pretty closely the course of the national economy.[1] Backing up this point of view are the facts of population growth. Both the United States and the Philadelphia Metropolitan Area support expanding populations which are increasing at comparable rates.

The parallels stop there, however. Metropolitan Philadelphia's economic growth has not kept up with that of the country, even though its population has. In the most recent decade, from 1953 to 1963, employment for pay (nonagricultural wage and salary employment) grew 14 per cent in the United States. In the Philadelphia Metropolitan Area it increased negligibly—less than 1 per cent. Consequently, local unemployment persistently exceeded the national rate.

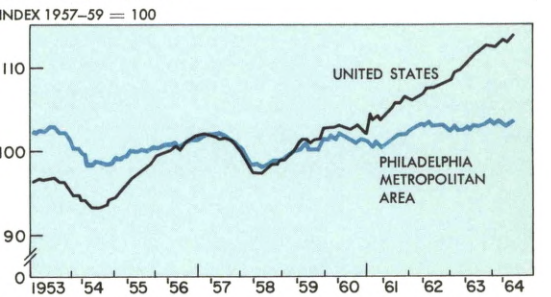
[1] The "Philadelphia Metropolitan Area" or "Metropolitan Philadelphia" comprises Bucks, Montgomery, Philadelphia, Chester, and Delaware counties in Pennsylvania; Burlington, Camden, and Gloucester counties in New Jersey.

A DECADE OF DRAG

Employment grew too slowly in the United States, and much too slowly in the Philadelphia Area, between 1953 and 1963. Unemployment reflected this, for both the national and local populations increased about one-fifth during this period—considerably faster than employment.

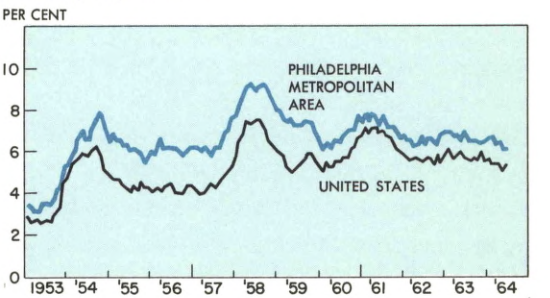
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT

Seasonally adjusted.



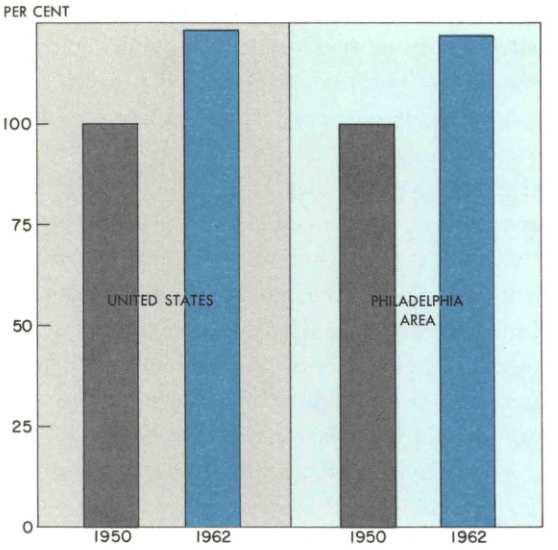
PERCENT OF LABOR FORCE UNEMPLOYED

Seasonally adjusted.



POPULATION

Percent of 1950 population.



These facts pose a puzzle. Why did the local economy, similar in so many ways to the nation's, signally fail to keep pace?

How a region grows

To try to answer this question, we have attempted to examine separately the major influences on the region's growth. One of these, clearly, is the course of economic events in the nation. The industries of the metropolis are linked in many ways with those in the rest of the country. The metropolitan economy therefore changes as the country's economy changes.

But local growth seldom reflects national changes precisely. One reason is regional specialization. If Philadelphia specializes in slowly expanding industries, its economy may grow slowly. Another reason is that the location of production is continually shifting, not only within industries but also within companies. Some local firms are better or worse managed, more or less aggressive than outside companies. Philadelphia, therefore, may gain or lose in its share of those industries. Beyond this, there are locational shifts caused by forces that companies cannot control—changes in markets, methods of production, and other influences. Philadelphia may for these reasons lose part of a company's installations and therefore share less in the industry's production.

Shifts can and probably do occur indirectly more than through actual movements of plants and firms. If new capital and young workers seek out Florida rather than the Northeast, so that employment and income grow faster in Florida during a period, then Florida has a higher proportion of national economic activity at the end of the period and the Northeast has less. There may have been growth in both areas, but there was a relative shift to Florida whether or not any specific plants or people moved there from the Northeast.

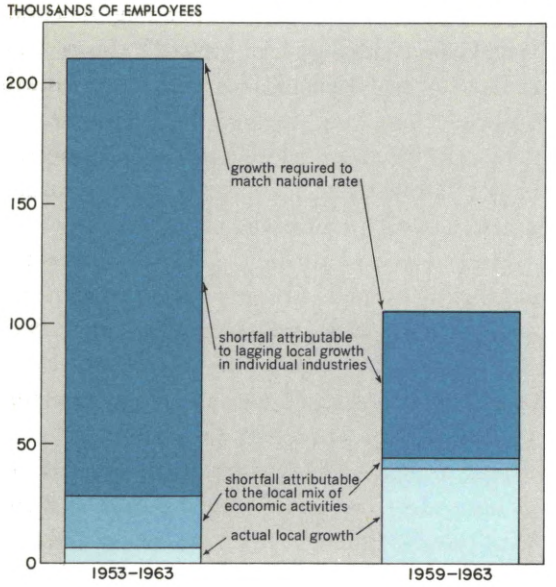
To sort out how these various forces have affected Philadelphia's economy, we have simply asked: Where would the economy of Philadelphia have been, had it matched the growth of the national economy? Local growth in excess of this standard would indicate a shift of the country's total economic activity into the Philadelphia area. Smaller local growth would indicate an outward shift. Our analysis reveals some startling developments.

Philadelphia's missing jobs

Had the Philadelphia area increased its wage and salary employment at the national rate between 1953 and 1963, there would have been 210,000 more paid employees in the area in 1963 than in 1953.[2] Actually, there were only

[2] The specific series analyzed were: for the United States, employees on non-agricultural payrolls (Bureau of Labor Statistics); for the Philadelphia Standard Metropolitan Statistical Area, nonfarm wage and salary worker employment (Bureau of Employment Security).

HOW PHILADELPHIA'S EMPLOYMENT LAGGED



The Philadelphia Area between 1953 and 1963 failed to provide enough jobs—over 200,000 of them—to match the nation's rate of growth in employment. Only about one-tenth of this shortfall was because of specialization in slowly expanding economic activities. Almost nine-tenths of the trouble resulted from specific local activities not expanding employment as fast as their national counterparts. The situation improved during the later years of the decade, however. The shortfall was smaller; the adverse effects of specialization were much less; local industries were more competitive.

6,500 more—3 per cent of the increase required to keep pace with the nation. The difference of 203,500 represented an outward shift, in the above sense, during the decade.

This shift must be traceable either to the kinds of economic specialization in the region or to the direct failure of specific activities to match the employment gains of their national counterparts.

Mix of activities—one-tenth of the problem

To identify the portion of the outward shift attributable to the mix of economic activities requires setting up a hypothetical proposition—an "if" situation. Suppose that in each type of activity, local growth had exactly matched national growth. If that had happened, the only reason for a difference in total growth between the area and the nation would have been because the local area put more of its resources into some activities than the nation and less into others. Applying this proposition to Philadelphia means computing how much employment here would have increased if each type of economic activity had grown at the national rate for that activity.

Making this calculation, under the stated condition of matching local and national growth rates in each individual activity, we find that there would have been 188,000 additional employees in the Philadelphia area in 1963. This number is 22,000 short of the 210,000 that would have been added if the total over-all growth rate had matched the national rate. That 22,000 measures the effect of the area's specialization in slow-growing activities.

Philadelphia's problem is not primarily specialization in slowly expanding industries. The deficiency of 22,000 jobs attributable to the mix of economic activities in metropolitan Philadelphia is substantial. It is, for example, more than three times as great as the actual increase of 6,500 employees during the decade.

But 22,000 is little more than one-tenth of the total deficiency of 203,500 jobs. The implication is important. Philadelphia's growth deficiency does not trace primarily to its specializing in the "wrong" industries. The greater portion of the outward shift occurred because

local industries did not match national growth rates in the same industries.

The following table summarizes what happened. The minus signs denote outward shifts.

	Number of Employees
Increase required to maintain U.S. rate of growth	210,000
Actual increase	6,500
Shift	−203,500
Effect of local mix of economic activities	− 22,000
Effect of differences between specific local and national growth rates	−181,500

Nine-tenths of the problem—all local economic activities failed to keep up with the nation

In no economic pursuit in metropolitan Philadelphia did employment increase so fast as it did nationally. Slowly expanding activities—manufacturing, for example—failed to match national increases. So did rapidly growing functions such as services.

Combining mix and growth effects

The following table shows the effects of both mix and local growth rates. It records the contribution of each major economic activity to the outward shift from the area. More specifically, the table gives the number of employees (in thousands) each activity added to the outward shift (negative signs) or by which it offset the outward shift (positive signs).

The column titled "mix" shows the extent to which the presence of that activity hurt or helped the area's growth because it was inherently a slowly or rapidly expanding function. The column titled "local growth" shows how much each activity inhibited the area's growth because it failed to expand locally as much as it expanded nationally.[3] The last column records the total effect of each economic activity on the area's growth in employment.

	Effect of		
Economic Activity	Mix	Local growth	Both effects combined
Manufacturing	−95	− 79	−174
Transportation and utilities	−28	− 7	− 35
Contract construction	+ 1	− 23	− 22
Trade	+ 6	− 22	− 16
Government	+32	− 27	+ 5
Finance, insurance, and real estate	+14	− 9	+ 5
Services	+48	− 14	+ 34
Total	−22	−181	−203

Some activities—mainly government, finance, and services—are inherently fast-growing functions, as the positive signs under "mix" indicate. This was enough to overbalance the effect of their local growth deficiency, so Philadelphia actually gained jobs on their account.

Most of these offsets were small, however. In finance, insurance, and real estate, the mix and local growth effects were in precarious balance. Government, a fast-growing employer, expanded so slowly here that its contribution toward offsetting the area's growth deficiency was very small. Only the services activity made an important net positive contribution.

Dominant role of manufacturing

Manufacturing alone accounted for 57 per cent of the drag on the Philadelphia area's growth during 1953–1963. More than half of this was attributable to the lack of growth of manufacturing employment generally during the period—the mix effect. Local manufacturing industries, however, generally failed to increase employment in pace with national industries, so that the drag from local growth also was substantial.

The growth deficiency of local manufacturing is of critical importance because manufacturing is Philadelphia's chief means of earning its living from the outside world. The income from it

[3] The Technical Note at the end of this article explains further how these figures were computed.

and a scattering of other basic activities supports the rest: local services such as trade, construction, utilities, and local government. Philadelphia's nonmanufacturing activities failed to grow mainly because manufacturing did not grow.

Federal Government employment

One kind of basic activity—"basic" because the local industries produce goods and services for the rest of the country—is in the installations of the Federal Government here. As mentioned earlier, the government classification was in a kind of precarious balance, with positive mix effects barely exceeding local growth deficiencies. The reason was that the contribution of the federal category was entirely negative, amounting to a deficiency of 22,000 employees.

Activity	Effect of Mix	Effect of Local growth	Both effects combined
Federal Government	−10	−12	−22
Local and state government	+42	−15	+27

Contributions of specific manufacturing industries

Manufacturing industries varied widely in their individual contributions to the Philadelphia area's deficiency in growth of employment. Some, though they sagged badly during the decade, were not large enough to affect the totals significantly. All shared one unfortunate distinction, however. Not one had sufficient growth in employment in the Philadelphia Metropolitan Area between 1953 and 1963 to help offset the outward shift of employment from the area. Industries contributing most to the outward shift were transportation equipment, textiles, the metals industries, apparel, and food processing.

Improved performance, 1959–1963

During 1959–1963, the Philadelphia area achieved almost two-fifths of the employment growth required to match national increases, although for the entire decade there was hardly any growth at all. Furthermore, in more recent years the area's mix of activities seems to have been more in tune with the times. The mix effect accounted for less than 5 per cent of the total outward shift in 1959–1963, compared with 11 per cent over the whole decade. The total outward shift, however, was still substantial, amounting to 65,000 jobs.

	Thousands of Employees
Increase required to maintain U.S. rate of growth	105
Actual increase	40
Shift	− 65
Effect of local mix of economic activities	− 3
Effect of differences between specific local and national growth rates	− 62

The analysis for the latter part of the decade reveals other interesting changes. Manufacturing was not quite so dominant in holding back employment between 1959 and 1963. During the decade, manufacturing accounted for 57 per cent of all negative effects, as compared with 47 per cent in the later period. The transportation equipment and primary metals industries no longer contributed significantly to the outward shift. But two new contenders arose to claim this dubious distinction: printing and publishing, and petroleum refining. However, two manufacturing industries—electrical machinery and chemicals—added enough employees to provide small offsets to the area's growth deficiency. The Philadelphia area has a good foothold in these industries. They are expanding faster than most manufacturing industries, and are projected to continue expanding faster. Their emergence in recent years as net contrib-

utors to growth of employment in the Philadelphia area is a hopeful event.

The table below records, for 1959–1963, the contribution of each major economic activity to the outward shift of 65,000 jobs.

Economic activity	Effect of Mix	Effect of Local growth	Effect of Both effects combined
Manufacturing	−24	−23	−47
Transportation and utilities	−11	− 1	−12
Contract construction	− 3	− 5	− 8
Trade	− 1	−11	−12
Government	+13	−10	+ 3
Finance, insurance, and real estate	+ 3	− 4	− 1
Services	+20	− 8	+12
Total	− 3	−62	−65

The outlook—hopeful

Metropolitan Philadelphia's prospects for future increases in employment depend on its reestablishing an expanding economic base. Events have moved in this direction. Between 1959 and 1963, the area came much closer to the national pace of growth in employment than in the first part of the decade 1953 to 1963. Furthermore, the mix of activities in the region improved, so that in the more recent period a smaller portion of the growth deficiency resulted from this factor.

Metropolitan Philadelphia's economic base is predominantly in manufacturing but it also includes portions of the finance and government and minor parts of other major economic activities. Manufacturing's share of nonagricultural wage and salary employment declined in ten years from 41 per cent to 35 per cent. During the same period, the finance category rose from 4½ to 5½ per cent of the total, and total government employment grew although federal activities declined. The net result is that the area's economic base is now oriented more toward activities which promise to be competitive in the future.

This hopeful development cannot obscure the fact that metropolitan Philadelphia's economic posture still leans more to manufacturing and federal employment than nationally, and these activities do not promise much expansion. Federal employment is not likely to grow so rapidly, particularly here. Changes in technology have caused locational decisions in many manufacturing industries to be increasingly sensitive to market influences, and markets are expanding more in the South and West.

Philadelphia's economy is moving forward—toward a base of national-service activities in finance, research, and growing technical industries such as electrical equipment and chemicals. It is important for the area's future that this transition continue, spurred on if possible by appropriate local action.

TECHNICAL NOTE

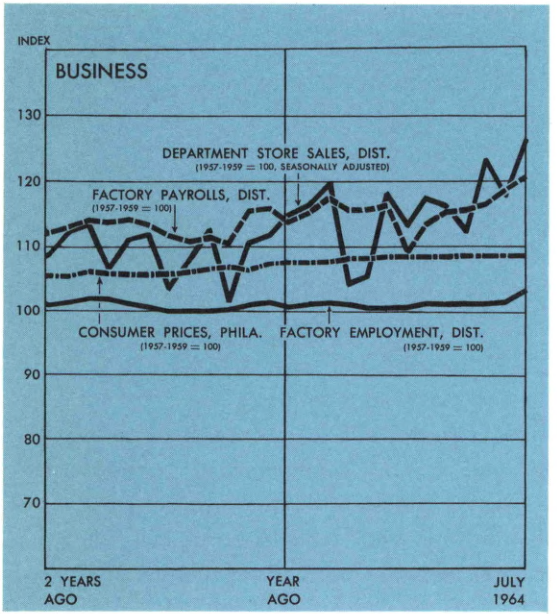
The method employed here to analyze shifts in the location of economic activity has been in use for some time by regional economists. A recent example is the analysis of personal income by states and economic regions published in the **Survey of Current Business** for April, 1964, by Robert E. Graham, Jr. Edgar S. Dunn presented the technique in **Papers and Proceedings,** Regional Science Association, Vol. 6, 1960.

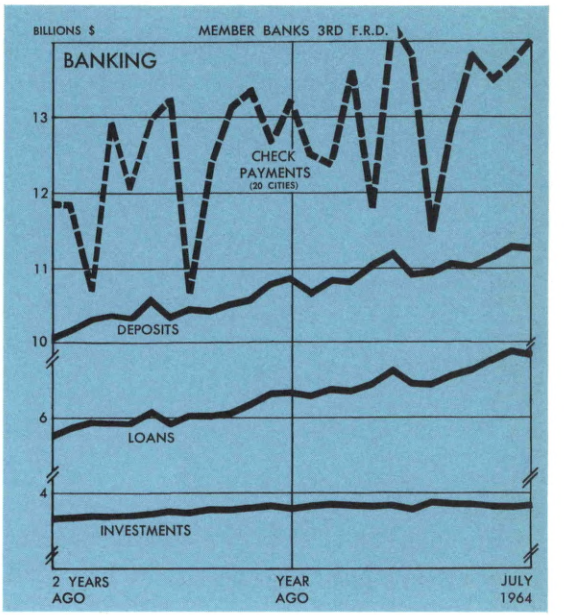
The mix effect for each activity was computed by multiplying local employment in 1953 by the difference between the national growth rate for that activity and the national growth rate for all activities combined. The sum of the individual mix effects equals the total mix effect.

The local growth effects were computed by multiplying local employment in 1953 by the differences between local and national growth rates in each activity.

The sum of the individual local growth effects plus the total mix effect equals the total shift. The total shift also equals the difference between the actual absolute increase in local employment and the increase computed by multiplying total local employment in 1953 by the over-all national rate of growth in employment.

FOR THE RECORD...





SUMMARY

	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	July 1964 from		7 mos. 1964 from year ago	July 1964 from		7 mos. 1964 from year ago
	mo. ago	year ago		mo. ago	year ago	
MANUFACTURING						
Production	....	....	....	− 6	+ 6	+ 6
Electric power consumed	− 1	+ 7	+ 7	....	....	....
Man-hours, total*	+ 1	+ 2	− 1	....	....	....
Employment, total	+ 1	+ 2	+ 1	....	....	....
Wage income*	− 1	+ 2	+ 3	....	....	....
CONSTRUCTION**	+19	+24	+15	+ 2	+12	+ 8
COAL PRODUCTION	−23	+23	+ 6	−29	+ 5	+ 1
TRADE***						
Department store sales	+ 7	+11	+ 8	....	....	....
BANKING (All member banks)						
Deposits	0	+ 3	+ 5	− 1	+ 5	+ 6
Loans	− 1	+ 8	+ 9	0	+13	+13
Investments	+ 1	+ 1	+ 1	− 1	− 2	− 1
U.S. Govt. securities	0	− 5	− 6	− 1	− 8	− 8
Other	+ 1	+13	+17	+ 1	+10	+15
Check payments	+ 2†	+ 6†	+ 5†	+ 4	+15	+11
PRICES						
Wholesale	....	....	....	0	0	0
Consumer	‡	‡	‡			

*Production workers only.
**Value of contracts.
***Adjusted for seasonal variation.

†20 Cities
‡Philadelphia

LOCAL CHANGES

	Factory*				Department Store†			
	Employment		Payrolls		Sales		Check Payments	
	Per cent change July 1964 from		Per cent change July 1964 from		Per cent change July 1964 from		Per cent change July 1964 from	
	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago
Lehigh Valley	− 0	+ 1	+ 1	+ 8	....	....	− 2	+ 5
Harrisburg	+ 1	0	+ 2	+ 8	....	....	+ 3	−18
Lancaster	+ 1	+ 2	− 1	+ 9	+ 6	+12	− 2	+14
Philadelphia	+ 4	− 2	+ 1	+ 2	+ 8	+10	0	+ 4
Reading	− 1	+ 0	− 2	+ 4	+10	+16	+ 2	+ 6
Scranton	− 1	+ 1	− 3	+10	+ 5	+10	+ 9	+ 4
Trenton	− 1	+ 1	− 2	+ 8	+ 8	+12	+49	+23
Wilkes-Barre	0	+ 2	− 2	+ 6	+ 2	+ 4	− 1	+ 4
Wilmington	+ 1	+ 2	+ 6	+15	+ 4	+13	− 1	+ 8
York	+ 1	+ 9	− 1	+15	+ 7	+13	− 1	+41

*Not restricted to corporate limits of cities but covers areas of one or more counties.
†Adjusted for seasonal variation.