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COMMENTARY

Can Philadelphia Expect A Livelier Economy?

*By Edward G. Boehne, Senior Vice President
Federal Reserve Bank of Philadelphia**

For the better part of the 1970s Philadelphia has experienced a declining economy. The underlying forces that brought this shrinkage about, however, are changing. Are they changing enough to make the next decade livelier than the last?

OLD CONSTRAINTS

Some of the forces that have put a damper on Philadelphia's economy are well known. The national recessions of the 1970s hit this city especially hard. Philadelphia's heavy concentration of older manufacturing facilities caused bigger dips here than elsewhere. The mix of population, with its large numbers of unskilled youth and minorities, made the

local workforce particularly susceptible to joblessness. And, probably most important, the lower cost of doing business in the Sunbelt worked against Philadelphia because industry usually expands where it is more profitable to operate.

Less well known, perhaps, are Federal initiatives in such areas as tax policy, people programs, transportation, and regulation that inadvertently work against Philadelphia and other older cities. Investment tax credits, for example, which stimulate spending on new equipment, favor growing, capital-intensive industries that more often than not are located in expanding areas. Older cities, however, have a greater need to maintain existing equipment in labor-intensive industries. Most public works money, too, goes for new projects rather than for maintenance. Further, lack of uniformity in welfare payments is probably a factor in increasing the number of poor that have settled in Northern cities, while mini-

*This commentary was stimulated by a series of "Fed Forums," sponsored by the Federal Reserve Bank of Philadelphia in recent months for the purpose of finding ways to improve Philadelphia's economic future.

mum wage legislation may be particularly harmful to the teenage minorities concentrated in cities like Philadelphia by pricing them out of the job market. Also, compliance with safety and environmental regulations is easier for new plants than for old ones. Finally, Federal transportation policies which favor highways over rail transportation, for example, encourage decentralization and a movement away from the large older cities. The convergence of all of these factors has resulted in substantial job losses and fiscal problems for Philadelphia and similar cities.

FRESH ENCOURAGEMENT

Change is in the wind. One notable change is that the cost of doing business in the South is rising faster than in the North. Wage differentials have narrowed considerably. The Sunbelt is paying for its prosperity much as the Northeast did earlier.

Also, many of the industries that found it advantageous to develop elsewhere have already done so. Those that have stayed in older metropolitan centers have remained because they anticipate profitable operations in their present locations. The period of significant job relocation from North to South, therefore, may have passed.

There is, in addition, a growing sensitivity at the Federal level to how national policies affect regions differently. All new Federal policy recommendations now must be accompanied by analyses of their implications for

urban areas. Some programs already have been modified to give cities a better break. Philadelphia itself also is more sensitive; its business and governmental leaders have become more aware of the city's strengths and weaknesses. With this awareness has come a greater ability to deploy limited development funds and get a bigger bang for the buck out of them.

The most important influence on Philadelphia, however, and the biggest unknown, is the outlook for the national economy. Policymakers in Washington are trying to unwind inflation without causing a severe downturn. They are moving on a number of fronts to restrain monetary and fiscal expansion, to stimulate competition where regulations keep prices artificially high and stymie productivity gains, and to hold down excessive wage and price hikes. Philadelphia, which can ill afford another deep recession, has a lot riding on the success of this anti-inflation program.

LOOKING AHEAD

The convergence in Philadelphia of unfavorable factors in the 1970s led to job declines and fiscal problems. With quality leadership and a little luck, a confluence of favorable factors can bring a more stable economy in the coming decade. Already the feeling that Philadelphia has a cheerier future, and not just a rich history in the distant past, is beginning to spread.

Proposition 13 and its Aftermath

*By Anita A. Summers**

In the first phase of the great tax reform flurry that began sweeping across the country last year, the banner headlines went to California's Proposition 13. Now they're going to a state-initiated Constitutional amendment to limit the Federal budget; and many states are on the lookout for ways to respond to tax protests in their own capitals. Clearly, the accelerated pressure to reform reflects a general discontent.

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This article is adapted from an address presented before four meetings of the Pennsylvania Bar Association in fall 1978—in Harrisburg (October 17), King of Prussia (October 27), Pittsburgh (November 1), and Scranton (November 9).

While proposals for tax capping at the Federal level introduce a complex of issues connected with the use of Federal fiscal policy for economic stabilization, issues are far from being resolved even at the state and local level. Proposition 13 and several of its progeny reflect a confusion of the objectives of budget capping with those of fiscal reform. Restraining the size of government (and its associated tax burden), reducing government inefficiency, and reforming state and local taxes are distinct objectives. Each of them has an agenda that is appropriate to it alone and not to the others. But Proposition 13 and its variants have failed to keep them separate.

In practice, the size of state and local budgets will not be controlled best by any one constitutional or legislative action, and the fairness of the property tax will not be improved simply by lowering it. Responsible

reformers who share the concerns of the taxpayers will want to consider many measures.

WHAT UNDERLIES THE CURRENT DISCONTENT?

Why have the past few years seen so much concern with reform of state and local government fiscal affairs? In part because growth rates of real income have been declining while the tax burden has been increasing. This combination of trends has focused attention on the total tax burden, on efficiency in government, and on the incidence of the major taxes. More particularly, it has led to protests against having government spend as large a portion of total income as it does and against the very visible property tax.

Income, Taxes, and Big Government. Recent assaults on the size of government and the level of taxation undoubtedly reflect the squeeze on family budgets. Real personal disposable income increased about 50 percent from 1957 to 1967 but only about 32 percent from 1967 to 1977. People have perceived and reacted to this shift in trends but without fully appreciating that it arises from different factors. The slower growth of real income in recent years reflects a combination of escalating inflation, a substantial number of recession years, and sluggish growth in productivity.

Against this background of slow growth in real income, the more rapid real tax growth—51 percent from 1957 to 1967 and 38 percent from 1967 to 1977—stands out sharply. This tax growth reflects several factors. First, the United States has become increasingly concerned about social justice since World War II. Legislation and major court decisions, for example, reflect the increased emphasis on income redistribution as a policy criterion in the public sector. And this emphasis has translated into growth in Social Security, unemployment compensation, welfare, medical care, education, and many other income transfers and public services—or, in

other words, into growth in government expenditures, which are supported from tax revenues. Second, those who want certain government expenditures can lobby more easily than those who want lower taxes: those who want ramps for the handicapped on street corners, for example, can coalesce to lobby for the budget allocation, but those who don't want to pay the, say, 10 cents extra in taxes needed to finance these accommodations, are too diffused to resist them effectively. Third, government decisionmaking, which in principle is based on cost-benefit calculations, often underestimates the cost of new programs.¹ And fourth, rewards in the public sector tend to favor those who manage larger entities over those who produce more services with less resource input.

For all these reasons, government expenditures, and the taxes associated with them, have expanded. As the growth in real income has declined, the protest against this expansion has become more urgent.

Distaste for the Property Tax. A good deal of protest lights on the very visible property tax. In a period of rapidly rising property values, the property tax is a conspicuous target. The rising property value is not very visible (unless the property is sold), but the rise in the property tax bill has to be faced every year. Moreover, though the property tax has diminished from about 80 percent of all state and local taxes at the turn of the century to about 45 percent in the 1960s and about 35 percent now, it remains a major tax in the United States. Out of every \$1 thousand of personal income, \$123 goes to state and local taxes, \$45 of which is paid in property taxes. The property tax is a perennial target.

¹The reason is that there's a downward bias on the cost side: the efficiency losses involved in engaging in an activity in a noncompetitive market are not included in the calculations. For a fuller discussion of this issue see Anthony M. Rufolo, "Upward Biases in Government Spending?" *Business Review*, Federal Reserve Bank of Philadelphia, November/December 1978, pp. 15-23.

Public finance texts criticize it, the urban poor rail against it, Center City businessmen condemn it, and those who have retired on fixed incomes abhor it. Why so much criticism?

In a nonagricultural economy such as ours, *the property tax does not closely reflect the value of public services received by the property owner* (there is no evident relation of the value of fire protection services to the value of property, for example); and *the value of property is not a very good indicator of the owner's ability to pay*. A match-up of tax payments with value of services and ability to pay is a standard criterion for a good tax. So the property tax might appropriately be faulted on these grounds.

The property tax has been attacked also for its regressivity—its tendency to take a smaller percentage of income from those whose incomes are higher. And it can be regressive, but not for the reasons traditionally cited.

Until recently, people argued that since an increase in the property tax increases the cost of housing, and since lower income persons spend a larger portion of their income on housing, the burden of the property tax is heavier on them. In recent years, however, economists have become more sophisticated at tracking through the real incidence of taxes.² They now recognize more fully that taxes may not fall only on homeowners who write checks to the tax collector and that, in the case of the property tax, part of the burden will be borne by all those who own interest-earning capital. Since the rich own more such capital than the poor, the tax incidence has some progressive portion. And, further, when economists look at the ratio of the value of housing to lifetime income, rather than to a single year's income, they find that this ratio is about the same for all

income groups. While there is more evidence still to be gathered on the incidence of the property tax, the notion that the property tax is regressive seems highly questionable—provided, of course, that it's administered properly.

The property tax, however, generally is *not* administered properly.³ In most places, *assessments are not levied uniformly and are not kept up to date*. Assessment lag has the effect of producing higher assessment ratios in areas where market values have declined (inner city sections, for example) and lower assessment ratios in areas where market values have risen (affluent residential sections). So, while the property tax doesn't have to be regressive, in certain places it turns out to be so. The protests of the poor may not be supported in the public finance text, but they are supported in the urban assessor's records.

The plight of the *fixed-income owner* also has received a good deal of attention. The classic case is that of the person who retires to live on a fixed income in a house whose value has risen substantially since the time of purchase. The capital appreciation can't be realized unless the house is sold, but the property taxes rise to reflect that appreciation. The individual's current income doesn't allow for living in the house, but the value of the asset does. Should such a person have to sell his house? The view of fixed-income homeowners, and of others whose income is temporarily depressed, is really one of vocal and strong opposition to rising tax bills in relation to unrealized gains in housing value. But the opposition lights on the property tax as a whole rather than on any of its remediable defects.

The property tax, then, has been the most conspicuous target of anger in the tax protest

²An excellent presentation of current perspectives on the property tax is given in Henry J. Aaron, *Who Pays the Property Tax? A New View* (Washington: Brookings Institution, 1975).

³See Nonna A. Noto, "Uniformity in Assessment: High on the List of Property Tax Reforms," *Business Review*, Federal Reserve Bank of Philadelphia, May/June 1978, pp. 13-23, for an analysis and documentation of the issue.

because of its visibility and because of the accessibility to the taxpayers of those who levy it. Further, it doesn't bear a close relation to services received, it is administered in a way which converts it into a regressive tax, and it falls harshly on the fixed-income homeowner.

Mixed in with these concerns about the incidence of this major local tax are political concerns about the size and efficiency of government and more generalized concerns about the burden of taxation at a time when growth rates of real income are declining. The confluence of these factors produced Proposition 13 and its progeny—state and local budget reform initiatives throughout the country.

PROPOSITION 13 AND ITS PROGENY

'Proposition 13' has become almost a generic term for any legislative proposal designed to hold down expenditures, restrain revenues, or reduce the property tax. Actually, of course, Proposition 13 is a tax-capping amendment to the California constitution which was passed overwhelmingly by almost 65 percent of the voters. Variants of this proposal appeared on ballots in a number of states last November, and though none has reached the voting stage in Pennsylvania, several are being considered here. All in all, very few states have accepted Proposition 13's variety of assault on the property tax, but some have opted for considerably broader types of restraint.

California. Although the rhetoric of the Proposition 13 campaign reflected a desire to respond to all the underlying issues—a government become too big and operating too inefficiently, a total tax burden grown too heavy, and an allocation of the tax burden become too inequitable—the weight of the amendment itself fell on the much-maligned property tax.

The concern about the size of government and its associated tax burden was reflected in

the restraints imposed on state and local tax increases. As a result of the amendment, state increases are permitted only on a two-thirds vote of the state legislature, and enactments of new taxes by local governments require a two-thirds vote of the electorate. The absence of any automatic growth allowance makes it virtually certain that some enactments will occur. But, most important, it imposes no criteria for selecting which services will be curtailed. And it suggests no incentives to achieve restraint by operating with greater efficiency. The concern that government has gotten too big does not mean that every service is regarded as too big. Yet Proposition 13 does nothing to identify which services should be axed. Indeed, the only attempt to be specific is the targeting of, not an expenditure item, but a tax: the legislature is prohibited from enacting any new property taxes (new ad valorem or sales taxes, for example).

The property tax is hit forcefully in the California amendment, reflecting, in addition to the notion that taxes are too high, the notion that property taxes allocate the burden inequitably: Proposition 13 places a ceiling on property taxes at 1 percent of market value as of March 1, 1975, with a few exceptions; it limits increases in assessed valuation to 2 percent per year, unless two-thirds of the voters subsequently decide otherwise; and it prohibits full reassessment except when property is sold. Every which way, the property tax as a source of revenue is checked.

The problems with legislating such a severe attack on one form of taxation are many, and they are only beginning to unfold. For one thing, rolling the tax base back three years means that current taxes do not reflect the relative shifts in market values that have occurred since the base date. If, for example, the demand for housing in one area has become much greater than the demand in another, the increase in the market value in the high-demand area will escape capture arbitrarily. Placing a fixed ceiling on the

percentage annual increase in assessed valuation from a prior base period implies a continuation of this distortion into the indefinite future. Also, allowing full reassessment only at time of sale sets up a direct financial inducement to stay put, though no one suggested during the campaign that limiting residential mobility was included in the amendment's intent or that it ought to be a policy objective at any level of government. And it means that residential property owners will pay a higher percentage of the property tax than businesses, since businesses move less often—again, not part of the original intent of the amendment. Finally, and ironically, the same taxpayers whose vote for Proposition 13 was a vote against Big Government now have demanded rent controls (already set up in Los Angeles and Beverly Hills) because their rents have continued to rise even with the enactment of Proposition 13!

What has happened in California is that the full force of taxpayer discontent has fallen on the property tax. Proposition 13's broad restraints on raising taxes do attack the issue of the total burden. But its other provisions fail to address the property tax incidence issues that people are really concerned with.

Other States. A few states, notably Nevada and Idaho, adopted proposals very similar to Proposition 13; and Alabama, Missouri, and Massachusetts placed strong restraints on the property tax. These states are likely to develop the same set of problems that California has experienced since last July. Fortunately, though, most other states that voted on budget capping did not mix it up with property tax reform. They registered their distaste for large governments and high taxes, but they also recognized the need for some growth factor and did not single out one tax as a target. Arizona passed an amendment to limit state expenditures to 7 percent of personal income; Hawaii and Texas tied growth in state expenditures to

economic growth in the state; and Prince George's County in Maryland, along with the states of Michigan, North Dakota, South Dakota, and Illinois all moved in a similar direction. None of the legislative initiatives, however, took on the issues of government productivity and selection criteria for curtailment expenditures.

Pennsylvania. Pennsylvania differs from California in many ways, so that the buildup of pressures about the size of the total tax burden and the incidence of the property tax has not been as intense. The market value of housing has not risen as much as in California; the property tax is not relied on as heavily (\$62.71 per \$1 thousand of personal income in California, in contrast with \$29.95 in Pennsylvania); for some time, local governments have been able to use nonproperty taxes in Pennsylvania; and there is a circuit breaker law here which refunds property tax payments to those with low incomes and to the elderly. In addition, the Pennsylvania state government is not sitting on a budgetary surplus, and its constitution, unlike California's, does not permit the use of the initiative process for putting questions on the ballot.

Many proposals have been made in this state that address one or another of the underlying concerns. Some try to provide more tax relief to the elderly and those with low incomes. Some try to limit property tax revenue à la Proposition 13. And some try to limit the total amount of state and local spending (which would require a constitutional amendment).

Thus the pressure to pass capping legislation or property tax reform is weaker in Pennsylvania than in many other places because the property tax is relatively low, other more elastic local taxes are used more extensively, and the procedures involved in placing ceilings on revenues and expenditures are more intricate. When and if Pennsylvanians cap or reform taxes, or do both, they should be able to benefit from the expe-

rience of other states and be able to choose legislation which attacks the problems surrounding the property tax and the size of state and local budgets more satisfactorily than does Proposition 13.

SENSIBLE APPROACHES TO CAPPING AND REFORM

To control the size of government, to improve government efficiency, and to reform the property tax are clearly expressed concerns of the American taxpayer. But no one agenda will meet all three of these. Responsible action involves considering several policies to meet the several concerns.

Controlling the Size of State and Local Government Budgets. The most rational approach to budget control would involve careful cost-benefit analyses of all expenditure lines to develop appropriate selection criteria for the services to be curtailed most severely or eliminated entirely. In recent years, cost-benefit analyses have become much more common at the Federal level, but they still are relatively rare at the state and local level. Even where they are done, the political process does much to alter what the calculations suggest. The result is that all across the country we are feeling a dissatisfaction with the size of the total burden and, therefore, a desire to limit that total burden.

If, indeed, the total is what is to be limited, then the expenditure side of the budget is the one to focus on. Overspending is the objectionable activity; revenue collection only provides the means to carry out spending plans. By concentrating on the expenditure side, the major causes of increased spending can be eliminated and the real choices can be emphasized. And those choices have to do mainly with services provided by government. At the state and local levels, taxes go almost entirely for public services. Limiting expenditures means limiting those services, and this tradeoff should be spelled out explicitly in tax limitation proposals.

Clearly, if a decision is made to cap ex-

penditures, the use of *some sort of broad measure of economic activity as the anchor* seems appropriate in calculating the level of the cap. Growth in personal income in a state and growth in gross state product have been suggested as measures. (In some states, limiting growth in expenditures to inflationary growth has been proposed. This, of course, would not allow any growth in the economic base of the state to be translated into growth in public services). In addition to tying expenditure growth to a broad measure, *consideration should be given to using an average over several years of the measure.* Few citizens would want state and local expenditures to fluctuate as sharply, as rapidly, and in the same direction as annual fluctuations in economic activity.

But, beyond adopting an overall ceiling, *rational control of expenditures involves improving productivity in the public sector.* Everyone is for it, but it doesn't happen. And it is unlikely to happen without merit rewards, in the form of merit salary increments, for clear evidence of improved output from the same input. Awareness that a Streets Commissioner has received a merit increase because his department has taken care of more potholes this year with the same number of men and trucks as last year, for example, is likely to do much more for public-sector productivity than exhortation would. Use of the many analytical tools available to improve service delivery probably would be stimulated by the likelihood of tangible rewards. As it stands now, the tools are available but not the rewards for using them.

The desire to limit the size of state and local budgets has been expressed clearly in this country over the last few years. It is to be hoped that this expressed voter preference will not be confused with concern for property tax reform, but that it will be met by a combination of responsible measures—relating expenditure growth to a several-year average of a broad measure of economic growth for the region and providing real incentives to improve productivity in the

public sector.

Reforming the Property Tax. Inner city residents, business, and the elderly all complain about overly high property taxes. But the property tax would be made much more palatable if a number of new procedures were adopted. *Maintaining uniform assessments through frequent and regular revaluation of property* would eliminate the relatively high assessment ratios borne by those who live in areas where property values are growing relatively smaller and would meet much of the concern with the tax on the part of the urban poor. *Reducing the extensive amount of property exempted from the property tax*, much of which clearly is not being used for the public interest, would reduce the percentage of the tax that business has to pay. The concerns of the elderly, those on fixed incomes, and those who are suffering from temporary income squeezes might be met best by *allowing deferral of tax liabilities* until a later date—date of sale for the elderly and for those on fixed incomes, a set date in the future for other homeowners. Circuit breaker laws give relief, but they give relief to the rich as well as the poor, which is costly in terms of tax revenues.

All of these changes could help relieve concerns about the inequities of the property tax and redeem its much-maligned reputation. Simply rolling back the assessed valuations, California style, does not alter these inequities, which arise from defects in the

procedures used to administer the property tax. Altering the procedures is the right medicine for the illness.

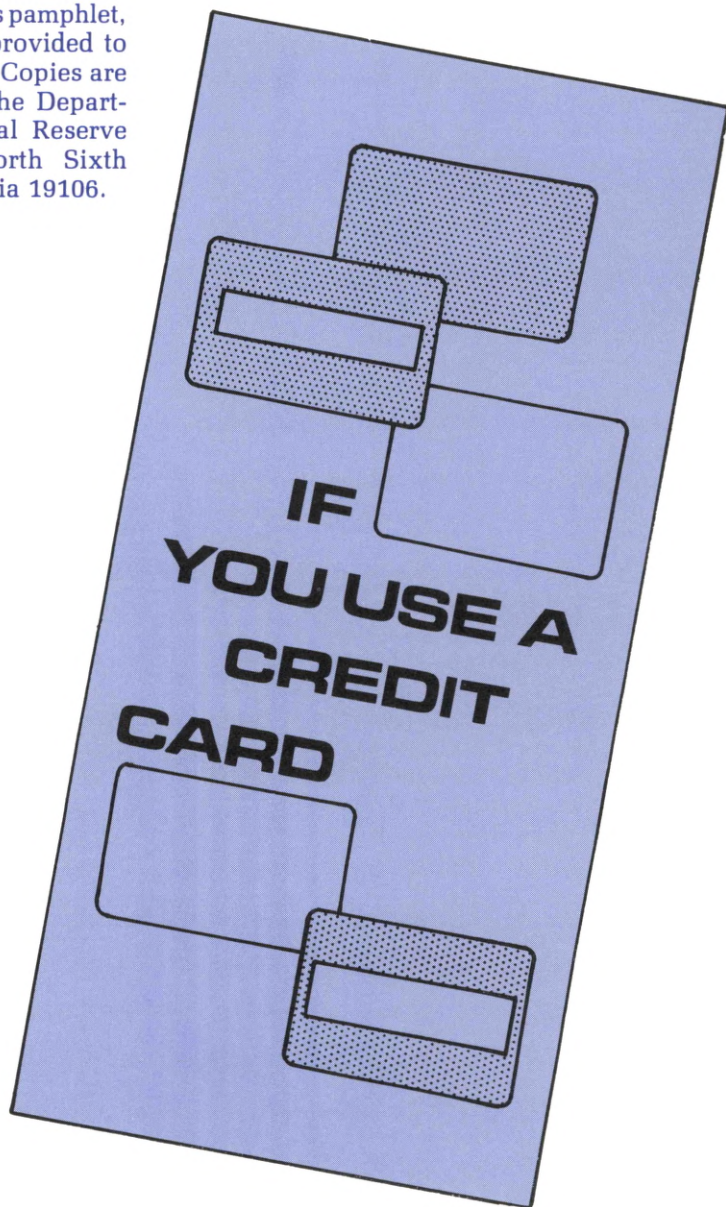
SUMMARY

The taxpayer malaise that has reached to all levels of American government in the last few years reflects several overlapping concerns. People have a generalized dissatisfaction with the size of government, with its associated tax burden, and with its waste and inefficiency; and they are concentrating their dissatisfaction in a frontal attack on the highly visible property tax. But meeting these several concerns will require a menu of policy approaches. Controlling the overall magnitude of state and local budgets calls for broad-based ceilings and productivity incentives. Reshaping the distributional effects of the property tax calls for making assessments uniform, for regularizing revaluations, and for reviewing exemptions and deferrals of tax liabilities.

If, in this state, we confuse these issues, we may put a cap on our state and local budgets, but the way those budget dollars are raised and spent will not reflect attainable levels of efficiency and equity for fiscal management. In brief, Proposition 13 should not be Pennsylvania's role model. H.L. Mencken once said that "for every human problem there is a solution which is simple, neat, and wrong." This dictum applies to fiscal reforms as well as to other human affairs!

AVAILABLE FROM THE PHILADELPHIA FED . . .

The Board of Governors of the Federal Reserve System recently issued this pamphlet, which describes the protection provided to credit card users by Federal law. Copies are available without charge from the Department of Public Services, Federal Reserve Bank of Philadelphia, 100 North Sixth Street, Philadelphia, Pennsylvania 19106.



An Index of Leading Indicators for the Philadelphia Region

by Anthony M. Rufolo*

Updates to the regional index described in this article will be issued provisionally in a monthly press release.

As the economy continues its apparently inevitable ups and downs, countless people peer into crystal balls, record sunspots, or use more mundane methods to forecast its performance over the coming months or years. Many important individual, business, and government decisions hinge on expectations about future economic conditions.

Nevertheless, forecasting remains an inexact science; some would call it an art. Thus the wise forecaster seldom restricts himself to one forecasting tool. Whether the primary input is an elaborate statistical model of the economy or simply a hunch based on the weather, it is likely to be supplemented by many other pieces of information. Among

the more common of these other pieces are the so-called leading indicators—sets of data that give signals about what the economy is likely to do in the months ahead.

The use of leading indicators is well established in forecasts of national economic activity, but it has barely been developed at the regional level. In 1978, on an experimental basis, the Federal Reserve Bank of Philadelphia constructed a regional index of leading indicators using data from 1960 forward. This index promises to be a useful forecasting tool.

WHAT ARE LEADING INDICATORS?

Hundreds of statistics about the economy are churned out every month. Each gives some information about where the economy stands, where it's been, or where it's going. In a complex economy like ours, however, none of these statistics alone is a reliable indicator of overall economic health. Even

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so frequently cited an indicator as Gross National Product, for example, doesn't tell the whole story: if GNP is growing rapidly but unemployment remains high, the economy is doing well in one way but poorly in another. Many pieces of information go into making a sound judgment about how well the economy is doing as a whole.

Why an Indicator Leads. Many economic statistics, though certainly not all, can be assigned to one or another of three distinct groups depending on the timing of their movements relative to changes in the national economy.¹ Some tend to turn upward in advance of the national economy and typically turn downward before the national economy begins to weaken. These are known as leading indicators, and they signal the advent of recessions and recoveries several months in advance. Others perform pretty much in step with the economy as a whole and so are known as coincident indicators. Finally, those whose turning points trail behind the national business cycle are known as lagging indicators.²

Of the three groups of indicators, the leaders seem to receive the most attention because they are likely to foreshadow changes in the economy. Housing construction, which is a leading indicator, illustrates this relation. A decline in housing construction usually is associated with overall weakness in the economy at a later date. This association may occur because consumers usually find it relatively easy to cut back on purchases of durable goods such as housing

when they anticipate reductions in their income. Another possibility is that the reduced homebuying leads to reduced activity in other parts of the economy and may actually be a cause of a net economic slowdown. Because purchasers of new houses have to buy furniture and appliances, hire moving companies, and so on, a decline in housing construction usually signals a future decline in demand for those other goods and services. In addition, when fewer houses are being built, construction workers find themselves with less money to spend and uncertain future prospects, so they tend to cut back on their purchases. Finally, suppliers of construction materials find demand for their products falling off and may reduce their production. Since the housing sector is so large, these effects may have a significant impact. Thus whether it's a symptom or a cause, a change in planned housing construction can give a clue to future changes in economic activity; and similar clues can be found in a number of other indicators.

How Indicators Are Measured. The raw data on indicators can be converted to index numbers for ease of comparison with earlier data and with other statistical series. These index numbers present the current value of an indicator as a percentage of the value for that indicator in some year chosen as a base. U.S. employment, for example, grew from 81.7 million in 1972 to 90.5 million in 1977—a 10.8 percent increase. Thus, using 1972 as a base year, the employment index for the U.S. was 110.8 in 1977.

Many economic indicators show fairly drastic random movement from month to month. Some of this random movement can be eliminated by using a composite index. And the national index of leading indicators is just such a composite index—a weighted average of twelve different leading indicators (see THE NATIONAL INDEX). The result is an index derived from leading series which represent different economic processes and one which has a track record for turning

¹The pioneering work in business cycle indicators was done by Wesley Clair Mitchell and Arthur F. Burns at the National Bureau of Economic Research. The interested reader is referred to Geoffrey H. Moore, ed. *Business Cycle Indicators, Volume 1: Contributions to the Analysis of Current Business Conditions* (Princeton: Princeton University Press, 1961).

²Monthly updates to the national indicators are provided by the U.S. Department of Commerce, Bureau of Economic Analysis, in *Business Conditions Digest*.

THE NATIONAL INDEX OF LEADING INDICATORS

The twelve series used in the national index of leading indicators are:

- Average workweek for manufacturing production workers
- Layoff rate for manufacturing workers
- New orders for consumer goods and materials
- Vendor performance
- Net business formation
- Contracts and orders for plant and equipment
- New building permits for private housing
- Change in inventories
- Change in sensitive prices
- Stock prices
- Change in total liquid assets
- Money supply (M1)

These and other cyclical indicators are published monthly by the U.S. Department of Commerce in *Business Conditions Digest*.

est in forecasting economic activity here.³ The hard times that have hit this region since the relatively prosperous 1960s have generated an atmosphere of increased uncertainty. There have been employment losses, fiscal problems, and Federal policies with inadvertently negative effects. The resultant pessimism probably has been excessive, but it's there, and it translates into cautious business decisions. Hence the increased demand for forecasts of the region's economic outlook. Leading indicators are not designed to provide forecasts of the level of economic activity, but they can be helpful in calling the turning points in the regional business cycle (see LEADING INDICATORS DIFFER FROM ECONOMETRIC MODELS, overleaf).

The timing of changes in the Philadelphia regional economy has run roughly parallel to national business cycles. This parallelism derives in part from the broad diversity of the region's economic base, which mirrors that of the country at large. But it can be traced in part also to the region's relatively heavy concentration of durable goods industries, which are the most cyclically sensitive industries.

Over time, however, the region has lost some of its durable goods manufacturing, and this loss may reduce its sensitivity to cyclical swings. Also, the region has been growing at a slower trend rate than the rest of the country, so a national slowdown might register as a recession here. Thus, although the region has followed national business cycles in the past, it may not continue to do so in the future. Indeed, a RAND corporation study of business cycles in various regions of the country found that past performance relative to the national business cycle was not a good predictor of a region's performance

before the economy does.

Why Have a Regional Indicator? Events of the last ten years in the Philadelphia region have led to a particularly strong inter-

³The region is usually defined as the Philadelphia SMSA which consists of eight counties—Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania and Burlington, Camden, and Gloucester in New Jersey.

in any given business cycle.⁴ Information about the national cycle still is very useful to those who are forecasting the region's turning points, but the region's slower growth trend and shifting employment base may make this relation less stable than it has been in the past. If so, it will be more important than ever to have local measures of cyclical behavior.

A PHILADELPHIA REGIONAL INDEX

The data available at the regional level are nowhere near as plentiful as the national data. Samples are smaller, and statistical series are neither as refined nor as numerous. So the Bank has chosen to use only four indicators for the regional index rather than twelve as in the national index. Further, in lieu of making a judgment call about what constitutes the business cycle, as is done at the national level, the region's employment index was chosen to define the regional cycle, so that, for example, a cyclical employment peak would be called the region's busi-

ness cycle peak and an employment trough would be called the business cycle trough. The employment index is a good indicator of economic activity in the region and corresponds to an index which is classified as coincident at the national level.

The four series used to construct the regional index are monthly retail sales in the region in constant dollars, residential construction permits, average weekly earnings in manufacturing in constant dollars, and the national money supply (M1) in constant dollars. Each series has been converted from raw data into an index (see Appendix). The index of leading indicators is an average of these four indices.

It is desirable for leading indicators used in an index to represent various economic factors. The mix of variables selected for the regional index appears to meet that criterion, although the variety is far from ideal. In addition, each indicator should be a good leading indicator by itself. Of the four series, both the money supply and residential construction permits are classified as leaders for peaks and troughs at the national level, and monthly retail sales is classified as a leader at upturns while being listed as unclassified for downturns. Average weekly earnings is not

⁴George Vernez et al., *Regional Cycles and Employment Effects of Public Works Investments*, The Rand Corporation, R-2052-EDA, January 1977.

LEADING INDICATORS DIFFER FROM ECONOMETRIC MODELS

Most economic forecasts draw at least some of their information from econometric models. These models are composed of equations which try to capture the major effects that changes in some economic variables have on other variables. By linking these equations together, modelers can trace out the likely effects of current economic activity and policy actions on future economic activity. Thus the models can generate expected values for employment, Gross National Product, and so on.

Leading indicators, however, do not attempt to trace through the causal relations of economic variables as models do. Rather they rely on correlations between the indicator and economic activity in the timing of turning points. For this reason, leading indicators do not provide information about the magnitude of economic changes, only the turning points. Thus models and indices tend to complement one another.

classified at the national level; but a related measure—average weekly hours—is classified as a leader.

Residential construction permits was chosen for the regional index because investment in durable goods such as housing usually is a reliable leading indicator, because such investment is sensitive to people's confidence in the future, and because it influences the demand for materials and labor services which are purchased to produce housing.

Monthly retail sales in constant dollars is a measure both of consumer confidence and of the future production which will be needed to replace items being sold. Retail sales provides a partial proxy for consumer sentiment because consumers are less likely to spend heavily if they face uncertain income prospects. It also provides some information about the amount of income in the region.

Average weekly earnings in constant dollars represents demand for labor as well as adjustment in the workweek. At the national level, average weekly hours is used as a leading indicator. The rationale for using hours is that employers may increase hours in the early part of an upturn and decrease them in the early part of a downturn because doing so is relatively easy and because they are not yet certain whether they should commit themselves to changes in the size of their labor force. The earnings figure reflects number of hours worked as well as amount of wages paid and, hence, the tightness of the labor market. It was chosen over average weekly hours because hours did not appear to vary much in the region and did not give clear cyclical signals, whereas the signals given by changes in earnings were fairly clear.

National money supply defined as M1 (currency in the hands of the public plus demand deposits) is a measure of purchasing power in the economy overall. Relatively

large amounts of purchasing power usually are expected to lead to a relatively large volume of purchases and, therefore, an active economy. High prices, however, cut the purchasing power of a given stock of money, so the money supply is adjusted for inflation. The deflated money supply is used in the national index of leading indicators.⁵

The national money supply was selected for the Philadelphia regional index for two reasons. First, since money can flow easily between regions, the national measure is likely to be a better measure of regional monetary conditions than the imperfect regional measures currently available. Second, the region's durable goods industries tend to sell in national markets, and these industries are the most sensitive to liquidity conditions. As a check, national M1 was compared with a number of proxies for regional monetary conditions and did at least slightly better than they as a leading indicator for the region.

Each series separately seems to be somewhat erratic. The amount of lead time is not uniform and a number of false signals appear. But aggregating all four series into a composite regional index yields a fairly well-behaved precursor of local business cycle trends.

PERFORMANCE OF THE INDEX

The current version of the index can be seen in the figure overleaf which compares the composite index to total regional employment as a measure of the regional business cycle.

The best way to interpret the index is simply to look at whether its change from month to month is positive or negative. A positive change indicates that the regional economy is likely to grow, and a negative

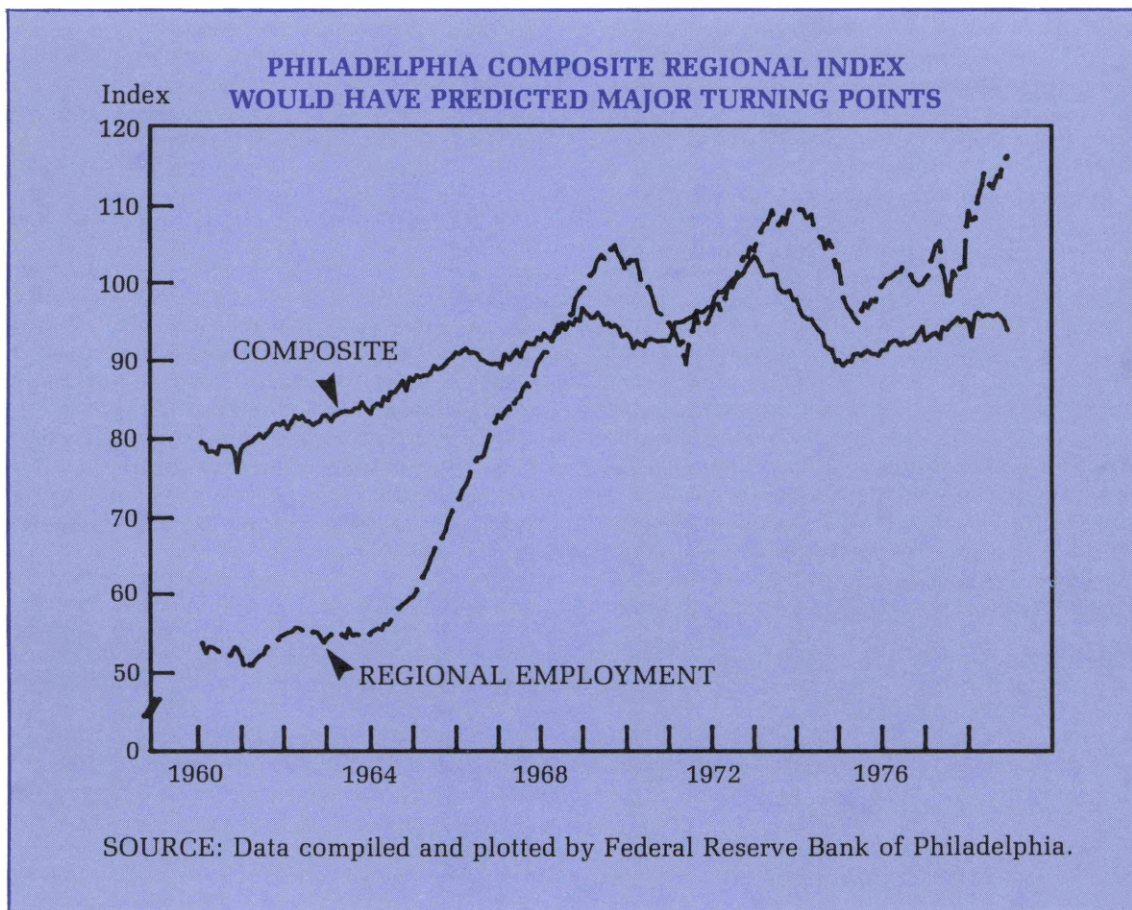
⁵It's possible that M2—M1 plus bank time and savings deposits—will be a better measure of purchasing power in the future, but that depends on public response to recent changes in the law which allow banks to transfer funds from savings to checking accounts.

one is a signal of a possible decline ahead. Any one month's change should not be regarded as very significant. The rule of thumb at the national level is that three consecutive months of change in the direction opposite that of the economy's current movement may augur the approach of a turning point, and a similar rule seems appropriate for the region.

Had the index been available over the years since 1960, it would have enabled forecasters to predict most of the regional economy's major turning points, including the peak in October 1969, the trough in June 1971, the peak in January 1974, and the trough in June 1975, with lead times of nine,

fifteen, twelve, and four months respectively. In addition, the index would have continued signalling an upturn during the employment drops in the late part of 1976, after which employment did indeed turn up again. Thus despite an occasional lapse, such as the false signal for a recession in 1966 which never occurred, the regional index would have compiled an enviable record overall.

When the regional index is compared to the national index of leading indicators, the turning points coincide except for the second peak; the regional index turned down in January 1973, five months before the national index, which didn't peak until June 1973.



This close coincidence is to be expected, since the regional turning points were very close to the national ones. The real test of the local indicators will come when there is a business cycle in which the region reacts differently from the nation.

Looking at the recent performance of the regional index, the numbers for 1978 show declines in January and February (probably caused by the weather), a large jump up for March, a peak in April, and small up and down movements from May to September. In October, however, the index began a three-month slide that normally would be interpreted as forecasting a recession. 'Normally' is the important word here, because the M1 figures may have been thrown off by regulatory changes and so may not be reliable. But even without the M1 figures, the composite index shows a small downward movement in November and a fairly large drop for December. On balance, while the index has to be interpreted with more than the usual caution, it does seem to be pointing to a downturn for the regional economy sometime later this year.

USES AND LIMITATIONS OF THE INDEX

An index of leading indicators has obvious uses for business planning. A businessman facing increased or decreased sales wants to know if a change in economic conditions is likely to last or is just a random fluctuation. A temporary sales increase during a recession, for example, often can be met by reducing inventory or by putting current workers on overtime; but if the increased volume is expected to persist, it may be worthwhile to

hire and train more workers. Or a downturn that is expected to persist may convince the businessman to forego a price hike. And businessmen aren't the only ones to worry about the future track of the economy. Local public-sector administrators, for example, also depend on economic projections for guidance in planning and budgeting.

The ability to forecast changes in the economy becomes even more valuable in times of uncertainty such as the present. In the past, the national index of leading indicators was a fairly reliable guide to the outlook for Philadelphia. But shifts in employment which may make the region less sensitive to national business cycles and a regional growth rate which continues to differ from that of the nation at large make further reliance on the national index somewhat chancy. Thus there seems to be a place for any tools that will make it easier to forecast regional ups and downs, and the Philadelphia Fed's new index of leading indicators is one such tool.

No matter how enticing a regional index of leading indicators may be, of course, it should be only one input into a forecast. The calculations used to construct it are too mechanical to be able to take account of all of the complex interrelations of economic forces. In addition, the Philadelphia index must still be considered experimental since it has not yet predicted a turning point outside its base period. But if its performance so far is a safe guide, this index should prove to be a useful supplement to the other information which is currently available for making regional forecasts.

For Appendix, see overleaf. . .

APPENDIX

CONSTRUCTION OF THE INDEX

In constructing the regional index, each series measured in dollar terms was deflated to 1972 dollars in order to eliminate the effects of inflation on the measurement, with all but the national money supply deflated by a regional measure—the regional consumer price index.¹ If this were not done, a series like retail sales might appear to be increasing when in fact fewer goods were being sold. Next, each series was seasonally adjusted to eliminate fluctuations which occur regularly each year.² If this were not done, large seasonal swings might cause the series to appear to be going in the direction opposite its actual trend. For example, Christmas sales may swell the retail sales figures even though the increase may be less than normally occurs. By adjusting for the normal bulge, we can see whether the increase is more or less than normal.

Once the data have been prepared, percentage changes for each series are computed from month to month. These changes are normalized so that each adjusted series averages a one-percent change each month over the base period (1960-77). This adjustment prevents a volatile series from dominating the composite index. The adjusted percentage changes for each series are averaged to get the percentage change for the composite index in a given month. An index is then created which has a percentage change for each month equal to this average percentage

change and which has an average value of 100 for the year 1972.

Indices also have been prepared for each series separately, and it is possible to issue preliminary estimates for the composite index even if an update for one or more of the series is missing. Each series is a fairly good leading indicator by itself; and eliminating any one series from the composite index does not alter its performance very much.

THE INDIVIDUAL INDICES

The indices for each series alone are shown in Figures A1-A4. These indices do not represent the absolute changes in the given variable. Rather, they have been constructed so as to be readily aggregated into a composite index; and therefore they show only relative changes in the underlying variable. Changes in direction are the most important signals given by any of the indicators. The level of the indicator relative to its past values may also contain some information about the likely strength of the economy in the near future; but this is very qualitative information and great care should be used in making predictions based on it.

In the figures, each index is compared to the employment reference index to show how it does alone as a leading indicator. While each behaves fairly well, some of the individual indices give more false signals than the composite index.³

M1 leads at the two cyclical peaks and at the first trough. But it lags employment at the second trough and is still giving mixed signals even after employment has moved up significantly. M1 can be faulted also for strongly signalling an employment downturn in 1966 which never occurred. A final problem is that the M1 numbers will become hard to

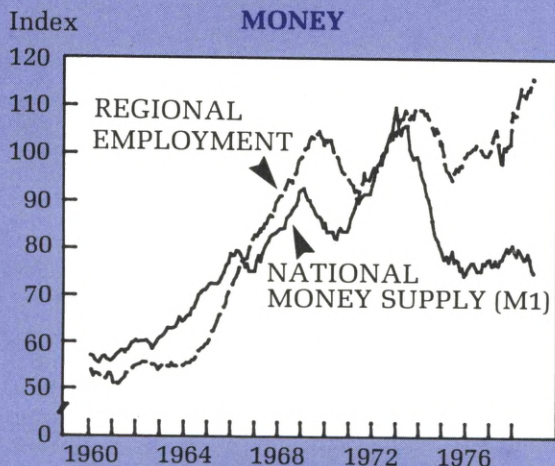
¹The regional index was constructed using the methodology of *Business Conditions Digest, Supplement: Handbook of Cyclical Indicators*, May 1977, U.S. Department of Commerce, pp. 73-76, with equal weight for each component series and no reverse trend adjustment. An excellent discussion of local indices and a description of a less complicated procedure to generate a very similar index can be found in "A Local Index of Leading Indicators: Construction, Uses, and Limitations" by Paul J. Kozlowski (The W.E. Upjohn Institute for Employment Research, October 1977).

²M1 is available in seasonally adjusted form. The other series were adjusted using the X-11 procedure.

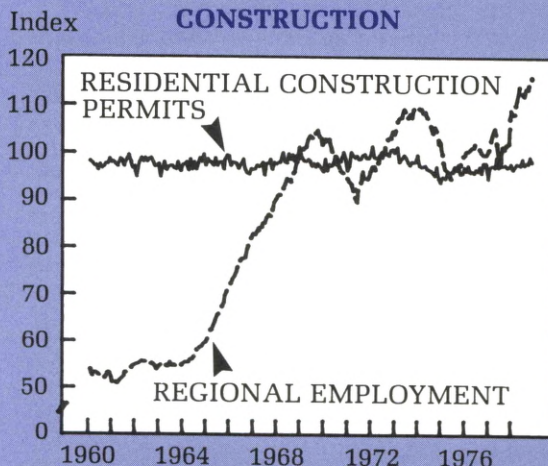
³As more data become available, the individual indices may be trend adjusted so that their level can be interpreted more as a prediction of the future level of the employment index. But such an interpretation would be wrong given the methodology used to construct the current indices.

EACH LEADING INDICATOR DOES FAIRLY WELL ON ITS OWN WHEN MEASURED AGAINST THE EMPLOYMENT INDEX

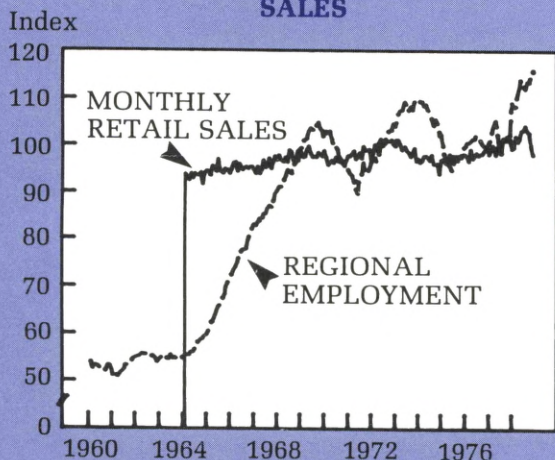
**FIGURE A1
MONEY**



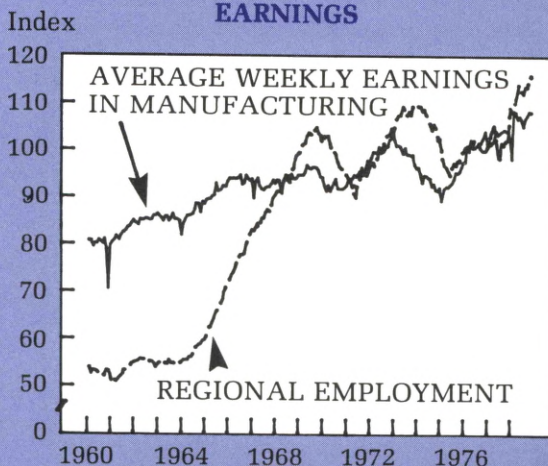
**FIGURE A2
CONSTRUCTION**



**FIGURE A3
SALES**



**FIGURE A4
EARNINGS**



SOURCE: Data compiled and plotted by Federal Reserve Bank of Philadelphia.

interpret for a while because of the changes in banking regulations which took effect on November 1, 1978.⁴

The index of *residential construction permits* shows surprisingly little nonseasonal variation over time. But it did give clear peaks and troughs with good leads for both of the business cycles. Unfortunately, it also signalled at least two additional downturns during the 1960s which never occurred.

The regional data for *monthly retail sales* starts in 1964, so it hasn't had as much opportunity to give false signals as the other series have. But it shows both of the business cycles and appears to have no false signals, although its lead time is not always as large as would be desirable.

The retail sales figures were collected by a new method starting in August 1977. The new method shows a generally higher level of sales than the old method, although there are no direct comparisons available at the local level. The index was created by assuming that the month-to-month percentage changes were correct as reported except for the July-August 1977 change which reflected

⁴These changes, which allow banks to transfer funds from savings accounts to checking accounts to cover checks, probably will lead people to place more of their funds into savings accounts and less into checking accounts. Checking accounts are counted in M1, but savings accounts are not.

the change in methodology. A consistent estimate is available for all of the Northeast states, and this percentage change was used to plug the gap in the index. Aside from the July-August change in 1977, this change in methodology should not affect the composite index.

The last series is *average weekly earnings*. It shows both of the business cycles, but it had a very slight lead for the first downturn. In addition, it shows at least two cycles in the 1960s that did not occur.

Overall, each series has some good leading indicator characteristics. But the composite index appears to be more reliable than the individual indicators.

OTHER COMBINATIONS FOR THE INDEX

Occasionally it may be necessary to calculate the composite index before data for all of the series are available. This will alter the confidence one can have in the number since it will then be subject to revision, but Figures A5-A8 show that eliminating any one series does not drastically alter the index. Each of these figures is generated by removing one of the series from the composite index. Only the index without M1 (Figure A5) differs noticeably from the four-component index. This index does not show much of a lead for the first downturn, but it also does not give any false signals.

A COMPOSITE OF THREE LEADERS APPROACHES THE FOUR-LEADER PERFORMANCE

FIGURE A5
EARNINGS, SALES, CONSTRUCTION

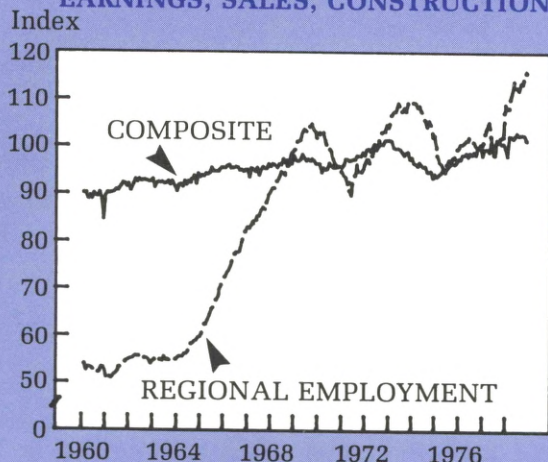


FIGURE A6
MONEY, CONSTRUCTION, EARNINGS

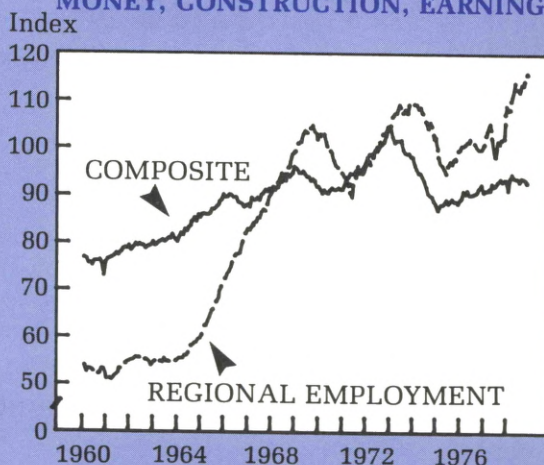


FIGURE A7
MONEY, SALES, CONSTRUCTION

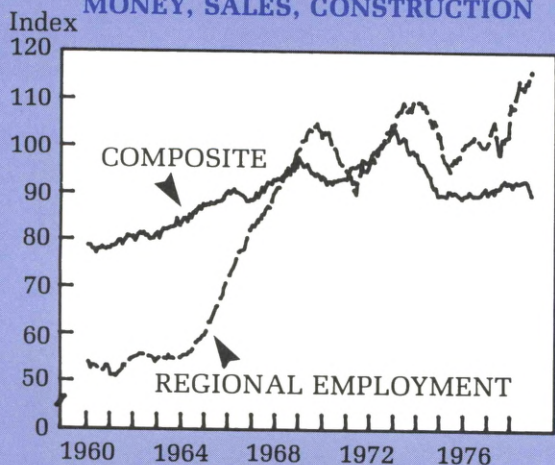
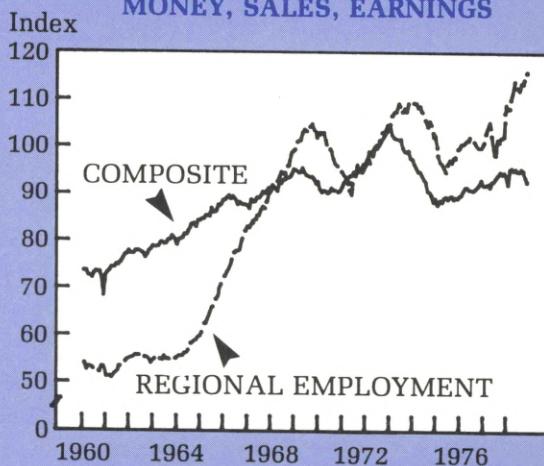


FIGURE A8
MONEY, SALES, EARNINGS



SOURCE: Data compiled and plotted by Federal Reserve Bank of Philadelphia.

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