

# BUSINESS REVIEW

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From Centralization  
to Deconcentration:  
Economic Activity Spreads Out



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*Stephen A. Meyer*

... The British economic package sounds like the U.S. package, but the realities are different.

**BUSINESS  
REVIEW**

**Federal Reserve Bank of Philadelphia**  
100 North Sixth Street  
Philadelphia, Pennsylvania 19106

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TO DECONCENTRATION:  
ECONOMIC ACTIVITY SPREADS OUT**

*Gerald A. Carlino*

... Since 1970, people and jobs have left metropolitan areas for rural ones. According to the author, technological change is the main reason.

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# Margaret Thatcher's Economic Experiment: Are There Lessons for the Reagan Administration?

*By Stephen A. Meyer\**

When Margaret Thatcher became Prime Minister of Great Britain in May 1979, she pledged a new direction for economic policy. Her goal was to reverse Britain's long-term difficulties of slow economic growth, low productivity, and high inflation. She called for lower taxes and for less government intervention in the economy to encourage more output and investment, and for slower growth of the money supply to reduce inflation. Her supporters expected these policies to lead to rapid real growth and less inflation. Instead, the unemployment rate in the United Kingdom more than doubled, real output of the British economy fell sharply, and infla-

tion soared after Mrs. Thatcher took office.

The United States now faces economic difficulties like those that plagued Britain before Thatcher was elected. In response, the Reagan Administration has put in place an economic package which it hopes will reduce unemployment, spur economic growth, and reduce inflation. President Reagan's economic package includes tax cuts and deregulation to stimulate output and investment. The President also has called for slow growth of the money supply to reduce inflation.

When the U.S. economy slid into recession during the second half of 1981, many commentators drew ominous comparisons between Reagan's policies and Thatcher's. Will economic problems in the U.S. worsen dramatically, as they did in Britain? To answer this question we must look carefully at the actual economic policies put in place in

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Britain and the U.S., not at the promised policies.

### BRITISH FISCAL POLICIES WERE NOT AS PROMISED

Mrs. Thatcher had promised an economic program intended to deal with Britain's problems of high unemployment and economic stagnation, but the policies adopted were not the promised ones. She had pledged to cut taxes to provide improved incentives for individuals to work and to invest, but actually she raised taxes substantially. She also had promised to reduce the size and economic role of the government in order to return economic resources to the private sector, but government spending rose. British fiscal policies pushed the economy into recession rather than promoting growth.

**British Taxes Rose Despite Income Tax Cuts.** To carry out its campaign promise, the new British government enacted an across-the-board cut in personal income tax rates. As a result, total government revenue was reduced by roughly 5 percent from what it would have been otherwise. Mrs. Thatcher also had pledged to reduce the government's budget deficit. Because cutting income tax rates would have resulted in a larger budget deficit, other taxes were raised to make up the revenue loss. In particular, the value-added tax (VAT), which is similar to a national sales tax, was raised from 8 percent to 15 percent of value-added on most goods.<sup>1</sup>

<sup>1</sup> A value-added tax is levied at each stage of production or distribution on the difference between the price at which a product is sold and the cost of raw materials and parts which are used to make that product (thus 'value-added'). The value added by a retailer is (roughly speaking) the difference between the retail price and the wholesale price he paid for the item. The value added by a manufacturer is the difference between the wholesale price she charges for the item and the cost of parts which go into the item. The value added by the maker of parts is the difference between the price at which he sells the parts and his cost for raw materials. Adding up the value added at each stage, we clearly get the retail price of the item before tax. Thus a 15-percent tax on value added at each stage is like a 15 percent tax on total value, that is,

Excise taxes on petroleum products, liquor, cigarettes, and other products were raised also. In addition, taxes on North Sea oil production were increased. These tax hikes were expected to increase total tax revenue by 4 percent above what they would have been otherwise during the 1979 tax year.<sup>2</sup>

Increases in VAT and in excise taxes were large enough to generate an overall tax hike, because they were combined with hidden tax increases caused by bracket creep. Britain's high inflation during 1979 pushed people into higher tax brackets at the same time that tax rates for those higher brackets were cut. Bracket creep largely undid the cuts in personal tax rates; so income tax revenues in Britain stayed roughly constant, in real terms, from the 1978 to the 1979 tax year. During the same period the real value of taxes on consumers' expenditures rose 21 percent. As a result the real value of taxes levied on Britons actually rose by 7.5 percent from the preceding year, which helped to start a recession.

Taxes were raised further in 1980 and 1981 even though the British economy was already in a recession. In its 1980 budget the Thatcher government adjusted income tax schedules to offset most of the bracket creep caused by inflation, but it raised taxes on consumers' expenditures even more. In 1981, income tax schedules were left unchanged, so that real income taxes were effectively raised again as inflation pushed people into higher tax brackets; in addition, excise and other taxes on expenditure were raised yet another time.<sup>3</sup>

like a 15-percent sales tax.

<sup>2</sup> The British tax year, or fiscal year, begins in April and runs through March of the following year.

<sup>3</sup> A detailed presentation of the first budget adopted by the Thatcher government can be found in *The Economist* for June 16, 1979, pp. 63 ff. The British government's budget for the 1980 tax year is discussed in *The Economist* for March 29, 1980, on pp. 25-36. A similar treatment of the 1981 budget appears in *The Economist* of March 14, 1981, on pp. 51-65.



The British government raised taxes when Britain was in a recession because it focused on the size of the government's budget deficit. Policymakers appear to have ignored the fact that much of the government's budget deficit was caused by Britain's worsening recession. As the British economy turned down, tax revenues collected by the government fell below projected levels because personal income and spending fell (in real terms) as workers were laid off or put on short time. Lower-than-expected tax revenues meant a higher-than-expected budget deficit. The British government apparently interpreted the larger budget deficit as indicating that fiscal policy was too expansionary, and so it raised taxes in an attempt to reduce that deficit. These tax increases made the recession more severe. Mrs. Thatcher was elected on a pledge to cut taxes. Instead her government raised the real tax burden substantially.

**Government Spending Was Not Cut.** Cutting taxes is not the only pledge that Mrs. Thatcher was unable to carry out. The Thatcher government believed that private individuals and firms would use resources more efficiently than the public sector. If so, giving the private sector command over more resources would increase the efficiency of the British economy, thus raising productivity and the standard of living.

Mrs. Thatcher's program contained two elements designed to reduce the size and economic role of the British government. The first was a pledge to reduce the real value of government spending (after adjusting for inflation) by one percent per year from 1979 to 1984. The second element was to sell some of Britain's nationalized firms to private investors. So far the government has had little success in returning resources to the private sector because it has been unable to implement either element of its program.

Although Mrs. Thatcher pledged to reduce the real value of government spending (after adjusting for inflation) in the 1979 and 1980 tax years, the real value of central govern-

ment spending rose by 3.4 percent in the first year and by approximately 1.3 percent more in the second year. For the 1981 tax year real government spending remained at roughly the previous year's level. Much of the increase in real government spending since the new government took office was caused by large salary increases for government employees and by growth of transfer payments (such as unemployment compensation) resulting from Britain's recession.

The Thatcher government was only a little more successful in carrying out the second element of its program to reduce the economic role of the government. The British government did manage to sell part of its interest in several high-technology and service companies, and it also sold part of its share of British Petroleum. But the remainder of the nationalized firms, including those in the steel, coal, shipbuilding, and automobile industries, remain under government control. All of these nationalized firms run large losses and require growing subsidies from the central government.

Although the government has not succeeded in reducing its size, neither has it allowed its spending to grow as fast as it did in earlier years. As a result, total tax revenues have risen relative to government spending in Britain since Thatcher's election, making fiscal policy restrictive. The tighter fiscal policy could have been offset, at least in part, by new supply-side incentives. But none were provided.

**Tax Changes Did Not Improve Incentives To Work.** The Thatcher government did enact an across-the-board cut in marginal tax rates on personal income.<sup>4</sup> Cuts in marginal tax rates on wages and salaries were intended to provide greater incentives for those already

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<sup>4</sup> The marginal tax rate is the percentage of any additional income that one must pay to the taxman. When we speak of someone as being in the 50-percent tax bracket, we are referring to that person's marginal tax rate.



working to work longer hours, and for those not working to take jobs. Cuts in marginal tax rates on interest and dividend income were intended to provide greater incentives for people to save and invest.<sup>5</sup>

The highest tax rates were cut drastically. The top tax rates during the 1978 tax year were 83 percent of wages and salaries and 98 percent of interest and dividends for that part of total income above £ 30,075 (equivalent to approximately \$51,000). For the 1979 tax year, Mrs. Thatcher slashed these rates to 60 percent of wages and salaries and 75 percent of interest and dividends. Similar but smaller cuts in tax rates were enacted for people at lower income levels. Most families in Britain found themselves in one large tax bracket which stretched from £ 3,700 to £ 12,000 (or \$6,300 to \$20,400); for these families the marginal tax rate was cut from 33 percent in 1978 to 30 percent in 1979.<sup>6</sup>

Incentives to work, save, and invest may have been increased by cuts in income tax rates, but they were reduced by other policies. While personal income tax rates were cut substantially, at least at higher income levels, much of those cuts was eroded by bracket creep caused by high inflation. The value-added tax was raised at the same time. Most workers discovered that if they worked an extra hour they could take home a slightly bigger fraction of their extra pay (because income taxes were cut), but they also discovered that their extra take-home pay would buy less than before (because consumption

taxes went up). The real purchasing power of an additional hour of work was lower after the tax changes, except for families with high incomes.

**Fiscal Policy Was Restrictive Overall.** The upshot of the tax and spending policies adopted by the government was a contractionary fiscal policy with no offsetting supply-side stimuli. During the first two years of Mrs. Thatcher's tenure, the real value of taxes levied by the central government in Britain rose more than twice as much as government spending. In the 1981 tax year, real government expenditures were held approximately constant while real taxes again rose substantially. These tax increases were not offset by providing greater supply-side incentives; in particular, the total marginal tax bite on extra earnings was not lowered. Thus fiscal policy in Britain has been contractionary, overall.

The restrictive fiscal policy is one reason why the British economy is undergoing a severe recession. Another reason is that monetary policy was also restrictive—much more restrictive than the government had planned.

## MONETARY POLICY WAS TIGHTER THAN INTENDED

The Thatcher government pledged to reduce the rate of growth of the money supply in Britain gradually, in order to bring down the inflation rate while avoiding a credit crunch. The government chose to target a broad measure of money known as sterling M3.<sup>7</sup> For the 1979 fiscal year the target rate of growth of sterling M3 was 10 percent, with an allowable range of 8 percent to 12 percent.

<sup>5</sup> All of these are supply-side policies. For a discussion of how these incentives work, and how large they might be, see Aris Protopapadakis, "Supply-Side Economics: What Chance for Success?" *Business Review*, Federal Reserve Bank of Philadelphia, May-June 1981.

<sup>6</sup> The income levels cited here are for the example of a married couple, both working. Incomes are given in 1979 £ throughout, with the U.S. equivalent required to achieve the same purchasing power in the U.S. if the tax systems in the two countries were identical. The tax rates cited are for income tax only; they abstract from Social Security taxes, sales taxes, and other taxes.

<sup>7</sup> Sterling M3 is defined as currency in circulation plus sterling denominated checkable deposits owned by the U.K. private sector plus sterling denominated time deposits owned by the U.K. private sector plus sterling denominated deposits owned by the U.K. public sector. Thus sterling M3 is a broad monetary aggregate which includes the equivalents of large certificates of deposit and other savings certificates.



The target and its associated range were to be lowered by one percentage point each year, so that by fiscal 1983 the target would be 6 percent money growth with an allowable range of 4 percent to 8 percent. Inasmuch as sterling M3 had grown by almost 12 percent during the 1978 fiscal year, the announced targets represented moderately tighter monetary policy.<sup>8</sup>

By making its tight monetary policy known in advance, the government was trying to lower inflationary expectations. The government hoped that unions would accept lower wage increases and firms would post smaller price hikes if they believed that inflation would decline. British policymakers hoped to reduce inflation without causing rising unemployment and falling sales.

Sterling M3 actually grew by 15 percent in the year after Mrs. Thatcher took office, so it might seem that monetary policy did not become tighter. However, sterling M3 gives a misleading impression of monetary policy; other measures suggest monetary policy was quite restrictive.

**Sterling M3 Is a Poor Indicator.** By choosing to focus attention on sterling M3, the Thatcher government created confusion about its monetary policy, because sterling M3 is not a very good measure of money. Sterling M3 includes various bank deposits, such as certificates of deposit, which are not transactions balances (cannot be spent directly), but it does not include similar money-market instruments issued by other financial intermediaries. Thus the figures for sterling

M3 will rise or fall when individuals shift from certificates of deposit issued by banks to similar instruments from other issuers, or vice versa. But such shifts leave liquidity unchanged. People chose to shift funds into bank certificates of deposit and other bank time deposits and out of other money-market instruments during the second half of 1979 and during 1980, because the British government changed regulations governing banks. The resulting high growth rate of sterling M3 did not represent a high growth rate of liquidity in the economy. By contrast, the growth rate of a broader measure of liquidity which includes both bank deposits and comparable money-market instruments actually fell in the year after Mrs. Thatcher became Prime Minister. Growth of this broader aggregate—PSL2—slowed from 15 percent per year over mid-1977 through mid-1979 to 12.2 percent during mid-1979 to mid-1980.

A monetary aggregate constructed for purposes of monitoring the tightness or ease of monetary policy can quickly become obsolete when government regulation of financial institutions changes. Just such a regulatory change was introduced in Britain in 1979 and 1980 by the Thatcher government: the government removed restrictions on banks' offering certificates of deposit. This change contributed to the shift of funds out of money-market instruments into interest-bearing bank deposits. Thus the regulatory changes in Britain contributed to making sterling M3 a misleading indicator of monetary policy.

A similar difficulty arose in the United States early in 1981 when NOW accounts became available nationwide. As individuals moved billions of dollars from checking accounts and savings accounts into NOW accounts, the money supply figures for the United States were distorted. When someone took funds out of a savings account and put them into a NOW account, the M1B measure of the U.S. money supply went up even though that person's bank balance was unchanged overall. U.S. policymakers adjusted

<sup>8</sup> In Britain it is the Prime Minister and her cabinet who make decisions about monetary policy targets. The central bank (the Bank of England) exercises considerable discretion in carrying out monetary policy, and also helps the administration in choosing targets. But it is the Prime Minister who has the final authority to set monetary policy. In the United States, by contrast, the central bank (the Federal Reserve System) is an independent agency responsible to the Congress. The President of the United States does not exercise control over monetary policy.



the measured money supply (M1B) to correct for this distortion. But in Britain no such correction was made to sterling M3; the British government continued to set its monetary targets in terms of a misleading indicator of monetary policy.

#### **Monetary Policy Was Extremely Tight.**

Other, better measures of British monetary policy than sterling M3 indicate that monetary policy became much tighter after Mrs. Thatcher took office. The monetary base (currency in circulation plus bank reserves), which is directly under the control of the central bank, grew by more than 15 percent in each of the two years before the election. In the year after, from May 1979 to May 1980, the monetary base grew much less, by 8.4 percent. Growth of the monetary base slowed further during the following year. From May 1980 to May 1981, the monetary base grew by only 5.3 percent. This sharp decline in the rate of growth of the monetary base is a signal of tighter monetary policy.<sup>9</sup>

The growth rate of M1, a measure of transactions deposits, confirms the monetary base signal that monetary policy was tight.<sup>10</sup> The rate of growth of sterling M1 in Britain slowed from an average rate of almost 19 percent in each of the two years before the election to 6.5 percent in the following year. During the second year of Mrs. Thatcher's tenure, the rate of growth of sterling M1 slowed further, to 1.6 percent.

Tight monetary policy not only helped to push the British economy into its current recession by driving up the real cost of borrowing funds; it also caused the British

pound to appreciate on international currency markets, which worsened the recession. Tight monetary policy drove up interest rates in Britain and also reduced the expected future inflation rate, which made British pounds more attractive. As foreigners rushed to buy British pounds, they pushed up the price of pounds in terms of foreign currencies.<sup>11</sup> The appreciation of the pound made British goods more expensive abroad and made foreign goods cheaper in Britain. Both Britons and foreigners bought fewer British goods as a result. This decline in demand for British goods made the recession in Britain more severe.

Although very tight monetary policy helped to cause the British recession, it did not immediately reduce inflation. In fact, the inflation rate doubled in the year following Mrs. Thatcher's inauguration, but not because of the new, tighter monetary policy (see WHY INFLATION SOARED). Slow money growth will take longer than a year to bring down inflation.

#### **RESTRICTIVE ECONOMIC POLICIES CAUSED THE BRITISH RECESSION**

The government's restrictive monetary and fiscal policies caused a sharp reduction in aggregate demand for British goods and services. Taxes were raised substantially, as consumption taxes were raised and real income taxes were not cut. Taxes were raised much more than government spending. Monetary policy was tightened as well, as indicated by sharp reductions in the rates of growth of the monetary base and M1. The effects of tight money were reinforced by the resulting appreciation of the exchange rate.

These restrictive demand-management policies were not offset by new supply-side incentives. British firms found that declining

<sup>9</sup> In British terminology, the monetary base is defined as "Notes and coins in circulation with the public plus Notes and coin held by banks plus Banker's deposits held at the Bank of England." Data can be found in the Bank of England *Quarterly Bulletin*, March 1981, pp. 59-65.

<sup>10</sup> British M1 is defined as "Notes and coin in circulation with the public plus U.K. private sector interest bearing and non-interest bearing sight deposits." Thus British M1 corresponds to U.S. M1.

<sup>11</sup> The British pound increased in value from \$2.06 per pound when Mrs. Thatcher took office to \$2.40 per pound at the end of 1980.



## WHY INFLATION SOARED

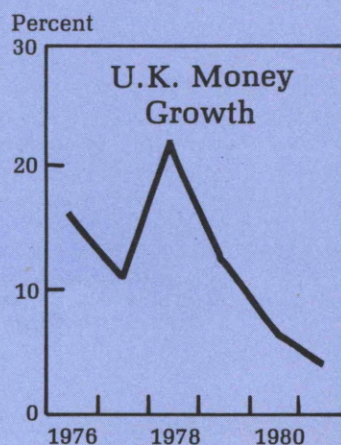
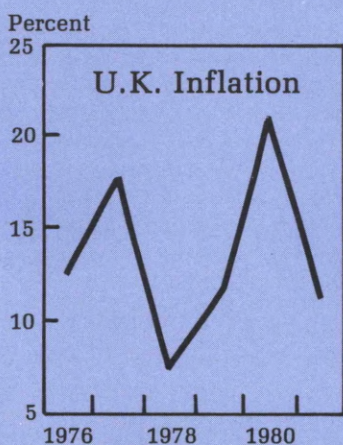
Monetary policy became much tighter after Margaret Thatcher became Prime Minister. Policy-makers expected that tight monetary policy would reduce the inflation rate. But inflation in Britain nearly doubled in the year after Mrs. Thatcher took office. The consumer price index in Britain rose by 11.3 percent in the year ending in June 1979 but jumped by 21 percent in the following year, the first year of Mrs. Thatcher's tenure. In her second year in office prices rose by another 11.3 percent, despite the restrictive monetary policy she adopted. Does this mean that tight monetary policy no longer works to reduce inflation in Britain?

Raising the value-added tax and excise taxes was one cause of higher inflation in the year following the election. A more important cause is that the rate of growth of the money supply had accelerated greatly two years before the Thatcher government took office. Speeding up or slowing down the money supply growth rate usually causes the inflation rate to speed up or slow down one to two years later. The sterling M1 measure of the money supply in Britain (transactions balances) grew by 10.8 percent in the year ending June 1977, but then it accelerated to a growth rate of 22.2 percent from June 1977 to June 1978. \* From June to December 1978 the growth rate of M1 was 16 percent per year. Economists would expect the year of more rapid money growth to be followed by more rapid inflation about two years later, in 1979. This is precisely what occurred, as the accompanying Figure reveals. To a large extent, the rise in inflation which occurred in the year after Mrs. Thatcher took office was inherited from the previous government.

Not all of the rise in inflation was inherited, however. In June 1979 Mrs. Thatcher announced an increase in the value-added tax on most commodities from 8 percent to 15 percent. This tax hike was equivalent to an increase in sales taxes in that it raised selling prices directly. From June to July 1979 the consumer price index in Britain rose by 4.4 percent, equivalent to a 67.7-percent annual rate of inflation. In March of 1980 the value-added tax and other expenditure taxes were raised again. From March to April 1980 the British consumer price index rose by 3.4 percent, which is equivalent to an annual inflation rate of 49.4 percent. During the entire year from June 1979 to June 1980 the consumer price index in Britain rose by 21 percent. Somewhat less than one-third of this increase may have been due to the two increases in VAT and expenditure taxes. †

Given the actual monetary policies adopted by Mrs. Thatcher's predecessor and the new consumption taxes imposed by Mrs. Thatcher herself, the acceleration of inflation that occurred during the second half of 1979 and first half of 1980 is not surprising. Nor is it surprising that inflation in Britain slowed in the next year, given the substantial drop in the rate of growth of the money supply which was engineered by Mrs. Thatcher.

## U.K. INFLATION AND MONEY GROWTH



\*The acceleration of money growth in the U.K. from June 1977 to June 1978 is shown by other measures of money as well as by M1.

†From June 1979 to June 1980 the price index rose by 21 percent. Excluding July 1980 and April 1981, prices rose at an annual rate of 15 percent over that period. I attribute the difference to increases in VAT.



demand for their output was not offset by policies which reduced their costs or improved their profitability.

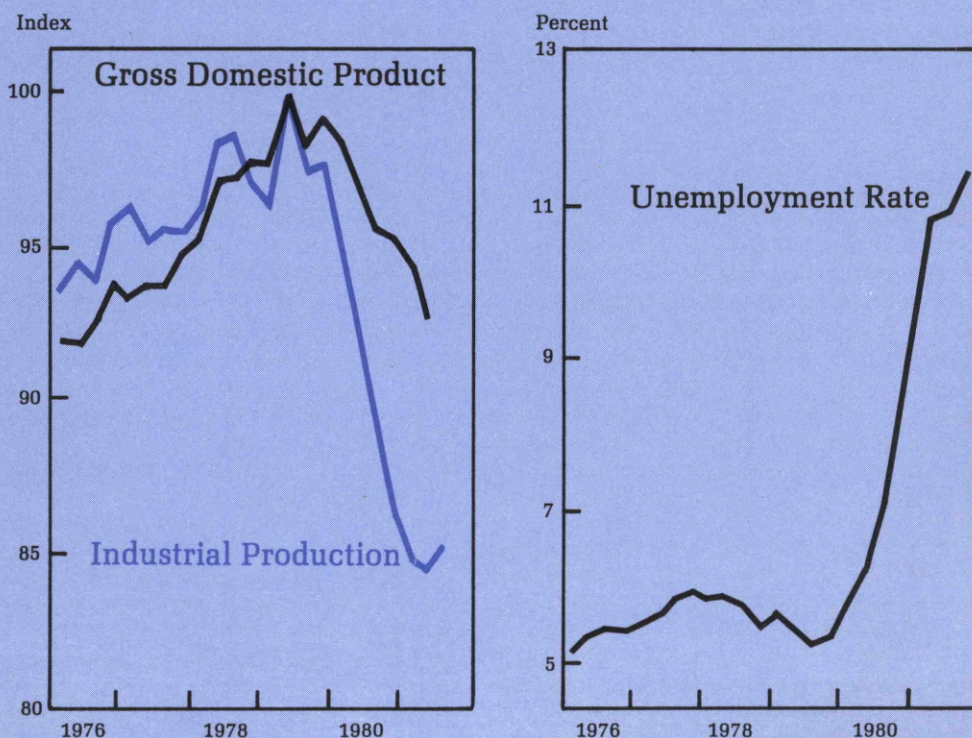
Given the economic policies actually adopted by the Thatcher government, it is not surprising that the British economy was hit by a recession. With contractionary fiscal and monetary policies and no offsetting supply-side policy, a recession is the most likely outcome. British economic policies were strongly contractionary, so they caused a severe recession. After Mrs. Thatcher took office the unemployment rate more than doubled in the United Kingdom, rising from 5.4 percent in May 1979 to 11.7 percent in

January 1982. Real output of the British economy fell sharply; from the second quarter of 1979 to the second quarter of 1981 real output (Gross Domestic Product) fell 7.4 percent, and manufacturing output (other than oil extraction) fell 16 percent (see Figure 1).<sup>12</sup>

Economic events in Great Britain since Mrs. Thatcher took office lose their mystery in light of the economic policies that she

<sup>12</sup> Economic data for Britain are provided in *Economic Trends*, published monthly by the U.K. Central Statistical Office.

**FIGURE 1**  
**U.K. OUTPUT AND UNEMPLOYMENT**



SOURCE: U.K. Central Statistical Office, *Economic Trends*.



actually adopted. The mystery is why a government that was elected on promises to cut taxes and promote private business did the opposite.<sup>13</sup> Has President Reagan learned from the British experience, or might the Reagan Administration also do the opposite of what it promised?

## LESSONS FOR THE REAGAN ADMINISTRATION

The economic policies promised by President Reagan are quite similar to those promised by Mrs. Thatcher. Will Reagan's economic policies cause a prolonged, severe recession in the U.S. as Thatcher's policies did in Britain? The answer to this question depends not on what is promised, but rather on what policies are actually adopted in the U.S.

**Are Mr. Reagan's Policies Really Like Mrs. Thatcher's?** President Reagan has put in place a package of macroeconomic policies with four major elements. He proposed and won personal income tax cuts, faster depreciation writeoffs in calculating business taxes, and cuts in government spending. He also urged the Federal Reserve to continue a policy of gradually reducing the rate of growth of the money supply. While President Reagan won big reductions in Federal government spending and taxation *from what they would otherwise have been*, he has made only small changes, in real (inflation-adjusted) terms, from previous Federal spending and taxation.

The Administration's economic program calls for little change in the real value of Federal government spending in the U.S. In 1982, the first year in which President Reagan was free to seek major changes in Federal programs, the Administration pro-

jects that real government spending will rise by 1.6 percent from its 1981 level. The target for 1983 is to keep real government expenditures essentially constant. So real government spending will be little changed from 1981, if these targets are achieved.

President Reagan won a 25-percent cut in personal income tax rates spread over three years, as well as some other minor changes in personal income taxes. These cuts will be largely, if not entirely, offset by bracket creep and rising Social Security taxes.<sup>14</sup> Business taxes were also cut in 1981. Unlike personal taxes, business taxes were cut in real terms. The Administration estimates that despite cuts in tax rates, last year's tax package will produce slowly rising total revenue, in real terms, after a drop in 1982 caused by the recession.<sup>15</sup>

If the Administration's targets for government spending and taxes are met, fiscal policy in the United States will be roughly neutral during 1982 and 1983. Total taxes will not rise sharply as they did in Britain. Although the President has proposed some minor tax changes which would raise a small amount of new revenues if enacted, he has rejected proposals to raise other taxes enough to regain the revenues lost through personal income tax cuts. In this respect U.S. fiscal policy differs sharply from that in Britain.

President Reagan's tax program cut business taxes by increasing depreciation allowances and investment tax credits. These changes will increase the rate of return on

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<sup>14</sup> See Stephen A. Meyer and Robert J. Rossana, "Did the Tax Cut Really Cut Taxes? A Further Note," *Business Review*, Federal Reserve Bank of Philadelphia, January-February 1982.

<sup>15</sup> The tax and spending figures used here are taken from the 1982 *Economic Report of the President* and from "Special Analysis B" of the *Budget of the United States Government, Fiscal Year 1983*. The numbers given are the rates of growth in each calendar year of real Federal government expenditures and receipts (expressed on a National Income and Products Accounts basis.)

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<sup>13</sup> The reader who wishes a more detailed description and analysis of British economic policies and the resulting recession should turn to Willem H. Buiter and Marcus Miller, "The Thatcher Experiment: The First Two Years," *Brookings Papers on Economic Activity* 1981, No. 2, pp. 315-380.



new business investment. While it is not clear how large this effect will be, the President's economic policies do offer some supply-side incentives for new investment.<sup>16</sup> U.S. policies differ from British policies in this respect as well: supply-side incentives were espoused in Britain, but not adopted.

Finally, it is unlikely that monetary policy in the U.S. will be as tight as it has been in Britain. The Federal Reserve System has announced a target of reducing the rate of growth of the money supply gradually. The money supply (then measured as M1B) grew by 7.25 percent during 1980. The Fed's target was to reduce the growth rate so that it would be in the range of 3.5 to 6.0 percent during the following year, after adjusting for distortions caused by shifts out of savings accounts into NOW accounts. Shift-adjusted M1B actually grew by 2.3 percent during 1981.<sup>17</sup> Thus monetary policy in the U.S. in 1981 was tighter than had been targeted by the Federal Reserve System. For 1982 the Fed adopted a target for growth of the money supply (now called M1) between 2.5 and 5.5 percent. In contrast, the growth rate of British M1 was cut sharply in each of the two years after Mrs. Thatcher took office. If the Fed achieves its target money growth for 1982, then U.S. monetary policy will be less restrictive than British monetary policy has been.

**Should the U.S. Expect a Recession Like Britain's?** The U.S. economy slid into recession during 1981. From its peak in the first quarter, real output of the U.S. economy (real

GNP) fell by 1.2 percent, and the unemployment rate rose from 7.2 percent of the labor force in March to 8.8 percent by year-end.

Despite the sharp drop in output during the latter part of 1981, virtually all economic forecasters predict that the U.S. economy will begin to recover from the recession during the second or third quarter of 1982. The consensus forecast is that real GNP will grow slowly in the third quarter of 1982, and more rapidly during the fourth quarter. Is such a forecast consistent with the actual economic policies adopted by the U.S. government, or is the U.S. likely to slide into a severe, prolonged recession?

Both fiscal and monetary policies in the U.S. were mildly restrictive in 1981. While the real value of government spending rose by 4.5 percent from 1980 to 1981, largely as a result of the previous Administration's economic policies, taxes rose even faster. Federal revenues rose sharply—5.9 percent in real terms—because the windfall oil profits tax was imposed and Social Security taxes were raised. Monetary policy also was restrictive in 1981, at least when measured by the behavior of M1B. Both fiscal and monetary policies probably contributed to the recession which began in mid-1981. But overall macroeconomic policies in the U.S. are unlikely to be sharply restrictive in 1982 and 1983. If current projections prove to be right, the combination of monetary and fiscal policies in the U.S. will be roughly neutral. In Britain, by contrast, both monetary and fiscal policies became sharply contractionary in the three years following the election. Although the economic policies promised by Mr. Reagan and Mrs. Thatcher are similar, the actual policies adopted in the U.S. and in Britain are quite different. Economic forecasters are responding to the difference in actual policies when they predict that the U.S. will undergo a mild recession rather than a severe recession like Britain's.

The U.S., however, could end up with contractionary policies like Britain's. If President

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<sup>16</sup> For a discussion of how depreciation rules and other tax policies affect business investment, see Robert J. Rossana, "Structuring Corporate Taxes for a More Productive Economy," *Business Review*, Federal Reserve Bank of Philadelphia, January-February 1981.

<sup>17</sup> Growth rates for money are calculated as the percentage change from the average money supply during the fourth quarter of the preceeding year to the average for the fourth quarter of the target year. For example, money growth during 1981 is calculated from the fourth quarter of 1980 to the fourth quarter of 1981. This measure of money growth is what the Fed targets.



Reagan and the Congress decide to undo the tax cuts adopted in 1981 or to raise other taxes in an attempt to reduce the government's budget deficit, then fiscal policy in the U.S. would become contractionary. And if the Federal Reserve were to adopt a more restrictive monetary policy than it chose at the beginning of this year, monetary policy would become contractionary, too. If the United States turns to sharply contractionary monetary and fiscal policies in 1982, the U.S. economy could yet be forced into a deep recession. But if the U.S. continues with roughly neutral macroeconomic policy, as most economic forecasters think it will, we are unlikely to undergo a prolonged, severe recession of the British variety.

The recent behavior of the British economy shows that contractionary monetary and fiscal policy, used in combination, will cause a recession. Because British officials focused on misleading indicators—the government budget deficit as a measure of fiscal policy and sterling M3 as an indicator of monetary policy—they adopted more restrictive economic policies than they intended. By adopting restrictive policies when their economy was already in a recession, British officials made the downturn longer and more severe. Unless U.S. policymakers do the same, by raising taxes and cutting money growth further in 1982, the U.S. should be able to avoid a severe and prolonged recession.







# From Centralization to Deconcentration: Economic Activity Spreads Out

*By Gerald Carlino\**

Prior to the 1970s, the U.S. witnessed a net flow of migrants from its rural to its urban areas. Since 1970, though, this long-standing tendency has been reversed, and the turn-around has placed the nation's major metropolitan centers, especially those in the Northeast and Midwest, in a degree of economic jeopardy.

Some observers have attributed this dramatic change to growth in the mining and recreation industries out in the countryside. Others focus on the increase in the number of older people who can live where they want and on their preferences for rural living. But it seems far more likely that recent innovations in the technologies of production, transportation, and communication have been the decisive factors in making rural counties

better able to compete for economic activity. These innovations not only are the basis for rural employment growth but also serve to reduce the cultural isolation of nonmetropolitan locations.

## PEOPLE AND JOBS HEAD FOR OPEN SPACE

The United States has a long history of increasing population concentration in urban areas.<sup>1</sup> In the 1950s, for example, metropolitan areas saw their populations increase by well over two percent annually, while populations elsewhere were just

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<sup>1</sup> The expressions 'metropolis' and 'urban area' and their corresponding adjectives are being used to designate standard metropolitan statistical areas (SMSAs). In general, SMSAs are statistical constructs used to represent integrated labor market areas which consist of the counties containing a central city of at least 50,000 people along with any contiguous counties, if such counties meet certain economic considerations.

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holding their own.

In the 1960s, people slowed their drift toward the cities, and urban population growth dropped to an average of a little more than one and a half percent per year. Meanwhile, growth in nonmetropolitan areas was inching upward, averaging close to half a percent per year for the decade.

The historical pattern reversed itself suddenly and dramatically during the last decade in many areas of the country. Between 1970 and 1980, the growth rate of metropolitan populations fell to a little less than one percent per year while the nonmetropolitan rate jumped to better than one and a half percent, exceeding the metropolitan rate for the first time in 160 years (see POPULATION GROWTH SHIFTS TO NONMETROPOLITAN AREAS).

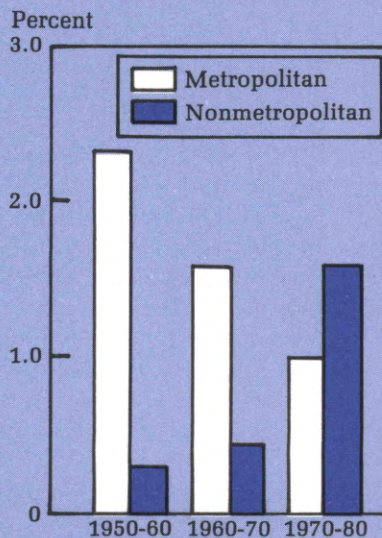
Likewise, employment is growing more rapidly outside urban areas. In 1970, for example, metropolitan places accounted for 70.6 percent and nonmetropolitan ones 29.4 percent of employed persons. By 1977, however, the SMSA share of employment was down to 68.8 percent, while the nonmetropolitan share was up to 31.2 percent. The share of total employment located in nonmetropolitan places increased for all but two employment groupings. The gains in nonmetropolitan employment shares were generally largest in the goods production industries; but there were large gains in the nonmetropolitan share of service employment as well.<sup>2</sup>

Movement of people and jobs out of the central cities is nothing new, and this movement is continuing. But the shift out of traditional metropolitan areas is quite new, and the shape of things to come is likely to be far more complex than the traditional arrangement of thinly settled suburbs surrounding densely populated core cities.

<sup>2</sup> U.S. Department of Commerce, *Current Population Reports*, Special Studies P-23, No. 75.

## POPULATION GROWTH SHIFTS TO NONMETROPOLITAN AREAS

Annual Rates of Population Change by Metropolitan and Nonmetropolitan Location



SOURCE: U.S. Department of Agriculture EDD, ESS, Population Studies Group.

## DECONCENTRATION PERVADES THE SCENE

What makes the current shifts so different from past ones is the effect on places that are outside the influence of metropolitan areas. To be sure, people and jobs are continuing to spill out of the central cities into both the nearer and the more distant suburbs. But now rural areas far removed from urban concentrations are growing, too.<sup>3</sup> Further, the smaller the unit of either sort, metropolitan or non-

<sup>3</sup> The term 'rural' is used for counties not in or adjacent to a metropolitan area.



metropolitan, the faster its growth is likely to be. These trends are found in all parts of the country. And the evidence suggests that some form of deconcentration is occurring in all the industrialized countries, not just in the U.S.

While counties bordering metropolitan areas are the country's fastest growing places, other nonmetropolitan places also are growing rapidly. From 1970 to 1980, population increased faster in nonmetropolitan places (15.8 percent) than in metropolitan ones (9.8 percent). Nonmetropolitan counties which are adjacent to metropolitan counties showed the fastest growth of all (17.4 percent). But nonadjacent nonmetropolitan counties also saw rapid growth—at a 14-percent rate (see **NONMETRO COUNTIES SHOW LARGEST POPULATION GROWTH**).

This tendency toward growth in small places holds up even when the microscope is trained on areas smaller than county size. Population in unincorporated places grew

three times faster, for example, than in the largest nonmetropolitan places. This relation of small size to high growth holds even when the data are partitioned into adjacent and nonadjacent nonmetropolitan counties (see **SMALLER NONMETRO PLACES GROW FASTER**).

Likewise, the smaller the metropolitan place the faster its population growth rate is likely to be. During the past decade, the population growth rate for the smallest size category of SMSA (fewer than 250,000 people) was over 15 times as large as the population growth rate for the larger (over 3,000,000) SMSAs (see **SMALLER METRO PLACES GROW FASTER, TOO, overleaf**).<sup>4</sup>

<sup>4</sup> These figures may overstate the growth of the smaller metropolitan places since, at the start of the 1970s, many of these small SMSAs still were classified as nonmetropolitan. During the decade, many nonmetropolitan places gained enough people to be reclassified as metropolitan. Thus some of the faster growth registered by the

### NONMETRO COUNTIES SHOW LARGEST POPULATION GROWTH

(Thousands of people)

	1970	1980	Percent Change
Total U.S.	203,301	226,500	11.4
Metropolitan	148,887	163,503	9.8
Nonmetropolitan	54,424	63,002	15.8
Adjacent	28,033	32,901	17.4
Nonadjacent	26,391	30,101	14.0

SOURCE: U.S. Department of Agriculture, Economic Development Division, ESS, Population Studies Group.

### SMALLER NONMETRO PLACES GROW FASTER

Nonmetropolitan Population  
by Size of Place: 1970 and 1975

	Average Annual Percent Change
Unincorporated places	1.96
Incorporated places	
Under 2,500	1.16
2,500 to 9,999	0.66
10,000 to 24,999	0.66
25,000 to 49,999	0.62
Total	1.38

SOURCE: Compiled from J. F. Long, "The Deconcentration of Nonmetropolitan Population," a paper presented at the 1978 Annual Meeting of the Population Association of America, Atlanta, Table 1.



## SMALLER METRO PLACES GROW FASTER, TOO

Population Growth by Metropolitan Size  
and Major Region: 1970 and 1978

Average Annual Percent Change of Population

	Total	Northeast	North Central	South	West
Metropolitan*	0.73	-0.17	0.24	1.53	1.53
Over 3,000,000	0.09	-0.36	0.04	0.38	0.89
1,000,000 to 3,000,000	0.92	-0.41	0.13	1.66	1.76
500,000 to 1,000,000	0.91	0.81	0.36	1.15	2.44
250,000 to 500,000	1.26	0.43	0.48	1.70	2.06
Less than 250,000	1.37	0.64	0.65	1.56	2.69

\* According to 1979 SMSA definitions.

SOURCE: Bureau of the Census, *Current Population Reports*, "Population Characteristics," Series P-20, No. 350, Table 14.

The trend toward faster growth of non-metropolitan places is found in all regions of the country—in the Frostbelt as well as in Sunbelt states (see *THE TURNAROUND PHENOMENON IN THE THIRD DISTRICT*). During the 1970 to 1978 period, nonmetropolitan places in the West experienced the largest inflow of people (0.89 percent per year) followed by the Northeast (0.67 percent), the South (0.60 percent), and the North Central (0.17 percent) regions.

Thus, while the well publicized shift of population from the more heavily urbanized Frostbelt to the more rural Sunbelt has augmented the deconcentration tendency, it is not the primary cause by any means. The more important demarcation may not be the

Mason-Dixon line or the Mississippi River but metropolitan-nonmetropolitan.

There is evidence also that deconcentration is not limited simply to the United States. Daniel Vining of the University of Pennsylvania and Thomas Kontuly of Boston University suggest that this phenomenon is occurring simultaneously in most other industrialized countries. "A summary of recently published statistics," they say, "shows an actual or imminent population decline in the great metropolitan regions of many, if not all, of the major industrialized nations (Japan, France, Great Britain, Sweden, Norway, Italy, and the USA)."<sup>5</sup>

No doubt about it: deconcentration of population and employment is a pervasive

smaller SMSAs really should be attributed to the rapid growth of nonmetropolitan places too. But the overall picture remains the same: the smaller the unit, the faster its growth is likely to be.

<sup>5</sup> D. R. Vining and T. Kontuly, "Population Dispersal from Major Metropolitan Regions: An International Comparison," *International Regional Science Review* 3, 1 (1978), pp. 49-73.



## THE TURNAROUND PHENOMENON IN THE THIRD DISTRICT

In the three states of the Third Federal Reserve District—Delaware, New Jersey, and Pennsylvania—metropolitan population growth declined substantially while nonmetropolitan population growth was either already strong or on the increase over the past three decades.\* But while these states reflect the national pattern of faster nonmetropolitan population growth, turnaround occurred in two of the states in advance of the national trend.

New Jersey, for example, appears to have gone through its turnaround before 1950, and Delaware was seeing its adjacent nonmetropolitan counties chalk up their highest population growth rates even before 1960. Metropolitan areas in Pennsylvania continued to dominate through the 1960s, but the 1970s slowed the Keystone State's metropolitan population growth to the point of turning it negative.

The turnaround in employment growth hit all three Third District states before 1970. Pennsylvania was the last to see this change (in the period 1962-70); New Jersey and Delaware already were experiencing larger nonmetropolitan employment growth at the outset of the 1950s.

### POPULATION AND EMPLOYMENT GROWTH IN DELAWARE, NEW JERSEY, AND PENNSYLVANIA

Average Annual Percentage Change

	Population			Total Employment		
	1950-1960	1960-1970	1970-1980	1951-1959	1962-1970	1970-1979
<b>Delaware</b>						
Total	4.03	2.28	0.86	2.04	5.04	2.08
Metro	4.05	2.55	0.34	2.78	4.90	2.17
Nonmetro	4.00	1.66	2.09	—	—	—
Adjacent†	7.34	2.47	1.99	3.00	7.76	2.44
Nonadjacent	1.93	0.98	2.20	0.28	4.61	2.64
<b>New Jersey</b>						
Total	2.55	1.82	2.70	0.91	2.90	1.77
Metro	2.45	1.64	-0.04	.05	2.92	1.71
Nonmetro	5.22	5.96	5.21	3.67	5.62	7.04
<b>Pennsylvania</b>						
Total	0.78	0.42	0.06	-0.32	2.36	1.65
Metro	0.97	0.50	-0.11	-0.09	2.47	0.71
Nonmetro	0.06	0.12	0.80	—	—	—
Adjacent	0.06	0.16	0.80	-0.54	3.13	1.99
Nonadjacent	0.03	-0.08	0.58	-1.16	2.65	1.46

\* The Third Federal Reserve District includes two-thirds of Pennsylvania, half of New Jersey, and all of Delaware.

† 'Adjacent' means next to a metropolitan area. All nonmetropolitan counties in New Jersey are adjacent.

SOURCE: U.S. Department of Agriculture, Population Studies Group.



trend that is having a profound economic impact on the U.S. and other countries. Suburbanization and the attendant losses suffered by central cities may receive most of the attention, but deconcentration is a phenomenon even larger in scope.

### PEOPLE LEAVE, BUT WHY?

There must be some reason, most analysts would say, for this change in people's behavior. Economists contend that the explanation should be connected with some new economic advantage to nonmetropolitan living. What incentives do people have for making this adjustment in where they live and work—what incentives that they didn't have before?

**Aging Is Not the Cause.** Many observers contend that the changing age distribution of the population is, for several reasons, a source of rural growth. The aging of the baby-boom cohort, for instance, brought a large increase in the number of college-aged people. Over the period 1970 to 1977, there was a 16.2-percent increase in the number of people 18 to 24 years old (see THE POPULATION AGES). Colleges and universities tend, it is argued, to employ a great deal of land and therefore choose relatively cheap sites—nonmetropolitan locations. So, this argument runs, the increased demand for educational services occasioned by more college-aged people leads to increased employment opportunities in rural places.

The role of higher education in nonmetropolitan growth, however, should not be overemphasized. Places of higher education tend to have metropolitan as well as nonmetropolitan locations. While the employment opportunities associated with the growth of higher education may be potentially attractive as explanations for rapid rural population growth, their role has yet to be confirmed by rigorous studies.

Another factor frequently cited as the key to explaining nonmetropolitan growth is the 8.3-percent increase in the 65-years-and-over

## THE POPULATION AGES

Changing Age Distribution  
of Population: 1970-1977

Age Group	Percent Change
Under 5 years	-15.3
5 to 13 years	-18.3
14 to 17 years	- 1.3
18 to 24 years	16.2
25 to 34 years	23.6
45 to 64 years	- 5.3
65 years and over	8.3
<hr/>	
Total population (in thousands)	6.4

SOURCE: U.S. Department of Commerce, *Current Population Reports*, "Social and Economic Characteristics of the Metropolitan and Nonmetropolitan Population: 1977 and 1970," Special Studies P-23, No. 75, compiled from Table 1.

cohort. People who have location-independent sources of retirement income may be migrating to amenity-rich, low-cost locations, many of which are nonmetropolitan.

While some studies report migration of retirees as a significant factor in rural growth, others do not. C.J. Tucker of Atlanta University, for example, using the 1970 census and the 1975 Current Population Survey, found that while some part of the trend reversal could be attributed to a changing age distribution, most of it came from shifts in migration patterns in all age categories.<sup>6</sup> Age isn't the answer.

**Industry Growth Isn't the Whole Answer, Either.** Other writers argue that the growth of the extractive and recreational industries underlies much of the rural renaissance.

<sup>6</sup> C. J. Tucker, "Changing Patterns of Migration Between Metropolitan and Nonmetropolitan Areas in the United States: Recent Evidence," *Demography* 13, 4 (1976), pp. 435-443.



Their scenario suggests that the changing energy picture has resulted in a renewal of domestic sources of energy, which should give rise to rapid employment growth in several resource-rich nonmetropolitan regions. The coal regions of Appalachia, with their newly created mining jobs, are a prime example.

Outdoor recreation has become another growth industry. A general increase in income has raised the demand for recreational goods and services, as well as the demand for second homes, in amenity-rich regions. Since most of the areas well endowed with recreational amenities are nonmetropolitan, the increase in recreation business could be yet another source of rural employment growth.

In fact, there is little evidence that these industries have grown faster in nonmetropolitan places. Indeed, according to data published by the Census Bureau where the mining, entertainment, and recreation industries are concerned, employment is growing faster in metropolitan locations than in nonmetropolitan ones—the only sectors where this has occurred over the period 1970-77 (see EMPLOYMENT GROWS FASTER IN NONMETRO AREAS).

While the finding that the mining industry is growing faster in metropolitan areas is interesting, we should not push it too hard. There are several qualifications one must make regarding these data. To begin with, they are based on samples and are therefore subject to sampling error. That is, the result

## EMPLOYMENT GROWS FASTER IN NONMETRO AREAS

Percent Distribution of Employed Persons 16 Years Old and Over,  
by Industry Group and Type of Residence: 1970 and 1977

Industry	Nonmetropolitan		Percent Change 1970 to 1977	Metropolitan		Percent Change 1970 to 1977
	1970	1977		1970	1977	
Agriculture, forestry & fishery	71.4	72.1	1.0	28.6	27.9	-2.5
Mining	59.9	58.0	- 3.2	40.1	42.0	4.7
Construction	34.0	37.2	9.4	66.0	62.8	-4.9
Manufacturing	29.8	33.2	11.4	70.2	66.8	-4.8
Transportation, communica- tions & other public utilities	25.0	27.9	11.6	75.0	72.1	-3.9
Wholesale trade	20.1	22.1	10.0	79.9	77.9	-2.5
Retail trade	29.1	30.3	3.8	70.8	69.7	-1.6
Fire	17.6	19.5	10.8	82.4	80.5	-2.3
Business services	19.2	20.5	6.8	80.8	79.5	-1.6
Personal services	32.0	34.8	8.8	68.0	65.2	-4.1
Entertainment and recreation	21.3	19.5	- 8.5	78.7	80.5	2.3
Professional	27.6	29.2	5.8	72.4	70.8	-1.6
Public administration	24.0	25.9	7.9	76.0	74.1	-2.5
Employed	29.4	31.2	6.1	70.6	68.8	-2.6

SOURCE: U.S. Department of Commerce, *Current Population Reports*, special Studies P-23, No. 75, Compiled from Table O.



that mining employment is growing faster in urban places could be simply a statistical artifact. Another problem is that the data report employment by residence rather than employment by establishment. Thus people residing in urban places but commuting to work in nonmetropolitan ones would be counted as part of urban employment. Finally, Calvin Beale of USDA, a previous proponent of the growth of mining as a significant factor underlying the rural revival, has more recently softened this view. In a statement before the House of Representatives Subcommittee on Economic Development he claims that "if one considers all rapid growth areas, mining is the major cause of growth in only a minority of cases—media attention on these cases notwithstanding."<sup>7</sup>

In short, while development of the extractive and recreational industries may have contributed to growth in some rural places, this hasn't been the leading influence for deconcentration.

**The Call of the Wild, or Maybe Main Street?** Another popular explanation of the rural renaissance is an alleged shift in preferences toward nonmetropolitan living. *Newsweek's* recent cover story—"America's Small Town Boom"—reports on new rural arrivals who, though they make only half as much money as they did in the big city, are compensated by the "cry of a loon" on nearby lakes.<sup>8</sup>

But there is nothing new about such preferences. Indeed, suburbanization has always been an attempt on the part of those tied to cities to have their cake and eat it too—to have the benefits of a metropolis while maintaining some of the amenities of a rural

life. What is different is that these preferences now seem to be easier to satisfy than they used to be. The question is, why?

## TECHNOLOGICAL CHANGE UNDERLIES DECONCENTRATION

Businesses tend to go where they can prosper. In the nineteenth century, the state of technology placed certain limits on a firm's prosperity that could be overcome only by locating near other firms. But many of those limits have been overcome in this century by technological changes.

**Forces for Concentration.** The nineteenth-century city tended to be highly concentrated, containing as much as 90 percent of total employment within a one-mile to three-mile radius of its central business district.<sup>9</sup> Manufacturing activity tended to concentrate in these cities because of interindustry linkages and the need to keep transportation costs as low as possible. It was advantageous for nonmanufacturing enterprises (banking, finance, and insurance, for example) to join the cluster if they supplied business services to local firms or consumer services to their employees. This process led to the spatial concentration—or what economists call agglomeration—of people and jobs.

In the printing industry, for example, firms tended to gather in large cities such as New York to share certain products or services that individual firms could not purchase economically if they were isolated.<sup>10</sup> Demand for commercial printing was important, and the big cities had it, for example, in the form of newspapers, other publishing, general-use office products, and specialized products for the legal and financial

<sup>7</sup>C. L. Beale, "Population Change in Rural America and Implications for Economic Development," statement before the Subcommittee on Economic Development, House Committee on Public Works and Transportation, November 19, 1981.

<sup>8</sup>"America's Small Town Boom," *Newsweek*, July 6, 1981.

<sup>9</sup>This section draws and extends the arguments in a paper by Alex Anas and Leon Moses as well as one by Charles Leven, both found in Leven, *The Mature Metropolis*.

<sup>10</sup>E. Tobier and M. A. Willis, "Has New York's Printing Industry Bottomed Out?" *New York Affairs* 6,2 (1980), pp. 59-69.



industries. But so was supply, of both materials and labor. Printing equipment needed to be provided with paper and ink in volume, and it required highly skilled labor for operation, maintenance, and repair.

The city of a century ago represents one way of bringing the factors of production together. It depended on the technology of its time—steam and then electric power, overland transportation in the form of trains and trolleys, high-grade mechanical equipment. In many respects, this technology continued to dominate economic organization in America through the period of World War II. But in the intervening years, U.S. industry has found new ways to organize itself and new ways to operate—ways that make use of still newer technologies that permit firms and individuals to participate in the same production process even though they aren't always in the same place.

**Changing Production Technology.** A frequently cited factor in the movement of manufacturing away from central cities is the development of assembly line techniques. The assembly line requires a horizontal flow of goods, which uses more land than previous methods. Horizontal plants are more costly to construct in the existing built-up central cities but much less expensive to build on large, vacant suburban lots.

More recent innovations in production technology have made locating in a metropolitan center still less important. The production process has been divided, for example, into a sequence of individual operations. This increase in the number of stages in the production process has given firms the ability to split off and relocate phases of their operations that do not require central city or even metropolitan locations.

According to Daniel Garnick and Vernon Renshaw of the Bureau of Economic Analysis, the deconcentration pattern is also explained by developments in miniaturization and light-weight materials, the reduced numbers of movable parts in equipment, and

the substitution of electronic for mechanical processes. These improvements have further reduced the relative importance of transportation costs and of large skilled labor pools.<sup>11</sup>

A case in point is NCR, formally the National Cash Register Corporation. Between 1969 and 1977, NCR moved from a line of mechanical cash registers to point-of-sale terminals based on microcircuitry, sharply reducing the number of component parts in the final product. Assembling a 5,000-part mechanical register had required a large skilled labor pool such as that at the Dayton plant. The new machine, however, is much easier to assemble and can be handled by a smaller, less skilled labor force. Where workers in Dayton used to do 70 percent of NCR's U.S. production, they now do 15 percent. According to the *Washington Post*, this deconcentration "would have been economically undesirable before the advent of the microcircuit."<sup>12</sup> This example shows how the economies of agglomeration which favored concentration in centralized locales have been weakened by changes in production technology.

**Changing Transportation Technology.** Changes in transportation technology also helped to produce first suburbanization and now deconcentration. Before the invention of the automobile, rail transport was the most rapid and efficient method of moving people overland. Residential choice, however, tended to be restricted to the vicinity of the tracks radiating from the central city. The increase in automobile ownership and the improvement in urban roads after World War II brought significant reductions in transportation costs (including time) and attracted people to the suburbs. The motor truck meant

<sup>11</sup> D. Garnick and V. Renshaw, "Competing Hypotheses on the Outlook for Cities and Regions: What the Data Reveal and Conceal," unpublished manuscript.

<sup>12</sup> "How Technology Altered NCR and Dayton," *The Washington Post*, January 8, 1978.



that economic activity no longer had to be tied to railroad siding locations. All these developments gave firms an efficient and dependable form of transportation outside the more congested central city and brought jobs to the suburbs as well.

Continuing improvements in transportation technology have helped to encourage deconcentration. The interstate highway network has connected many previously remote rural counties with the old mainstream and with one another. Moreover, the increased size and efficiency of trucks, as well as the expansion of high-speed thruways, are increasing still more the economic viability of nonmetropolitan business locations.

#### **Changing Communications Technology.**

The nineteenth-century city was spatially concentrated partly because people and firms were not able to communicate very effectively over long distances. The telegraph could transmit information, but it was unable to accommodate a high volume of messages. When the primary means of relating complicated pieces of information were the messenger and face-to-face meetings, the benefits of concentrated location patterns were obvious.

The advent and improvement of the telephone aided suburbanization. The telephone permitted a firm to locate in the suburbs while maintaining contact with both customers and suppliers in the city.

A more recent revolution in technology has improved long-distance communications and contributed still further to deconcentration. Low-cost long-distance WATS lines, improvements in information storage and retrieval systems, and the use of document transmission equipment allow branch plants to be located in rural communities while maintaining good communications with the corporate office located, for example, in New York or San Francisco.

Technological change not only has increased the economic viability of deconcentration, it also has reduced the advantages of concentration. In other words, it has reduced

the agglomeration economies available to economic activity from locating in metropolitan (especially large) centers. A research project recently conducted at the Federal Reserve Bank of Philadelphia attempted to measure agglomeration economies for the aggregate of all manufacturing firms for the 80 largest SMSAs for two time periods—1957-69 and 1970-77. This research revealed that a weakening of agglomeration economies led to a 7-percent decline in the optimal population size of cities—the size at which the net advantages of being close to other business activities are at their greatest. The optimal size now appears to be just a little over 3,000,000 people—a result consistent with the Census Bureau's finding that nationally it is the 3,000,000-plus cities which are declining.<sup>13</sup> This evidence supports the view that the economic forces which led to concentration of economic activity in cities have peaked and are dissipating. The result is deconcentration.

#### **CONCLUSION**

The very kinds of forces which gave rise to suburbanization also have made rural locations economically attractive. Technical innovations in information storage, retrieval, and transmission have reduced the economic advantage of locating closely related activities near one another. Improvements in cars, trucks, and planes have lowered transportation costs. And the interstate highways have opened up virtually any location to business development and residential use.

The impact of deconcentration on the old cities, of course, is another matter. Many different trends are at work, and nearly all tend to make small look beautiful. The urban infrastructure (schools, port facilities, public utilities, and mass transit systems) in cities

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<sup>13</sup> G. A. Carlino, "The Role of Agglomeration Economies in Metropolitan Decline," Federal Reserve Bank of Philadelphia, Research Paper No. 71, 1981.



such as New York, Boston, Philadelphia, Pittsburgh, and St. Louis were designed to service a certain number of people and jobs. As population and employment leave these cities, excess capacity develops and the tax base erodes. The cities then are forced into disinvesting in those assets (via under-maintenance and depreciation). Meanwhile, just the opposite is occurring in the expanding regions: excess demand pressure for social

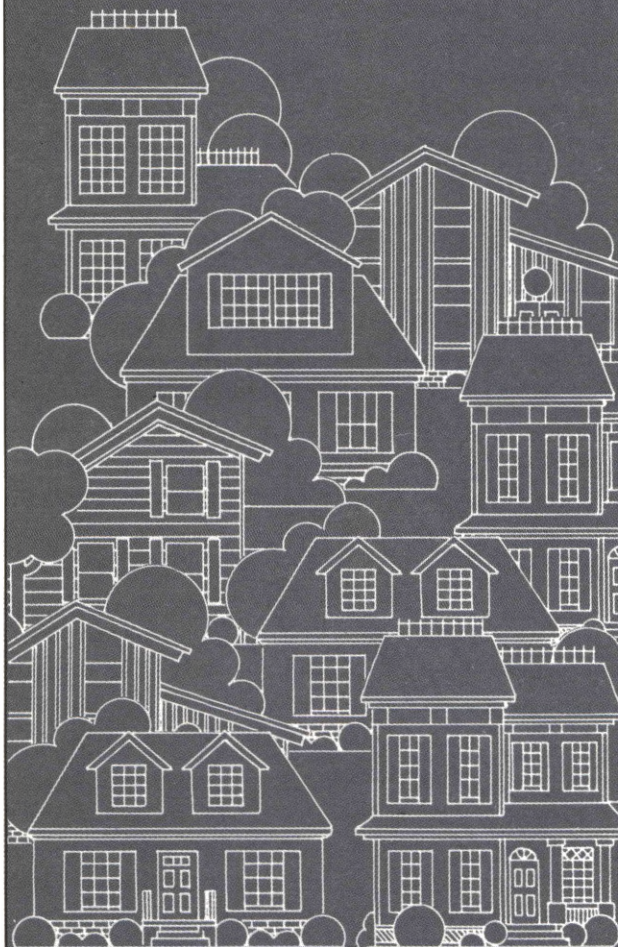
capital plagues the new regions experiencing rapid growth.

In short, the basic economic forces at work in deconcentration have proven their strength. They appear to represent long-term trends. Thus the outlook for the future of the U.S. and other industrialized countries is further shrinkage in larger centers of population and employment combined with further growth in the smaller centers.



# FROM THE PHILADELPHIA FED . . .

## Charting Mortgages

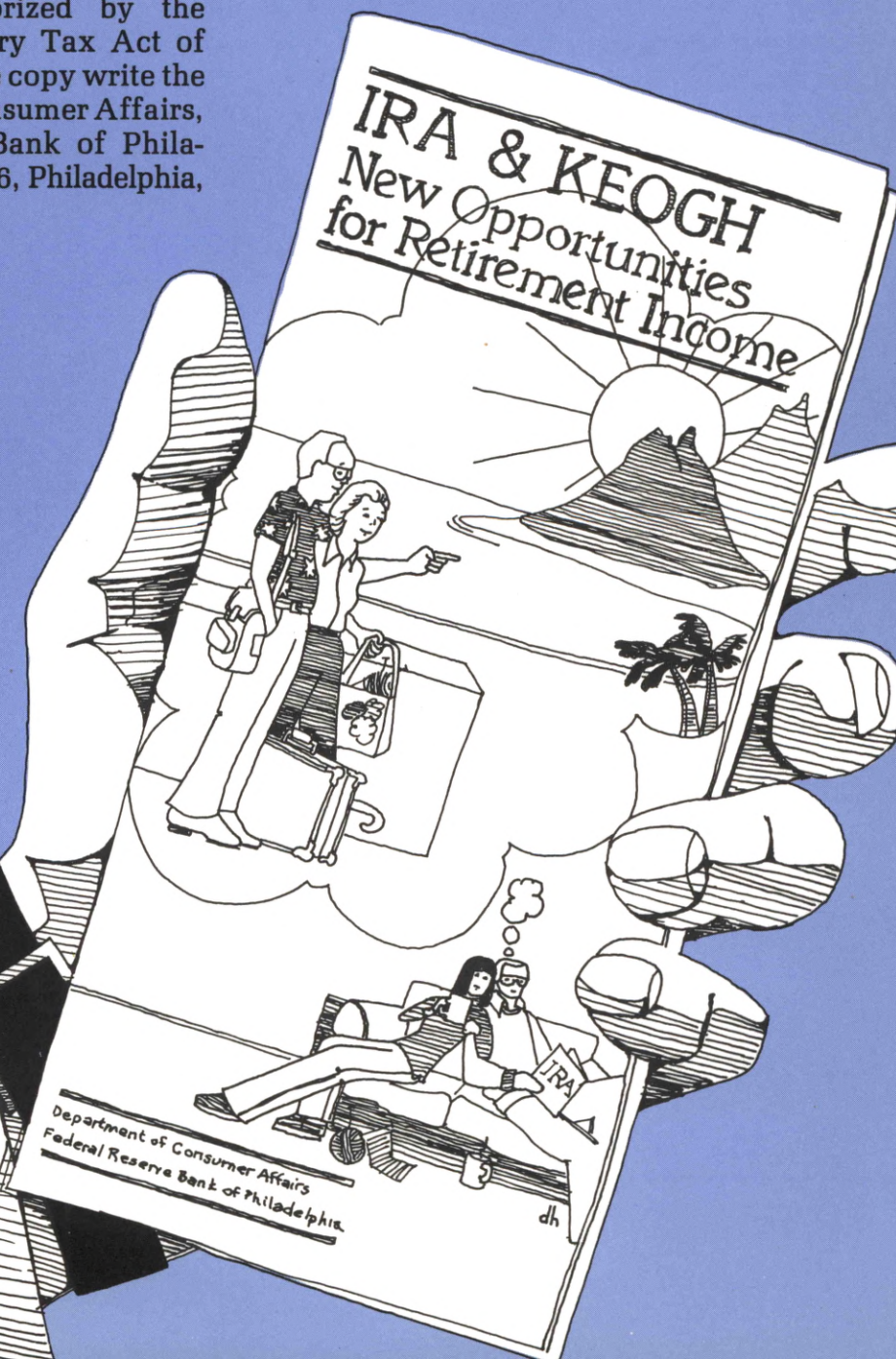


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