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PERSPECTIVES

A review from  
the Federal Reserve Bank  
of Chicago

JULY/AUGUST 1985

Public utility taxation  
in Illinois

Foreign deregulation, agricultural  
credit problems highlight  
bank conference

Metro metrics

## **ECONOMIC PERSPECTIVES**

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# Public utility taxation in Illinois

*Diane F. Siegel and William A. Testa*

Taxation of natural gas, electricity, and telephone utility revenues has become an important source of state and local government revenue in Illinois. Rising costs of fossil fuels and electric power plant construction have caused utility tax revenues to grow more rapidly than such other revenue sources as general sales and property taxes. The increase in utility taxes has been especially dramatic in those municipalities, such as the City of Chicago, that have raised tax rates on the expanding utility tax base. The rapid growth of state and local utility taxes in Illinois is of special concern because the state has one of the highest utility tax levels in the nation.

This paper analyzes the Illinois utility taxes in terms of their likely impact on economic growth, their fairness to taxpayers, and their contribution to state and local fiscal stability. Our findings indicate that the Illinois utility taxes add to the state's relatively high energy utility prices. Another drawback of the state's utility tax system is that its burden falls most heavily on low-income taxpayers. However, the utility taxes do provide a stable source of revenue for state and local governments, and their costs of administration and taxpayer compliance are quite low.

## Growth of utility taxation in Illinois

Both state and municipal governments in Illinois tax the gross receipts of utility sales under selective excise taxes. The state tax applies to sales of natural gas, electricity, and intrastate messages. Local governments are allowed to tax these three utilities as well as water services. Together, state and local utility tax revenue amounted to \$959 million in fiscal 1983, two-thirds collected by the state government and one-third by municipal governments (Table 1). While one out of five Illinois cities taxes one or more utility services, the City of Chicago accounts for over three-fourths of all local utility tax revenues.

**The Illinois state utility tax** has been levied at a five percent rate since 1967. In fiscal 1984, the state government collected \$652 million

from the utility tax. Electricity receipts contributed 47 percent of that amount, while gas and telephone utilities contributed 33 percent and 20 percent respectively.

Since the late 1960s, state utility tax revenues have consistently grown faster than the rate of inflation. This is demonstrated by the increase in the index of constant dollar utility tax revenue relative to the 1968 level (Figure 1). Real state utility tax revenues increased by roughly five percent per year, on average, from 1968 to 1974, with gas, electricity and message revenues all growing at approximately the same rate. Total utility tax revenues continued this real growth rate from 1974 to 1983, but the growth of the individual components diverged. The constant dollar revenues from intrastate telephone services remained fairly stagnant, but the growth of real gas and electricity revenues accelerated following the dramatic increase in world energy prices.

The rapid growth in public utility tax revenues has increased the tax's importance to the state's revenue system. Utility tax revenues as a share of total state taxes grew from 5.0 percent in fiscal 1970 to 7.5 percent in fiscal 1984. Growth in the utility tax revenues exceeded the growth in the general sales tax, the other selective excise taxes, and the state income tax. The corporate income tax was the only major state tax to increase faster than the public utility tax since 1970, and its growth was partly attributable to the addition of the personal property tax replacement surcharge in 1979.

**Local utility taxes in Illinois.** Public utility taxes have also been an expanding source of revenue for local governments in Illinois since the early 1970s, generally outpacing local property and sales taxes. All municipalities, except Chicago, are limited to a maximum public utility tax rate of five percent on gross receipts from the sale of electric, natural gas,

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**Table 1**  
**Illinois state and local public utility tax revenues**  
**fiscal years 1970-1984**

Fiscal year	State revenue		Total local revenue		City of Chicago revenue	
	Million dollars	Percent of taxes	Million dollars	Percent of taxes	Million dollars	Percent of taxes
1970	144	5.0	n.a.	n.a.	55	14.5
1971	158	5.0	74	2.8	60	13.3
1972	175	5.2	82	2.7	66	13.6
1973	189	5.1	89	2.8	71	12.6
1974	209	5.1	95	2.5	75	13.5
1975	248	5.6	118	3.2	95	16.0
1976	277	5.8	143	3.7	111	17.9
1977	329	6.2	162	3.7	123	18.9
1978	372	6.4	183	4.0	141	21.1
1979	429	6.8	207	4.2	158	22.0
1980	470	6.6	229	4.3	175	23.8
1981	526	7.2	255	4.3	192	24.2
1982	595	8.0	295	4.7	222	25.4
1983	607	8.2	352	5.0	267	26.2
1984	652	7.5	n.a.	n.a.	285	24.1

SOURCES: City of Chicago, Illinois Department of Revenue, and U.S. Bureau of the Census.

water, and message services. Not all municipalities tax all utility services at the maximum rate. Many impose the tax at a lower rate, many do not tax all types of utility services, and some Illinois communities do not tax utility receipts at all.

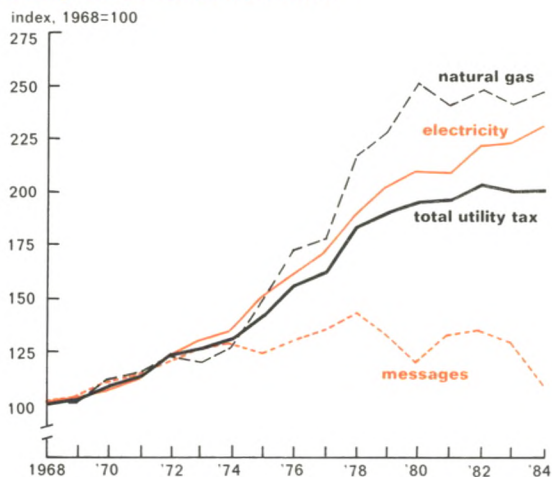
The City of Chicago effectively taxes electric, natural gas, and telephone receipts at an eight percent rate, although for electric and telephone services this rate is achieved through the combination of two separate taxes. One is a public utility tax that is similar to the state and other local utility taxes in that it is collected by the utilities from the customers. The other tax is a franchise tax on gross receipts that the utility pays directly to the city. Unlike the utility tax, the franchise tax does not appear on customer billings. There is no franchise tax on natural gas sales, but the city's utility tax covers natural gas receipts at an eight percent rate. This was increased from five percent in July 1981.

In fiscal 1983, Illinois municipalities raised a total of \$352 million from public utility taxes with the great bulk collected by the City of Chicago (Table 1). Local utility taxes grew from 2.8 percent of total local taxes in fiscal 1971 to 5.0 percent in fiscal 1983. As with the state utility tax, the growth in local public utility tax revenues was spurred by the energy

price increases in the 1970s and 1980s, though statutory tax rate increases also contributed.

In Chicago the importance of utility taxes to the city budget has grown tremendously. From fiscal 1970 to 1984, the utility tax share of total city tax revenues increased from 14.5 to 24.1 percent. Over the same period, the contribution of the city sales tax grew much

**Figure 1**  
**Constant dollar index of state utility tax revenue in Illinois**





more slowly, from 13.5 to 17.2 percent, and the contribution of the property tax fell from 59.0 to 34.5 percent.

### Interstate comparison of utility tax levels

Public utility taxes in Illinois have been controversial not only because of their rapid growth, but also because many contend that the Illinois utility taxes are very high relative to those in other states. Concern about the level of utility taxes in Illinois increased as utility prices rose, stimulating some support for proposals to lower the state's utility tax.<sup>1</sup> This section of the paper conducts a comprehensive comparison of utility receipts taxation across states and finds that Illinois does have one of the highest utility tax levels in the country.

Interstate comparison of public utility taxation is complicated because utility receipts are covered under different types of taxes across states. Many states levy a separate tax on public utilities as Illinois does, while others tax utility receipts under their general sales taxes. There are twenty-two states which cover utility receipts under both a sales tax and a separate utility excise tax. Furthermore, in many states public utility receipts are taxed at the local level under general sales taxes or selective util-

ity excise taxes. The economic effects of these different forms of utility taxation should be very similar. For this reason, our utility tax comparison includes all taxes which apply to public utility receipts or sales at the state and local levels.

There is also substantial variation across states in the type of utility service covered and the basis of taxation. Most often, utility taxes are imposed on utilities' gross receipts, but in a few states they apply to units of service sold, miles of line for transportation utilities, or miles of poles for telephone companies. To simplify our comparison of utility tax levels, we focus on the total revenues collected by such taxes in each state.<sup>2</sup>

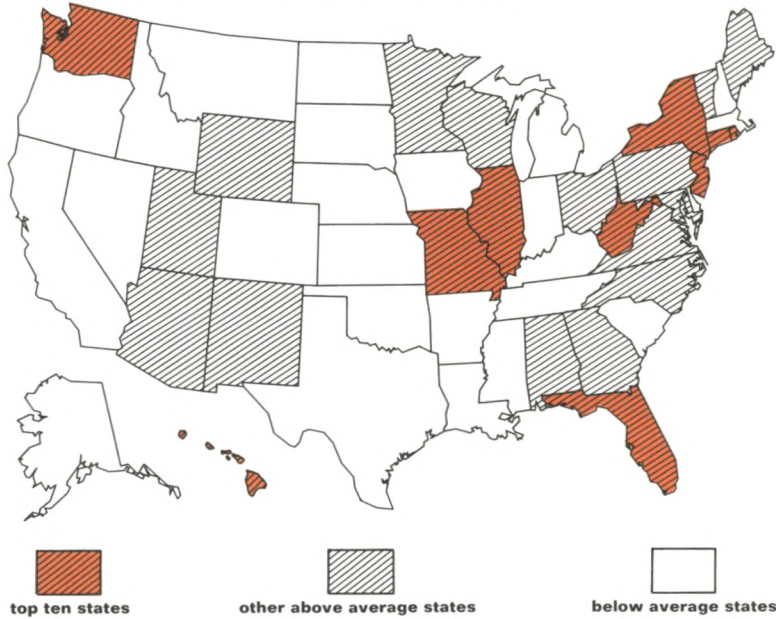
It is not enough to compare utility tax collections across states, however. The relative level of utility taxation in each state is best indicated by revenue measures that correct for differences in state size and taxable resources. Our interstate comparison is based on four such measures: the ratios of utility tax revenues to state general revenues, population, income, and total utility sales. The top ten states according to each measure in fiscal 1982 are shown in Table 2. Illinois ranks very high by each of these criteria.

**Table 2**  
Ten states with highest levels of public utility taxation according to four measures, fiscal year 1982

Revenues as a percent of state & local own source general revenue		Revenues per capita		Revenues per \$1,000 personal income		Revenues as a percent of standard base	
Florida	5.3%	New York	\$103.79	New York	\$9.05	New York	12.7%
New Jersey	5.2	New Jersey	89.51	West Virginia	7.82	New Jersey	9.2
<b>Illinois</b>	<b>5.1</b>	<b>Illinois</b>	<b>77.77</b>	New Jersey	7.40	Hawaii	8.3
West Virginia	5.0	Hawaii	75.85	Hawaii	6.87	West Virginia	8.18
Missouri	4.7	Florida	69.76	Florida	6.84	Florida	8.18
New York	4.6	Connecticut	69.51	<b>Illinois</b>	<b>6.70</b>	Washington	8.17
Alabama	4.3	West Virginia	65.71	Arizona	6.33	Connecticut	8.1
Connecticut	4.3	Arizona	61.77 <sup>1</sup>	Alabama	6.27	<b>Illinois</b>	<b>7.6<sup>1</sup></b>
Arizona	4.1	Rhode Island	56.46 <sup>1</sup>	Missouri	5.63 <sup>1</sup>	Rhode Island	7.5 <sup>1</sup>
Hawaii	4.0	Pennsylvania	55.53	Rhode Island	5.57 <sup>1</sup>	Missouri	6.9
50-state mean	2.5	50-state mean	38.57	50-state mean	3.82	50-state mean	4.5
std. dev.	1.5	std. dev.	22.99	std. dev.	2.12	std. dev.	2.7

<sup>1</sup> Rhode Island's tax revenues are understated because information on revenues from taxation of public utility receipts under the state sales tax was not available. This understatement is probably small because Rhode Island's state sales tax does not apply to residential or manufacturing purchases of public utility services.

Figure 2  
State and local utility tax effort by state -1982



The first measure indicates the importance of utility taxes to state and local governments by their contribution to state and local own source general revenue (column 1).<sup>3</sup> Illinois is third among states with 5.1 percent of all state and local tax revenues contributed by utility taxation. The two states which lead the list outrank Illinois only slightly. Utility tax revenues contributed 5.3 percent of state and local own source general revenue in Florida and 5.2 percent in New Jersey.

Measures of utility tax revenue per capita and per \$1000 of personal income (columns 2 and 3) are used to estimate the burden of utility taxation on state residents. Illinois utility taxes rank third in the country on a per capita basis and, because of high personal incomes in the state, sixth in utility tax revenue per \$1000 of personal income. These ratios suggest that utility tax burdens on Illinois taxpayers are higher than in most states, assuming the taxes are borne fully by state residents.

Finally, we measure tax collections relative to the expenditure on utility services in the state (column 4).<sup>4</sup> This measure reflects the degree to which each state employs the taxable base, utility consumption, as a tax source.

Comparisons using this “tax effort” or effective rate correct for the fact that utility consumption varies across states due to industry mix, climate, and proximity to energy sources. If utility taxes are largely passed forward to final customers, this measure estimates the extent to which the taxes raise utility prices.

Illinois ranks eighth in the nation according to this measure, with an effective tax rate of 7.6 percent compared to a 4.5 percent 50-state average. The fact that Illinois ranks a little lower according to the tax effort index suggests that its taxable base of utility sales slightly exceeds that of the other high utility tax states.

Figure 2 compares the utility tax effort levels of all 50 states. High utility taxes appear much more prevalent in the eastern half of the country. Of all the midwestern states, Illinois has the highest utility tax effort, though it is closely followed by Missouri.

The four tax level measures all indicate that the Illinois utility taxes are among the highest in the nation. Such high utility taxes might have adverse effects on business expansion and income distribution in the state. A further concern is whether the tax is a reliable



source of financing for government services through economic upturns and downturns. The following sections consider the implications of the Illinois public utility taxes for economic development, utility consumers, and state-local governments.

### Implications for economic development

The relatively high utility tax levels in Illinois may adversely affect economic growth in two ways. First, the tax may raise utility prices relative to other production inputs so that businesses will substitute other inputs for the taxed utilities. This use of resources will be less efficient because it is not based on prices that reflect the true scarcity of inputs. Second, if the tax raises industrial utility prices in Illinois relative to those in other states, it may discourage energy-intensive industries from locating or expanding in Illinois.

**Utility taxation and resource use.** The Illinois sales tax does not cover sales of intermediate goods used in production, including utility services.<sup>5</sup> However, the Illinois utility excise taxes cover both commercial and industrial sales. As a result, firm decisions concerning choice of input mix and production method are affected by the uneven tax coverage of inputs. To the extent that utility taxes raise the price of utilities relative to substitutes, production choices are based on prices that do not reflect the scarcity value of alternative inputs. The use of utility services is discouraged in favor of substitute inputs to production.

This effect may be partly offset by Illinois sales taxation of the closest substitutes to gas and electricity, such as fuel oil and coal. Illinois levies a sales tax on these products at an identical five percent rate so that production choices between alternative fuels are not necessarily distorted because taxes raise fuel prices proportionately. Local tax treatment of alternative fuels, however, is often more diverse because local sales taxes in Illinois seldom exceed one percent while municipal utility taxes are often higher.

The taxation of utility inputs to production also results in inordinate tax burdens on those goods, both final consumer and intermediate producer goods, that use utility services intensively in their production process. This leads to multiple taxation and the upward

skewing of prices of certain final goods. These goods are taxed once under the utility tax because final prices reflect embodied taxed utility services, and they are taxed once again by the retail sales tax. In the case of final consumer goods, utility-intensive product prices and the attendant consumer choices are thus distorted. Similarly, prices of utility-intensive intermediate goods in production reflect utility taxation so that firm choices among production methods are also affected.

**Utility taxes and investment.** An additional concern is that utility taxes may discourage industry from locating or expanding in Illinois by ultimately raising utility prices and total production costs in comparison to neighboring regions. Because utility costs account for a small share of production cost for most industries, wide utility price disparities across locations are necessary to generate significant regional differences in profitability and hence to affect location or investment decisions.

Total gas plus electric cost per dollar of value added in manufacturing provides one measure of the importance of utility costs to Illinois industry. As Table 3 shows, utility costs are not a large cost component for most Illinois manufacturers. In 1980, total manufacturing outlays on utility services amounted to only four percent of value added. Only one major Illinois industry, primary metals, consumed gas and electricity at far above the average for all manufacturers. Other industries reported outlays on utilities in the one to six percent range.

The extent to which Illinois utility taxes increase utility prices can be estimated by utility revenues as a percent of utility sales for all end uses (Table 2, column 4). This measure yields an average potential tax-induced price hike assuming that taxes are largely passed forward in utility prices. Here we find that, on average, state and local tax policies in Illinois tend to raise utility prices three percent above the 50-state mean and approximately seven to eight percent in relation to low tax states.<sup>6</sup>

For industrial prices specifically, these estimated price add-ons understate the potential price markup because many states exempt natural gas and electricity, along with other fuels, that are used directly in industrial production (Figure 3). Thirty states, including Illinois, tax industrial gas or electricity sales under a selective utility tax. Thirty states levy a sales tax



**Table 3**  
**Energy utility costs (natural gas plus electric)**  
**as a share of value-added in manufacturing**  
**for Illinois and U.S.—1980**

	Utility cost/ value added	
	U.S.	Illinois
	(percent)	
SIC 20 - Food and kindred products	3.9	4.4
SIC 21 - Tobacco manufacturers	1.1	—
SIC 22 - Textile mill products	5.9	—
SIC 23 - Apparel and other textile	1.4	1.5
SIC 24 - Lumber and wood prods.	3.5	—
SIC 25 - Furniture and fixtures	1.9	2.2
SIC 26 - Paper and allied prods.	9.0	4.7
SIC 27 - Printing and publishing	1.2	1.4
SIC 28 - Chemicals and allied prods.	9.5	5.2
SIC 29 - Petroleum and coal prods.	14.4	—
SIC 30 - Rubber, misc. plastics	4.8	5.8
SIC 31 - Leather and leather prods.	1.7	—
SIC 32 - Stone, clay, glass prods.	10.5	—
SIC 33 - Primary metals	14.4	15.5
SIC 34 - Fabricated metal prods.	2.8	3.2
SIC 35 - Machinery, except elec.	1.7	2.0
SIC 36 - Electric, Electronic equip.	1.9	2.0
SIC 37 - Transportation equip.	2.1	1.8
SIC 38 - Instruments, related prod.	1.2	1.8
SIC 39 - Misc. manu. prods.	1.7	1.9
All manufacturers	4.7	4.0

SOURCE: U.S. Department of Commerce, *Annual Survey of Manufacturers*, May 1984.

on gas or electricity sales; however, 19 of those either exempt or partially exempt industrial fuel use. Due to this widespread exemption practice, the U.S. average utility tax on industrial utility sales likely falls short of the 4.5 percent mean measured over all end uses reported in Table 2. Accordingly, the Illinois 7.6 percent markup from gross utility receipts taxation looms somewhat larger in comparison.

Industrial utility tax differences are particularly notable in relation to neighboring states. The state sales taxes in the nearby states of Iowa, Michigan, and Indiana cover utility sales but exempt gas and electricity used in industrial production. The Kentucky and Missouri sales taxes offer partial exemptions to one or more utility services (Figure 3). Utility price differences among neighboring states are expected to be important to business location choices because other factor costs, such as labor and transportation, often diverge less within the same general region.

These findings notwithstanding, utility taxes alone probably cannot cause price disparities large enough to significantly affect investment decisions in Illinois because utility

costs remain a lesser cost consideration in production. However, utility tax reform can contribute to a broader set of policies intended to maintain competitive utility prices in Illinois. Such policies could improve the state's business climate if utility prices greatly were to exceed those in neighboring states and regions.

Industrial gas and electricity prices in Illinois exceeded the national average and those in most neighboring states in 1981 (Table 4). Illinois natural gas prices compared more favorably than electricity prices to prices in neighboring states and the national average. Gas prices in some parts of Illinois, such as the Chicago area, benefit from regulated contract prices on older vintage natural gas wells under the Natural Gas Policy Act of 1978. However, as these particular reserves of natural gas are exhausted over time, Illinois natural gas prices may rise relative to prices in other states.

Electricity prices in Illinois were much greater than those in most neighboring states and the nation in 1981. This electricity price differential did not change significantly in the period from 1974 to 1981. However, the ambitious nuclear program in Illinois may widen these price differences further in the near future as the costs of completed nuclear power plants are passed along in customer billings. As of March, 1985, four nuclear power plants in Illinois remain under construction.

In summary, although utility prices in Illinois are not now critically out of line with other regions, utility prices, especially electricity, are higher than those in neighboring states, and they could increase further in coming years. Retrenchment of utility taxation on industrial and commercial use cannot, by itself, lower comparative utility prices to a degree that would significantly encourage economic development. However, if Illinois utility prices become uncompetitive in coming years, utility tax reform may grow increasingly attractive when packaged with other price containment policies.

### Implications for residential consumers

In addition to its potential impact on business development, the Illinois public utility tax may also influence the consumption patterns and welfare of residential utility customers. We find little indication that the utility tax does alter consumer behavior, but there is sub-



### Utility taxation in Seventh District states\*

	Gross receipts tax		Sales and use tax			Effective tax rate
	State	Local	State	Local	Major sales tax exemptions	
Illinois	5%	0-5%**	X	X	no sales tax coverage of utilities	7.6
Indiana	X	X	5%	X	gas and electricity used in industrial processing	2.3
Iowa	X	X	4%	X	gas and electricity used in industrial processing	2.4
Michigan	X	5%	4%	X	gas and electricity used in industrial processing	2.7
Wisconsin	rate varies	X	5%	X	gas and electricity for both residential and agricultural use from November to April.	5.7

\*Utilities taxes in all the Seventh District States cover natural gas, electricity, and intrastate message receipts. Some also include sales by water, steam, and car line companies.

\*\*The City of Chicago effectively taxes gross receipts at 8 percent.

X—means the tax does not apply to utility receipts.

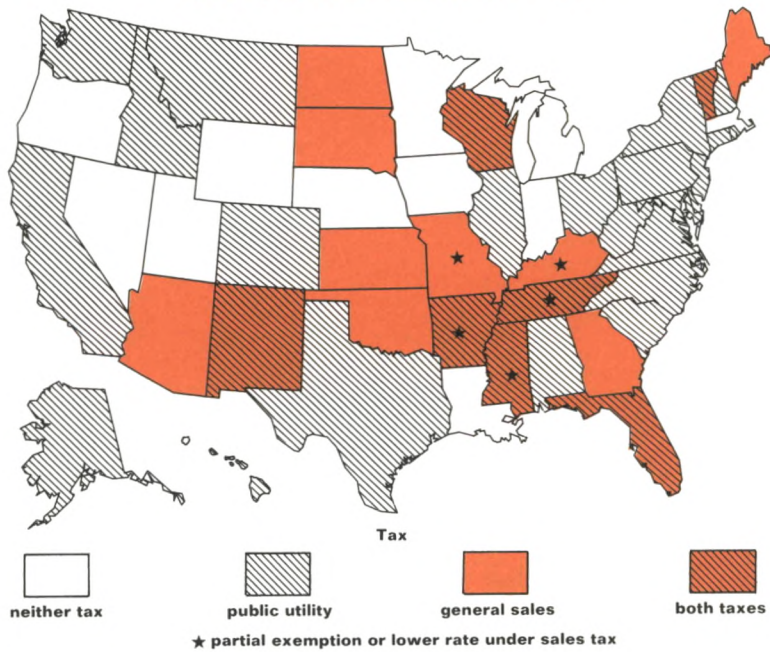
Utility taxation practices vary widely among Seventh District states. In Illinois, utility receipts are taxed at both the state and local levels. Taken together, these taxes cover the estimated utility tax base at a 7.6 percent rate, which exceeds the 4.5 percent for all states. In addition to the five percent state tax on gas, electricity, and intrastate messages, approximately 230 Illinois municipalities (18 percent) tax one or more utility services at rates up to five percent. The City of Chicago taxes utility receipts at an eight percent rate through a combination of business franchise and gross receipts taxes.

Wisconsin also taxes utility sales at an effective rate greater than the national average. This is accomplished through a combination of utility gross receipts taxation and state sales tax coverage of utility

services. Wisconsin is the only Seventh District state to target tax relief to residential consumers by exempting home utility sales from taxation during the cold weather season.

The states of Iowa, Indiana, and Michigan share similar utility tax levels and administrative practices. Their state-local tax effort, at approximately two and one-half percent of utility sales, falls below the national average. In practice, these states include utility services in their state sales taxes but exempt fuel used in industrial processing. At the local government level, the city of Detroit alone imposes a sales-type tax on utility services. This is achieved by a five percent levy on gross receipts which is earmarked for wage and salary disbursements to Detroit policemen.

Figure 3  
 State government taxation of utility services (gas or electric)  
 used by industrial customers - 1983



stantial evidence that the tax alters the distribution of income in the state by falling more heavily on low income households.

**Utility taxes and consumer prices.** Utility taxation can influence consumption behavior if it changes the relative prices of consumer goods and services. Therefore, the utility tax must be compared with other consumer taxes, particularly state and local sales taxes, which affect the prices of non-utility goods and services.

The State of Illinois imposes a sales tax of five percent on the purchase and use of tangible property. This sales tax base is narrower than in many other states because it excludes services and utility sales. The Illinois state public utility tax effectively broadens the base of consumer taxation at the state level by taxing *residential* utility sales at a five percent rate. Since the utility tax increases the number of consumer purchases taxed at five percent, it generally enhances the consumer price neutrality of the state tax system.

The neutrality of utility taxation at the state level is not always achieved at the local level in Illinois. Many municipalities impose utility tax rates that exceed or fall below the

local sales tax rate. The City of Chicago is an extreme example for it imposes an eight percent tax on utilities and a two percent tax on general retail sales. In the absence of other offsetting government policies, this can be expected to raise Chicago utility prices relative to other consumption goods.

**The equity of utility taxation.** A more serious concern about the Illinois utility taxes is that their burden may fall inordinately on low-income households. If low-income people spend a greater share of their income on utilities, the utility tax will take up a greater share of their income. Such a tax is called a regressive tax and is often considered inequitable because it redistributes income away from low-income people.

The Illinois state public utility tax does appear to be highly regressive. Because the utility tax is proportional to total utility expenditure, the equity of the tax can be inferred from the schedule of utility expenditure by income level. Figure 4 shows that in Illinois spending on natural gas and electricity as a share of household income declines dramatically as income rises. Households with the



**Table 4**  
**Average cost of natural gas and**  
**electricity delivered to manufacturers**  
**1974 to 1981**

	1974	1981	Ratio of Illinois price to other regions	
			1974	1981
<b>Natural gas (\$/mcf)</b>				
Illinois	.80	3.47	1.00	1.00
U.S.	.68	3.20	1.17	1.08
<b>Neighboring states</b>				
Indiana	.72	3.05	1.11	1.14
Iowa	.64	3.01	1.25	1.15
Kentucky	.70	3.26	1.14	1.06
Michigan	.92	3.62	.87	.96
Missouri	.65	3.32	1.23	1.05
Wisconsin	.80	3.84	1.00	.90
<b>Electricity (¢/kwh)</b>				
Illinois	1.6	4.6	1.00	1.00
U.S.	1.4	3.8	1.18	1.19
<b>Neighboring states</b>				
Indiana	1.2	3.5	1.36	1.30
Iowa	1.6	3.8	1.05	1.21
Kentucky	.9	3.2	1.77	1.42
Michigan	1.8	4.8	.91	.95
Missouri	1.4	3.5	1.13	1.31
Wisconsin	1.7	3.9	.96	1.18

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Annual Survey of Manufacturers 1974 and 1982 Census of Manufacturers*.

highest ten percent of income had a ratio of utility expenditure to income that was less than one-tenth the ratio for households with the lowest ten percent of income.

The utility expenditure rate declines very steeply at the beginning of the schedule, particularly over the first three income deciles. Over 25 percent of money income was spent on gas and electricity in those households in the lowest decile in 1979. The second income decile paid slightly less than 12 percent and the third decile paid less than eight percent of income on utilities.

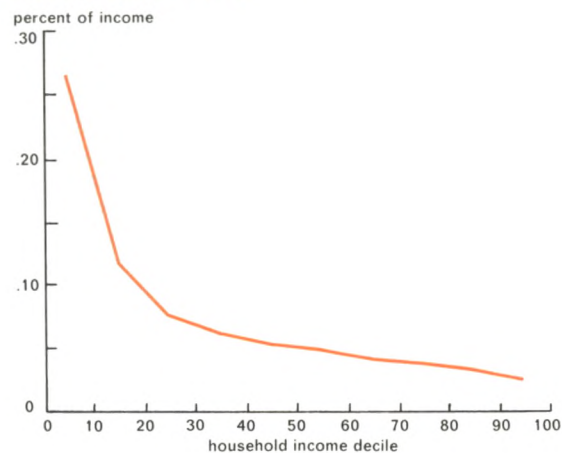
In addition, there is evidence that utility taxation has become more regressive since the early 1970s. This trend can be most easily demonstrated by the change in income elasticity of utility expenditures over time. The elasticity measure summarizes tax regressivity by computing the ratio of the percentage change in utility expenditure to the percentage change in income level. Since the utility tax is directly proportional to utility expenditures,

the income elasticity of the tax is identical to the elasticity measure for total utility expenditures. An elasticity estimate less than one indicates that the tax is regressive because the tax burden does not rise proportionately with income. An elasticity estimate greater than one suggests that the tax is progressive because it rises more rapidly than income.

We estimate the income elasticity of utility expenditure from data on consumer spending in the Central Census Region for 1972-73 to be 0.39.<sup>7</sup> This low elasticity measure reinforces our conclusion that the Illinois tax is highly regressive. By 1980-81, the region's income elasticity estimate had fallen to 0.17, indicating that utility taxation had grown even more regressive.

This increase in the regressivity of utility taxation appears to be due to the slower adjustment by low income households to the real increase in energy prices that occurred in the 1970s. The quadrupling of world oil prices, accompanied by rising prices of associated fuels, sparked a significant investment in weatherization improvements in the household sector. Construction methods were also modified to increase the efficiency of residential energy use. However, low-income households apparently did not keep up with the pace of improvement in energy efficiency. There is evidence that housing occupied by low-income families was weatherized less often during the

**Figure 4**  
**Percent of household income spent on**  
**gas and electricity in Illinois by**  
**income class - 1979**



1970s than the housing of high-income people.<sup>8</sup> As a result, utility consumption, and utility tax payments, as a percent of income, grew more rapidly for low-income households across the nation as energy prices rose. Thus, there is strong evidence that the portion of the Illinois utility tax that falls directly on residential customers is highly regressive and that its regressivity increased during the recent period of rapidly rising energy prices.

The equity of the utility tax that is levied directly on commercial and industrial utility customers is much more difficult to measure because it is not clear who actually pays the tax. The incidence of nonresidential utility taxes will depend on the income levels of the customers who ultimately pay the taxes through the prices of final goods and services. While the actual tax incidence is very difficult to measure, the nonresidential component of the utility tax is most likely less regressive than the residential component because household utility services are more concentrated in low income budgets than are general household expenditures.<sup>9</sup>

**Residential exemptions.** Since the late 1970s, many state governments have sought to reduce the regressivity of utility taxation by specifically exempting household consumption from the tax base. In the vast majority of cases, these exemptions have applied to sales taxes rather than selective utility excise taxes such as the Illinois utility tax. In a few states, residential utility sales are still taxed at the local level even though they have been exempted under the state sales tax.

Of the 47 states which have sales taxes 31 cover some or all utilities and 30 of these cover gas or electricity. Seventeen of these 30 states provide some type of exemption for utility services, primarily gas or electricity purchased by residential users (Figure 5). Delaware is the only state that exempts residential utility sales under a selective utility excise tax.

The exemption of residential utility sales has clearly accelerated during the past decade of rising fuel prices. Virtually all of these exemptions have been enacted since 1974, many within the past five years, in attempts to soften the consumer burden of rising energy prices.

Illinois has not participated in the recent movement toward residential exemption, and as a result low income households in the state

clearly bear an inordinate share of the rising utility tax burden. Relatively high utility taxes in Illinois, and particularly in Chicago, intensify concerns over the fairness of this tax. As most economic analysts believe that income redistribution programs are best handled at the federal level, it is questionable whether state-local tax structure design should be dominated by equity concerns. However, if state legislators perceive that the federal government is not accounting for the detrimental effect of rising energy prices on the poor, state-local utility tax reform is an alternative policy course.

### **Implications for government**

Finally, the advantages and disadvantages of the rapidly growing Illinois utility tax should be considered from the point of view of state and local government administration. From this perspective the tax scores fairly well. The cost to governments of administering the tax and the cost to taxpayers of complying with it are low. In addition, utility taxes are a reasonably reliable revenue source, for they display only a moderate level of sensitivity to the business cycle.

### **Administration and compliance costs.**

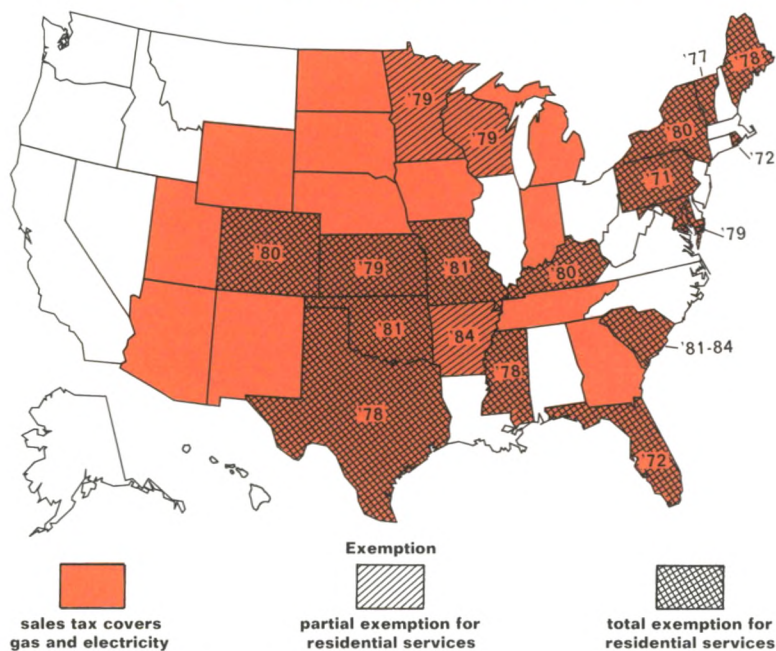
The cost of collecting the utility tax is low because the number of collection points, the public utility companies in the state, is very small. Moreover, the extensive recordkeeping required of regulated utilities facilitates the auditing of revenues for tax purposes. There are no extra costs of tax compliance on the taxpayers' side because utility customers usually pay the taxes along with their utility bills.

Local sales taxes on utility services are usually administered and collected by the state along with the state sales tax where the local sales tax base includes utilities. This practice lowers the cost of tax administration because it requires little duplication of facilities.

**Utility taxes and fiscal stability.** Another major consideration for state and local governments is the stability of tax revenues with respect to changing economic conditions, particularly swings in national economic activity. Extreme tax revenue volatility can be costly. Many state governments borrow to finance long-run capital expenditures and to meet very short-term deficits. Borrowing to



Figure 5  
**State sales tax exemption of residential  
 gas and electricity by year of enactment**



meet unexpected shortfalls in revenues from cyclically sensitive taxes raises costs to state governments, especially during periods of high interest rates. And insofar as most state governments are prohibited from running operating deficits beyond their fiscal years, revenue shortfalls during periods of recession often prompt legislatures to enact new taxes or program cutbacks in a haphazard manner. Tax and spending changes designed in haste may include poorly conceived features that are not always revised during the subsequent economic recoveries.

Assuming that interactions between the stability of various taxes are negligible, the Illinois utility tax's contribution to the cyclical sensitivity of the tax system can be assessed by comparing the stability of the utility tax to that of other major taxes. Our analysis focuses on the state utility tax, but we expect the behavior of local utility taxes in Illinois to be very similar. We find that the three components of the Illinois state utility tax contribute very different amounts of business cycle sensitivity to state tax revenues. However, the cyclical behavior of combined total utility tax revenues does not sharply differ from that of other major state

taxes so that broad-based utility tax abatement would not radically change the stability of the Illinois tax system.

In order to estimate the cyclical sensitivity of the utility tax, we must hold the influence of many noncyclical factors constant. The weather is the strongest noncyclical influence on utility tax revenues. Changes in the tax rate or base can produce dramatic shifts in tax revenues. Movements in relative utility prices also have a powerful independent effect on the growth in real utility tax revenues.

We estimate the stability of the utility tax by regressing quarterly real tax receipts on quarterly real income in Illinois and on the aforementioned noncyclical factors which are thought to affect tax revenue variation.<sup>10</sup> The stability of the tax, or its elasticity, is indicated by the coefficient on the real income variable. Since the regressions are specified in logarithmic form, the income coefficient measures the percent change in real tax revenues in response to a one percent change in economic activity.

Separate equations for electricity, natural gas, and message tax revenues are specified to provide an understanding of the behavior of the three components of the utility tax. These

equations are first estimated using quarterly data from the third quarter of 1962 through the second quarter of 1983. The results are compared to the estimates of a similar equation for the state sales tax. The four equations are re-estimated over a shorter sample beginning in the fourth quarter of 1969 so as to allow comparison with the state individual income tax which was enacted in 1969.

Stability estimates from the full sample indicate that the elasticity of real tax revenues with respect to real income is very different for the three components of the utility tax (Table 5). Real electricity revenues have a high real income elasticity of 2.38. Message revenues appear to be very stable with a real income elasticity of 0.65. The natural gas elasticity of 1.22 indicates that revenues from this portion of the public utility tax are moderately sensitive to economic conditions. The sales tax revenues also display a moderately sensitive elasticity estimate of 1.30.

The cyclical sensitivity of the total public utility tax is estimated by averaging the real income elasticities of the three components weighted by each component's average share of total utility tax revenue. This weighted average utility tax elasticity is 1.59, which exceeds the estimated sales tax elasticity. However, the difference is not large enough to suggest that the overall utility tax is much less stable than the sales tax. The fact that both elasticities are greater than one suggests that the public utility tax and the sales tax are fairly sensitive to cyclical changes in the state's economy.

The regressions estimated over the shorter sample period have fairly similar results. The major difference is that the real income elasticity estimated for gas tax revenues is very low (0.48) and statistically insignificant. This may be because the period of natural gas shortage in the 1970s makes up a substantial portion of the shorter sample. When gas consumption is limited by supply, the effect of income on consumption is not likely to be very strong. Therefore, it is not surprising that the income elasticity estimate for gas is low and insignificant in the shorter period.

The other income elasticity estimates differ somewhat from the estimates in the full sample, although their ranking remains the same. The low income elasticity for natural gas pulls the weighted average elasticity for the total public utility tax down to 1.14 in the shorter sample. This is lower than the estimated real income elasticities of 1.53 and 1.68 for the sales and individual income taxes. However, because the weighted average elasticity for the total utility tax may be unusually low over this period, we do not reverse our conclusion from the full sample that the cyclical sensitivity of the utility tax is fairly similar to that of the sales tax. The fact that the income elasticities of the income tax and the sales tax are close suggests that, under normal market conditions, the stability levels of the utility tax and the income tax may also be similar.

The public utility, sales, and individual income taxes each contribute a moderate

**Table 5**  
Cyclical stability of Illinois state tax revenues<sup>1</sup>

	1962 Q3 -1983 Q2		1969 Q4 - 1983 Q2	
	Real income elasticity	95% confidence interval	Real income elasticity	95% confidence interval
Public Utility Tax				
Electricity	2.38	1.95 to 2.81	1.92	1.53 to 2.31
Natural Gas	1.22	.19 to 2.25	.48	-.96 to 1.92
Messages	.65	.36 to .94	.53	.14 to .92
Sales Tax	1.30	1.16 to 1.44	1.53	1.24 to 1.82
Individual Income Tax			1.68	.95 to 2.41

<sup>1</sup> Cyclical stability is estimated by the partial elasticity of real tax revenues with respect to real income. For complete regression estimates see Diane F. Siegel and William A. Testa, "Taxation of Public Utility Sales in Illinois" (Regional Working Paper, Federal Reserve Bank, Chicago, 1985).



amount of instability to the Illinois state tax system. Their behavior is not different enough to suggest that altering the relative levels of the three taxes would radically change the overall sensitivity of the state's real tax receipts. However, the three components of the utility tax do react very differently to cyclical changes in the state's economy. Thus, any restructuring of the utility tax could alter the stability of total utility tax revenues.

## Conclusion

Given the offsetting advantages and disadvantages of the Illinois utility taxes, outright elimination or comprehensive reduction of utility tax rates is an undesirable path of reform. Utility taxes are an attractive revenue source for state and local governments because the costs of administration and taxpayer compliance are very low. Furthermore, the cyclical sensitivity of state utility tax revenues is not substantially different from that of revenues from other major state taxes. High utility taxes in Illinois may be detrimental to the state's business climate because of their contribution to the relatively high utility costs in the state. However, as yet, utility prices do not appear to be critically higher than other regions and utility taxes contribute only a modest amount to total utility price. The case for lowering the utility tax on industrial and commercial use is thus not overwhelming, although such a policy is an option for state lawmakers if the utility price disadvantage in Illinois grows larger.

The policy trade-offs concerning the utility tax on residential sales are much sharper. The tax is very burdensome to low-income households, and it has grown more so over the past decade of rising energy prices. Yet, the tax is distributed more in proportion to income for middle and upper income consumers and it has a fairly neutral influence on overall consumer purchase decisions. For this reason, policymakers should consider those reforms that target tax relief to the lower end of the income distribution where utility taxes are the most regressive.

attracted the most support were a proposal to cut the state utility tax rate in half (an amendment to H.B. 1736) and another proposal, sponsored by Rep. Tom Homer (D., Canton), to levy the tax on units of utility consumption rather than gross utility receipts (H.B. 2442). An advisory referendum in support of the bill to halve the tax rate passed in 75 communities in the March 1984 primary. That bill was later changed to support a consumption-based tax at slightly lower rates than proposed by H.B. 2442. Neither bill made it out of committee during the 1984 legislative session.

In 1985, the Homer bill was introduced as H.B. 18 in the House and S.B. 334 in the Senate. The House Revenue Committee passed an amended version of the bill. The amendments raised the rate slightly; removed payments for services rendered, including minimum service charges, from the definition of gross receipts; and required that each customer be taxed at the lower of the consumption-based rate and the five percent rate. An amendment to S.B. 334 replaced the Homer proposal with a requirement that utility receipts be taxed at a rate set each year to insure that projected tax receipts equal the revenue collected in fiscal 1985. At the time this article went to press, H.B. 18 had passed in the House and S.B. 334 had passed in the Senate.

<sup>2</sup> State and local public utility tax revenue data were obtained from the Bureau of the Census. State sales tax revenues from public utilities were collected directly from the state revenue departments. Data on local sales tax revenues from public utilities are not available from the Bureau of the Census or from state revenue departments, so they were estimated from information on state sales taxes.

<sup>3</sup> Own source general revenue is the revenue raised directly by the government through taxes and user fees.

<sup>4</sup> The standard base measure used is the sum of total revenues from sales of electricity, natural gas, and telephone services. The telephone revenues are estimates of sales of *local* telephone services in each state. This method understates the telephone tax base for those states that tax intrastate long distance calls or interstate messages.

<sup>5</sup> Along with most other states, Illinois exempts sales for resale along with tangible personal property that becomes a constituent part of another product under its state sales tax. In recent years, the sales tax has become more consumption-oriented by exempting manufacturing machinery and equipment along with farm machinery and equipment exceeding \$1000 in value.

<sup>6</sup> Public utilities and other firms pay a wide range of state-local taxes including property, corporate income, unemployment insurance, and other taxes.

<sup>1</sup> In 1984, several bills were introduced into the Illinois General Assembly which would lower the state public utility tax in some way. The two that

While favorable tax administration on these tax bases may tend to offset high gross receipts taxation in Illinois, evidence to date suggests that public utilities in Illinois pay above-average taxes in other guises as well. See Donald J. Reeb and Eliot T. Howe, "State Taxation of the Public Utilities Industry: The Need For A Theory", *Proceedings*, National Tax Association—Tax Institute of America, 1983, pps. 72-75.

<sup>7</sup> This analysis is based on summary data from the Bureau of Labor Statistics, Consumer Expenditure Survey, which precluded state-specific estimation. The relation generally holds true for other Census regions. For a complete description see Diane F. Siegel and William A. Testa, "Taxation of Public Utility Sales in Illinois" (Regional Working Paper, Federal Reserve Bank of Chicago, 1985).

<sup>8</sup> Raymond J. Struyk, "Home Energy Cost and the Housing of the Poor and the Elderly," in Anthony Downs and Katherine L. Bradbury, eds., *Energy Costs, Urban Development and Housing* (The Brookings Institution, 1984).

<sup>9</sup> Some studies have indicated that high income households consume a greater share of those items that embody high energy usage in their production process. These findings imply that a tax on household utility fuels alone falls more heavily on low-income households than broad-based energy taxes. For example see R.A. Herendeen, "Affluence and Energy Demand", *Mechanical Engineering*, October, 1974, pps. 18-22.

<sup>10</sup> A complete description of the tax revenue regression equations is given in Diane F. Siegel and William A. Testa, *ibid.*



## Foreign deregulation, agricultural credit problems highlight bank conference

The financial services industry has been changing rapidly, and over the last year or so, marketplace events have accelerated change. Some of these events, such as the flood of applications for nonbank banks and the increase in interstate banking legislation at the state level have pushed the industry toward greater deregulation.

But several crises over the past year have provoked calls for re-regulation—or even more regulation. Continental Illinois in Chicago and Financial Corporation of America in California ran into liquidity problems. The number of banks in trouble because of agricultural loans has more than doubled since 1983. And the collapse of several government securities firms compounded the problems of the thrift industry, and called into question the viability of deposit insurance that is not backed by the federal government.

Issues raised by financial deregulation and by the crises of the past year were addressed at the twenty-first annual Conference on Bank Structure and Competition, held in Chicago at the Westin Hotel from May 1st to the 3rd. The conference, sponsored by the Federal Reserve Bank of Chicago, assembles a unique audience of bankers and other practitioners from the financial services industry together with regulators and research economists. This year's conference was attended by more than 300 participants who discussed issues concerning deregulation, safety and soundness regulation, the problems of agricultural banks, and deposit insurance.

### Financial deregulation

Although the United States has been traveling on a deregulatory path, it is still uncertain which direction to take concerning some areas that have not yet been deregulated. The experiences of other countries may shed some light on the proper course for the United States. At this year's Bank Structure Conference, the deregulation experiences of a number of countries were explored. These countries include Japan, New Zealand, Australia, Canada, and the United Kingdom.

Herbert L. Baer, economist at the Federal Reserve Bank of Chicago, gave an overview of the financial structures in other countries. He pointed out that individual countries differ in their treatment of barriers to entry, geographic and product line restrictions, interest rate ceilings, and the mix of bank financing and financing from the money and capital markets.

According to research conducted by Mr. Baer and Larry Mote, a vice president at the Federal Reserve Bank of Chicago, most countries have restrictions on the financial activities of nonbank financial institutions, but the differences among countries in their treatment of banks and nonbanks are substantial. Product line restrictions also vary. Securities activities are permitted in most countries, but underwriting and brokerage are prohibited in Japan, while there are no such restrictions in the United Kingdom and Germany. Equity participations are also allowed in most countries, but they are usually limited.

Although countries' financial structures do differ, these differences can be isolated to some extent. The effects of regulation, therefore, can be measured through systematic intercountry comparisons of structure and performance. According to Baer, comparative banking studies provide "information on the effects of banking structure and regulation that is not available from studies based on purely domestic data." Comparative studies can help determine whether regulation merely alters financial structure or whether it also alters financial performance.

Most of the panelists tried to explain why deregulation occurred in the countries they studied. Thomas F. Cargill, professor of economics at the University of Nevada, said that Japan's "financial liberalization" occurred because Japan's former system, which was highly restrictive, no longer met the needs of economic growth for the future. Similarly, New Zealand's and Australia's highly controlled financial systems hindered economic growth.

In the United Kingdom and in Canada, deregulation has been market driven. John F. Chant, professor of economics at Simon Fraser University in British Columbia, reported that,



in Canada, the prospect of bank failures was becoming a reality and product line restrictions were becoming blurred as holding companies emerged that engaged in commercial lending as well as trust, securities, and insurance activities. Also in Canada, provincial regulations began to conflict with federal regulations as the province of Quebec, like Delaware and South Dakota in the United States, undertook its own financial deregulation. In the United Kingdom, according to Mervyn K. Lewis, professor of money and banking at the University of Nottingham in England, government controls were distorting the financial services industry and banks were losing business to nonbank institutions.

Deregulation in these five countries depended on the specific circumstances in each country. In general, however, deregulation included the relaxation or elimination of interest rate ceilings and product line restrictions. Most foreign countries have nationwide banking; therefore, the decontrol of geographic restrictions generally took the form of allowing foreign bank entry.

Drawing lessons for the United States from foreign experiences was not easy for the panelists. Andrew Carron, vice president at Shearson Lehman Mortgage Securities, did, however, discuss the lessons of financial reform in Australia and New Zealand. Carron noted that decontrol can be accomplished quickly, and partial deregulation—i.e., deregulation of some institutions while still restricting others—does not work because it only causes imbalances elsewhere in the system. Also, mergers and acquisitions among financial institutions are to be expected, and concerns over the safety and soundness and the survival of nonbank institutions may arise.

In New Zealand and Australia, the success of some nonbank financial services firms hinged on the restrictions placed on banks. When these restrictions were lifted, “re-intermediation” occurred; funds flowed from the nonbanks back to the banks. Money market mutual funds may provide an example of re-intermediation in the United States. To the extent that some nonbank financial services firms in the United States developed to fill a void left by regulation, deregulation may jeopardize the survival of some firms.

## Safety and soundness

Safety and soundness regulation was the topic of a “gripe” session that included representatives from the commercial banking sector, the S&L industry, and regulatory authorities. Barry Sullivan, chairman and CEO of First Chicago Corporation, discussed dual standards in capital adequacy between banks and bank holding companies, domestic banks and foreign banks, and banks and nonbanks. Sullivan argued that, because foreign banks and nonbanks generally have lower capital requirements than domestic banks, domestic banks operate at a competitive disadvantage, which might cause them to incur increasingly more credit risk.

One group of nonbank financial institutions that supposedly have a competitive advantage over banks in several respects are the savings and loan associations (S&Ls). Joseph C. Scully, president and CEO of St. Paul Federal Bank for Savings in Chicago challenged this assertion, noting that there has not been a rush by banks to convert to thrift charters.

Scully also argued that S&Ls are not, in effect, turning into commercial banks. S&Ls are sticking to mortgage lending. “Home mortgages are about as safe an investment as you can make,” said Scully. S&Ls have not greatly expanded into commercial lending because they have no expertise in this area. Also, Scully reported that in moving into other product lines, such as real estate brokerage and insurance, S&Ls, in general, have not met with much success: “More [S&Ls] have lost money than made money in such service corporation ventures.”

Both Scully and Sullivan agreed that banks and S&Ls are two very different types of financial institutions and should therefore be regulated differently. And Sullivan, who is also a director of the Federal Reserve Bank of Chicago, noted that the rapidly changing financial services environment makes keeping pace with the contradictions and discrimination in the regulatory system a difficult task.

Thomas H. Huston, superintendent of banking for the state of Iowa, illustrated this point as he relayed the problems that his department faces in supervising banks in Iowa. Because of the poor condition of agriculture and the high concentration of agricultural lending among banks in Iowa, many banks in



that state are experiencing difficulties. As a result, Huston and his staff are now faced with valuing assets such as farm and nonfarm real estate and farm equipment for which there are no well-defined markets, and hence no unambiguous value.

### **Problems of agricultural banks**

Problems facing agricultural lenders was the topic of another session at the 1985 Bank Structure Conference. Gary Benjamin, vice president and economic adviser at the Federal Reserve Bank of Chicago, outlined the situation facing farmers and their lenders. Citing a study by the U.S. Department of Agriculture, Benjamin said that one out of every six farmers are "financially vulnerable." Financially vulnerable is defined as insolvent or so highly leveraged that insolvency is imminent if present conditions persist for another one to five years. These farmers account for over half of all farm debt outstanding, and banks hold over 20 percent of this debt.

George D. Irwin, associate deputy governor and chief economist for the Farm Credit Administration, elaborated on the problems facing those institutions that lend to the farm community. Among the problems, according to Irwin, are the concentration of problem loans and the lack of diversification among agricultural lenders and the illiquidity of the system. As Gary Benjamin and other panelists pointed out, the restructuring and liquidation of farm assets are necessary, but markets for such assets are not big enough to handle such huge transfers.

Restructuring asset ownership is only one of four necessary adjustments to attain a healthy financial farm system, according to Michael Boehlje, professor of economics and assistant dean of the College of Agriculture at Iowa State University. The other three adjustments that are necessary, said Boehlje, are the elimination of excess farm capacity, lower land and other input prices, and lower farmer debt load.

Boehlje reviewed the policy options to achieve such adjustments. He opposes increases in price and income supports because they do not address the problems of farmers under financial stress, and he opposes a debt moratorium, which halts the adjustment process and disrupts the financial system. Boehlje

advocated asset restructuring by allowing lenders to hold farm assets on their books in the case of default and by recapitalization through debt-to-equity conversions.

C. Robert Brenton, President of Brenton Banks in Iowa, also suggested a few measures to improve the current situation of farmers and agricultural banks. Brenton advocated the freezing of price supports, equity financing by banks, and diversification into such activities as real estate and insurance.

James R. Morrison, senior vice president at the Federal Reserve Bank of Chicago, characterized the economic environment in the farm sector as poor, but he said "the outlook is not bleak." Citing the "strong capital base prevailing at most agricultural banks," Morrison said that such banks could withstand the impact of poor earnings performance. He also said, "This capital position together with a low level of dependence on uninsured funding suggest that liquidity crises will not be a major problem" for agricultural banks.

### **Deposit insurance**

Liquidity has been a problem lately for some financial institutions. Prior to 1933, runs posed very serious threats to the macroeconomy. In 1933, the U.S. government adopted a system of federal deposit insurance to alleviate such problems. However, this flat-rate deposit insurance system does not discourage and may even encourage bank risk taking.

One often cited solution to this problem is private deposit insurance. At this year's Bank Structure Conference, a panel was assembled to discuss the viability of private deposit insurance as an alternative to federal deposit insurance.

Two of the panelists representing the insurance industry said that private deposit insurance written by conventional property and casualty companies is not feasible, at least not at this time. Russell VanHooser, senior vice president at MGIC Investment Corporation, said "substantial regulatory and economic conflicts and obstacles must be resolved before [private deposit insurance] can be a viable alternative to government insurance." Roger E. Lumppp II, vice president at CNA Insurance Corporation, felt that both the banking industry and the insurance industry, especially the property and casualty insurance industry, were

in “turmoil;” therefore, private insurance could not possibly insure the deposits of the banking and savings and loan industries at this time. Lumppp said that if private insurers were to insure these deposits, the premiums for comparable coverage would be staggering—perhaps 20 to 50 times the present federal deposit insurance premiums.

Two other panelists disagreed with the insurance industry representatives. They believe that private deposit insurance is a viable alternative to federal deposit insurance.

Bert Ely, a corporate financial consultant with Ely & Company, described a self insurance system in which each depository institution’s deposits would be guaranteed by other depository institutions. Under Ely’s “cross-guarantee” system, four parties would be involved: the depository institution to be guaranteed; the guarantors, which are composed of other depository institutions; an agent, or middle man, who organizes and administers the syndicate of guarantors; and the Federal Reserve System. The Fed would act as lender of last resort to guard against potential bank runs.

Catherine England, senior policy analyst at the Cato Institute, also advocated private deposit insurance. She, however, did not propose a self insurance scheme, but rather a system whereby the amount of deposit coverage would be inversely related to the amount of regulation to which the depository institution is subjected. An institution, for example, that

only insures 50 percent of its deposits would be more restricted in its activities than an institution that insured 80 percent of its deposits. Under this system, said England, each consumer would deposit his funds in an institution which offers the deposit protection that he desires; thus, this system would allow the market to determine the proper mix of deposit insurance and regulation.

### **Other BSC topics**

Other topics at this year’s Bank Structure Conference included issues concerning bank failures, financial disclosure, and risk management in banking. Papers presented on this last topic included a discussion of the use of interest rate futures by commercial banks and a discussion of off-balance-sheet behavior of Seventh District banks presented by Gary D. Koppenhaver, an economist at the Chicago Fed.

Silas Keehn, President of the Federal Reserve Bank of Chicago, in his opening speech to the Conference, remarked that “a more relevant set of topics could not have been chosen, given the issues confronting us at this time.” The record attendance at the Conference, hosted by Harvey Rosenblum, vice president and associate director of research at the Chicago Fed, was ample evidence of the Conference’s relevance and timeliness.

—Christine Pavel



## Metro metrics

Diana Fortier

The 1984 edition of an influential survey by *Sales and Marketing Management* ranked St. Louis, Mo., 20th in the nation in buying power. Today St. Louis would rank tenth. Such an astonishing jump should be classed as an economic miracle—especially for an aging midwestern city like St. Louis. But St. Louis' sudden rise actually was accomplished by an Act of Congress, when Senator John C. Danforth, (R., Mo.) attached an amendment to an omnibus spending bill to change the census designation of St. Louis from Primary Metropolitan Statistical Area (PMSA) to Metropolitan Statistical Area (MSA). With the stroke of a pen, the city regained its suburbs and satellite cities and its national ranking. It was a triumph of metropolitan statistical facts of life over the misplaced municipal pride that had led St. Louis to ask to be counted alone in 1983.

Most urban Americans will identify themselves to strangers by their city—as a Bostonian or a Chicagoan—with no further precision. It means little to others whether you come from a central city, Chicago, say, or Hoffman Estates, miles north and west of the Loop. Among themselves, Bostonians and Chicagoans may be more precise. They may name their neighborhood, or their suburban community. They will retain community allegiances and rivalries but they will also have a metropolitan pride. Their real estate taxes, schools, and zoning laws are likely to be local. Their weather and traffic reports and professional sports scores are metropolitan. So are their transportation networks and their business and commercial lives.

But while these Americans acknowledge their membership in “Chicagoland,” or the “Quad Cities,” or “Greater St. Louis,” they would be hard-pressed to define these metropolitan notions exactly. They might be surprised to learn that a detailed system for defining metropolitan areas has existed since 1910. The system has undergone numerous changes over the years and its use by government and business planners often means economic benefits for the communities involved.

A major revision in the system occurred in 1983. Old designations—the Standard Metropolitan Statistical Area (SMSA) and the Standard Consolidated Statistical Area (SCSA) were dropped. Replacing them were the MSA, the PMSA, and a new category, the Consolidated Metropolitan Statistical Area (CMSA).

It was during this overhaul that St. Louis came to statistical grief. By choosing to become a PMSA, it fell from 10th to 20th in marketing power nationwide. Senator Danforth's economic miracle was simply a restoration of the status quo ante, with a new acronym.

A similar action by Senator Robert Dole (R., Ka.) reunited the Kansas City, MO, and Kansas City, KA, PMSAs, ranking 49th and 84th among metropolitan areas, into a single MSA that stood 28th in the *Sales and Marketing Management* survey. The improved statistical rankings represent increased attractiveness in terms of sales, marketing, business relocations, and investments, which translate into economic development, jobs, and revenue.

The metropolitan statistical area designation itself is an application criterion for certain government regulations (e.g., the Federal Reserve Board's Regulation L, which controls management interlocks among depository organizations, and the Home Mortgage Disclosure Act and the Fed's Regulation C, which require loan-related data for depository organizations in metropolitan areas) and an eligibility criterion for federal aid in social and economic programs (e.g., HUD Community Block Grants). Indeed the association between metropolitan area status, federal funds, and potential economic growth was the driving force behind the Benton Harbor, Mich., push to alter the central city criteria for twin cities in defining metropolitan statistical areas.<sup>1</sup>

Pressures by cities to gain possible monetary benefits and the perceived prestige associated with metropolitan status, along with more general social, demographic, economic, and political forces, have been the impetus behind changes in the function and definition of met-

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ropolitan areas. It is important to understand these changes and their impact on metropolitan areas, not only in their definition, but more important, in their characteristics. MSA classifications and redefinitions are much more than a numbers game. The metropolitan statistical area designation was developed to provide a consistent uniform standard intended primarily for statistical purposes and the presentation of census data. The factors contributing to the designation of metropolitan areas, such as their population growth, employment/residence ratios, and commuting patterns reflect underlying structural, social, and economic characteristics of an area. The correct interpretation of such data reflecting changes in MSA designations is essential to appropriate public policy and business decisions. Endless volumes of data are gathered by the government and the private sector to track the social and economic well-being of our metropolitan (and nonmetropolitan) areas. The significance of metropolitan areas and their rankings is apparent by the fact that in 1980 74.8 percent of the nation's 226.5 million people lived in metropolitan areas. (See Table 1 for a list of major District MSAs.)

The purpose of this article is to provide an understanding of metropolitan areas and their characteristics. First, it explains the numerous acronyms and terminology of metropolitan areas, and then the effect of the 1983 metropolitan redefinitions on the metropolitan areas of the states comprising the Seventh Federal Reserve District: Illinois, Indiana, Iowa, Michigan and Wisconsin. Finally, it looks at the effect of the redefinitions on the administration of government regulations and social and economic programs.

### Metropolitan areas: Component parts

Prior to any description or analysis of metropolitan areas, it is imperative to clarify the terminology and acronyms which refer to the geographic components and characteristics of these areas. In general, a metropolitan area consists of one or more counties (or county equivalents) which have a significant degree of social and economic integration.<sup>2</sup> Each metropolitan area must have a large population nucleus and have at least one central city.

The preliminary population criterion for the population nucleus is a city (central city)

**Table 1**  
**Seventh District MSAs in the Top 50\***

Rank	Area	Population	
		1983 (thousands)	Percentage change 1980-83 (%)
3	Chicago, IL (PMSA)	6,028.5	-0.5
5	Detroit, MI (PMSA)	4,346.9	-3.1
10	St. Louis, MO-IL (MSA)**	2,375.8	0
29	Cincinnati, OH-KY-IN (PMSA)**	1,395.0	-0.5
31	Milwaukee, WI (PMSA)	1,389.2	-0.6
37	Indianapolis, IN (MSA)	1,180.4	1.2
46	Louisville, KY-IN (MSA)**	964.7	.9

\*Rank is among the nation's MSAs and PMSAs. Population data are estimates as of December 31, 1983. Percentage changes are from census data 1980 to December 31, 1983.

\*\*Partially within the Seventh District.

SOURCE: 1985 Rand McNally Commercial Atlas and Marketing Guide, 116th Edition, Rand McNally & Co., Chicago.

of at least 50,000 people or an urbanized area (UA) with the same population and a total metropolitan area population of at least 100,000.<sup>3</sup> Central cities of a qualifying metropolitan area are determined based on the city's total population, total number of workers and percentage of employed residents working in the city.<sup>4</sup> An urbanized area (UA) has at least one incorporated city, and a population concentration of at least 50,000 with a density of at least 1,000 persons per square mile. The UA usually comprises a central city and its surrounding suburbs, the urban fringe.

The metropolitan area also has one or more central counties in which the area's population is concentrated. To be a central county the county must have at least 50 percent of its population residing in the area's qualifying UA; or it must contain a central city or a significant portion of a central city. Additional counties are included as part of the metropolitan area if they are deemed to have a metropolitan character and strong social and economic ties to the central county.

In general, the criteria to qualify an outlying county as part of a metropolitan area are a combination of factors reflecting metropolitan character and economic integration. Metropolitan character is measured by population density, decennial population growth,



and percentage of urban population. Economic integration with the central county is determined by worker commuting patterns between the counties, particularly out-commuting to the central county. A trade-off is allowed in the mix of these factors: the more economically integrated the counties, the less metropolitan the outlying county needs to be.

### **MSAs, PMSAs and CMSAs**

Currently, metropolitan areas are referred to as either metropolitan statistical areas (MSAs), primary metropolitan statistical areas (PMSAs) or consolidated metropolitan statistical areas (CMSAs).<sup>3</sup> (See Figure 1.)

Each county is first analyzed as to its qualification in an MSA as either a central or an outlying county. Two adjacent MSAs are analyzed further to determine if they may be combined as a single MSA. Factors affecting this adjustment are similar to those for adding outlying counties. They are total population, percentage of urban population, commuting interchange, residence of employed workers and the proximity of the MSAs' urbanized areas and central cities. MSAs are relatively independent areas with no close affiliation with other MSAs. These MSAs are then classified by population size as follows:

- Level A = 1,000,000 or more
- Level B = 250,000 to 1,000,000
- Level C = 100,000 to 250,000
- Level D = less than 100,000.

Level A MSAs are analyzed further to determine if they are made up of PMSAs. PMSAs are composed of counties that meet additional requirements for determining socially and economically integrated counties within an initially designated Level A MSA.<sup>6</sup> Within MSAs for which at least one PMSA is designated, the remaining counties not meeting the PMSA requirements are also given a PMSA classification, even though they may not be 'true' PMSAs per the designated requirements. PMSAs, like MSAs, are given classification levels based on total population.

If a Level A MSA is found to be composed of PMSAs, the MSA is redesignated as a CMSA unless local opinion disfavors separate recognition of the PMSAs, as became the case with the St. Louis and Kansas City PMSAs. CMSAs, made up of various level PMSAs, are not given a population level classification. Yet

by definition they all have population of at least one million.

### **Titles**

The titles given to MSAs, PMSAs, and CMSAs are more than just names; they reflect information about the designated areas. The MSA title includes the names of one to three of the area's central cities in descending order of population (provided the cities have at least one-third the population of the MSA's largest city or meet other specified criteria) and the name of each state which the MSA covers (e.g., Davenport-Rock Island-Moline, IA-IL MSA). CMSAs, PMSAs, and MSAs, although based on county boundaries, may cross state lines.

Similarly, PMSA titles consist of up to three of the names of the central cities qualified as the initial Level A MSA's central cities (e.g., Gary-Hammond, IN PMSA) or the names of one to three counties in the PMSA (e.g., Lake County, IL PMSA), all listed in descending order of population. CMSA titles also have up to three names, the first being the largest central city in the area and the next two being the first names (cities or counties) in the titles of each of the next two most populated PMSAs. For example, the Chicago-Gary-Lake County, IL-IN-WI CMSA crosses three states, Chicago is its largest central city and the Gary-Hammond and Lake County PMSAs are its next two most populated PMSAs.

### **Urban/rural distinction**

A rural resident may also be a resident of a MSA (PMSA). (As a matter of convenience throughout the remainder of this article the term MSA will be used generically to refer to MSAs and PMSAs.) This apparent disparity is resolved with an understanding of the concepts of rural and urban population. (See Table 2.) These concepts are used to refer to area types based on population size and population density. They are independent of MSA designations. Thus, metropolitan and nonmetropolitan area counties may be composed of both urban and rural areas. For example, the level C Eau Claire, WI MSA has a 42.2 percent rural population. As a group, District MSAs have a 16 percent rural population.

The rural population consists of persons residing in places with a population of less than



2,500. Places with a population of 2,500 or more have an urban population. The urban population includes persons inside and outside of urbanized areas. Every MSA is associated with at least one UA. However, UAs do not necessarily have to be part of an MSA. For instance, a UA may be in a county of less than 100,000 inhabitants.

### Changes in definitions

At the time of each decennial census, the official criteria for metropolitan areas are reviewed. (See Box 1 for the major changes of the past 75 years.) Technical changes in metropolitan area definitions have resulted from increased data availability, national trends, and comments of federal and state officials and data users.

The initial purpose for metropolitan areas was the presentation of census data. The expanded statistical use of these areas by federal agencies resulted in a change of the definitional unit from township to county. The advantage of more refined and accurate definitions achieved with the use of the smaller township unit was outweighed by the greater extent of data available at the county level and the need

of other federal, state, local, and private agencies to compile related data for the defined areas.

Other major changes in metropolitan area definitions prior to 1983 related to the question of how large a city should be to qualify for metropolitan area classification. The interpretation of a city with a population of at least 50,000 was broadened to take into account twin cities and the central cities' surrounding incorporated and unincorporated areas (e.g., the Poughkeepsie rule, see box).

In general, the cumulative effect of these definitional changes from 1910 to 1983 resulted in liberalized standards, creating increased numbers of MSAs and some MSAs without demographically dominant central cities. (The number of SMSAs increased from 215 in 1960 to 335 [MSAs] in 1983.) Thus, the increase in metropolitan areas over time is not entirely attributable to an increase in the metropolitan character of our cities and counties. The diversity of metropolitan character across metropolitan areas was tested by USDA demographer Calvin L. Beale. He rated MSAs based on the presence (absence) of nine functions, facilities, and conditions. The largest 31 areas, each with one million or more residents, scored 100 percent but the areas with central city populations between 25,000 and 50,000 scored 67 percent and the areas having a central city of 25,000 scored only 40 percent, a failing grade by most standards.<sup>7</sup>

Definitional changes and the growth of urban population have not only increased the number of metropolitan areas, but also their variety and complexity. Total MSA populations range from a low of 62,820 (Enid, OK MSA) to a high of 8.3 million (New York, NY PMSA). Population density ranges from 12,108 persons per square mile (Jersey City, NJ PMSA) to 13.4 persons per square mile (Casper, WY MSA) and the percentage of urban population of MSAs ranges from 42 percent (Hickory, NC MSA) to 100 percent (Jersey City, NJ PMSA). The variance in economic and social functions between large urban centers and smaller central cities resulted in a need to maintain MSA uniformity through the differentiation of MSAs by population size (Levels A-D) and the use of a two-tier data system incorporating CMSAs and their component PMSAs.

**Table 2**

#### Types of Areas

Urban	
Urbanized Area (UA):	Population ≥ 50,000 and at least one incorporated city
	Population Density ≥ 1,000/sq. mile
Central City (CC)	
Central Business District (CBD)*	
Remainder of Central City	
Urban Fringe (Non CC portion of UA)	
Outside Urbanized Area & Population ≥ 2,500	
Rural: Outside Urbanized Area & Population < 2,500	
Non farm	
Farm	

\*CBDs are designated, with the city's cooperation, for central cities of MSAs and other cities of 50,000 or more population. As defined by the Bureau of the Census, they are based on census tract boundaries and are characterized by: a high concentration of retail and service businesses, hotels, theaters, and offices; high traffic flows; and high land valuation.



## Box 1

### Major changes in metropolitan area definitions and terminology

- 1910 *Metropolitan districts* officially defined for presentation of census data. Defined along MCD boundaries and based primarily on population density. Described as a concentration of urban development with internal commuting ties and weak ties to other densely settled areas. Used to compare urban centers without disparities of central city boundaries.  
Qualification for metropolitan districts  
1910 city population of at least 200,000  
1930 city population of at least 50,000 and total metropolitan population of at least 100,000  
1940 city population of at least 50,000 and total metropolitan population requirement dropped.
- 1949 *Standard Metropolitan Area (SMA)* established for use by all federal statistical agencies, not just for census purposes. To be defined by the Bureau of the Budget (later renamed Office of Management and Budget) with the advice of an interagency committee. SMA concept same as metropolitan district only definitional unit became the county. Criterion of city population of at least 50,000 remained and criterion of 15% out commuting from outlying county to central county added for inclusion of outlying counties.
- 1950 172 SMAs defined. Statistical Policy responsibility assigned to *Bureau of the Budget* in the Budget and Accounting Procedures Act of 1950.
- 1950 SMA renamed to *Standard Metropolitan Statistical Area (SMSA)*
- 1960s 215 SMSAs defined. Place of work question on 1960 census form provided *uniform national commuting data*. Previous data from state and local employment agency surveys were not uniform nationwide. 2 *Standard Consolidated Areas (SCAs)* were defined for census purposes for New York City and Chicago.
- Late 1960s *Poughkeepsie exception*: Poughkeepsie, New York, a city with no annexation ability under state law, argued it would qualify as metropolitan with over 50,000 persons if adjacent unincorporated 'places' were added to the city population of 38,000. Resulted in liberalization of standards to include such areas as long as the area has at least one incorporated central city of at least 25,000 persons.
- 1970 247 SMSAs defined with 21 areas qualifying under the Poughkeepsie exception. 252 UAs defined. *Twin City exception*: UA to include not only city population of 50,000 or more, but also twin cities with combined population of 50,000 or more with the smaller city having at least 15,000 persons. (e.g., Champaign-Urbana, IL)
- 1973 101 of the 247 1970 SMSAs were redefined based on 1970 census commuting data.
- 1973-1979 33 new SMSAs defined based on current population estimates.
- 1974 *Liberalization* for qualification for metropolitan status for certain cities with *population between 25,000 and 50,000*. As a result, 27 new UAs created.
- 1975 Criteria adopted for defining *Standard Consolidated Statistical Areas (SCSAs)*. 13 SCSAs defined.
- 1977 Statistical policy responsibility delegated by President Carter to the *Department of Commerce*, wherein it was implemented by the Office of Federal Statistical Policy and Standards (OFSPS).
- 1980 Official publication of changes in SMSA definitions and terminology, *Federal Register* 1/3/80, Vol. 45, No. 2. (Final approval on the changes was received on January 31, 1979 from the Statistical Policy Coordination Committee.)  
*Benton Harbor* rule created 9 new SMSAs with central city populations less than 25,000. (Neither Benton Harbor, MI nor St. Joseph, MI, twin cities, had a population of 15,000 yet argued that combined with contiguous unincorporated areas, they would have a population of 50,000.) As a result, no minimum population is required for the central city of the qualifying UA of the SMSA and contiguous unincorporated population (Poughkeepsie rule) need not be in census defined 'places'.  
24 new SMSAs created with central city populations between 25,000 and 49,000.  
Total of 287 SMSAs defined (including the 101 redefinitions and 33 new SMSAs of 1973-1979).
- 1981 Responsibility for metropolitan designations redelegated to Office of Management and Budget. 36 new SMSAs defined based on 1980 population counts for a total of 323 SMSAs.
- 1983 23 *Consolidated Metropolitan Statistical Areas (CMSAs)*, 78 *Primary Statistical Areas (PMSAs)*, and 257 *Metropolitan Statistical Areas (MSAs)* created (effective June 30, 1983) as a result of a re-evaluation of SMSA boundaries using 1980 census data and new criteria and terminology of January 1980.  
Recognition of a *two-tier data need* for users of metropolitan area data resulted in use of CMSA, PMSA, and MSA categories.  
Use of population size *Levels (A-D)* for MSAs (PMSAs) reflects complexity of MSAs and need to maintain uniformity among metropolitan areas by differentiating among metropolitan sizes. Allows data user ease in applying population standards.



## **1983 redefinitions of metropolitan areas: Their effect on District areas**

The District states account for 14.9 percent of the U.S. population and 7.3 percent (258,920 square miles) of its land area. Yet, 21.7 percent (5), and 18.2 percent (60) of the nation's defined CMSAs and MSAs (PMSAs), respectively, are partially or entirely in these five states wherein 14.7 percent of the U.S. metropolitan population resides. The distribution of these areas throughout the District states is presented in Figure 2.

The net effect of the 1983 MSA redefinitions should be to increase the number of central cities, MSAs, CMSAs and their component PMSAs, and decrease the number of metropolitan counties. All but one of these expected effects of the 1983 redefinitions held true for the District. The District gained central cities, CMSAs, and component PMSAs, and lost metropolitan counties but did not increase its number of MSAs.<sup>8</sup>

### **Central city changes**

The new central city criteria, although stricter in terms of central city character requirements, allows for the inclusion of less populated central cities (e.g., 15,000 to 25,000).

The rule changes for central city qualification added 23 central cities in the District, which was 23 percent of the total gained nationwide. The effect of the one-third size rule deletion is greatest in Illinois where 11 of the 12 added central cities were in the Chicago or St. Louis SMSA. With relatively high out-commuting and relatively few jobs for their residents, four District cities, three of which are in Michigan, lost central city status. These cities more resembled suburban areas than central cities, and size alone was not enough to retain them as central cities. (See Table 3.)

### **Consolidated areas changes**

A lower percentage urban population requirement (60 percent rather than the previous 75 percent) and a more lenient total population requirement (population of at least one million that applies to the total CMSA rather than at least one component part, as previously) should result in more CMSAs and additional PMSAs

in existing consolidated areas under the new rules.

Although the District gained six newly defined metropolitan areas (1 CMSA and 5 PMSAs), all in Illinois, it lost one potential CMSA. The Anderson, IN MSA and the level A Indianapolis, IN MSA failed the economic integration test of the less restrictive 1983 requirements for combining MSAs. Thus the Anderson, IN MSA, previously part of the Indianapolis SCSA, failed to qualify as part of the potential CMSA. Moreover, the Indianapolis MSA was one of nine Level A MSAs nationwide that did not meet the PMSA requirements.

The St. Louis SMSA with the addition of Jersey County, IL passed the 1983 CMSA standards of percentage urban population and economic integration to become the St. Louis-East St. Louis-Alton, MO-IL CMSA composed of three PMSAs, two of which were newly defined. (Subsequently, local opinion altered this designation.)

The biggest change in consolidated areas was the reorganization of the Chicago-Gary, IL-IN SCSA into the Chicago-Gary-Lake County, IL-IN-WI CMSA. The Kenosha SMSA became a PMSA of this new CMSA and three new PMSAs were created within the old Chicago SMSA.

The other three District CMSAs have remained unchanged from their old SCSA counterparts in terms of their component PMSAs (SMSAs). They are the Cincinnati-Hamilton, OH-KY-IN, Detroit-Ann Arbor, MI, and Milwaukee-Racine, WI CMSAs.

### **MSAs and their component counties**

The elimination of a minimum city population requirement for a UA and the inclusion of contiguous unincorporated areas should increase the number of MSAs centered around smaller cities (less than 50,000) with a significant urban fringe, as long as the total MSA population is at least 100,000. The change in rules to qualify as a central county should have a net result of adding central counties and increasing the number of *potential* outlying MSA counties.

But the criteria to qualify outlying counties as MSA counties have become more stringent. These rule changes for metropolitan character aim at deleting sparsely populated



**Table 3**  
**Changes in 7th District Central Cities\***

Population >50,000	Additions (23)		Deletions (4)***	
	Population 25,000-50,000	Population <25,000	Population 25,000-50,000	Population <25,000
ILLINOIS: Aurora E. St. Louis Elgin Evanston Joliet Waukegan	ILLINOIS: Alton Belleville Chicago Hts. Granite City North Chicago Pekin	INDIANA: Goshen**  WISCONSIN: Neenah**	MICHIGAN: Portage	INDIANA: W. Lafayette  MICHIGAN: Muskegon Hts. Norton Shores
IOWA: Council Bluffs	INDIANA: Mishawaka** New Albany			
MICHIGAN: Dearborn Pontiac	MICHIGAN: Holland Midland Port Huron			
WISCONSIN: Waukesha				

\*Changes are based on criteria effective June 30, 1983 using 1980 decennial census data. All additions (except Goshen and Neenah) were due to the elimination of the rule that a central city of 25,000 must be at least one-third the size of the area's largest central city. (Each of these 21 cities was larger than 25,000 in 1970 but was not one-third the size of the largest central city in its respective SMSA.) Goshen and Neenah became central cities under the new 15,000-25,000 size class of central cities. All deletions were of cities under 50,000 that failed the commuting requirements of economic integration.

\*\*City name was added to its respective MSA(PMSA) title.

\*\*\*Each deleted city was dropped from the title of its respective MSA(PMSA).

NOTE: Although E. Chicago, IN and Superior, WI maintained central city status, they were dropped from MSA(PMSA) titles because each failed to be one-third the size of its area's largest central city for two consecutive censuses.

or rural counties that previously qualified as MSA counties based solely on high out-commuting to a central county, perhaps from only a few townships. Thus, the minimum 15 percent out-commuting criterion, which remains unchanged, combined with the new, more restrictive, criteria of character (i.e., population density, population growth, and urban population) is likely to decrease the number of outlying counties attaining MSA status.

The reasons for changes in metropolitan area boundaries (addition, deletion, or transfer of counties) have been grouped into three categories: economic integration, metropolitan character, and rule changes. Economic integration refers to the minimum requirement of 15 percent out-commuting to the central county. Metropolitan character consists of population density, UA population, and percentage urban population. (See Table 4.)

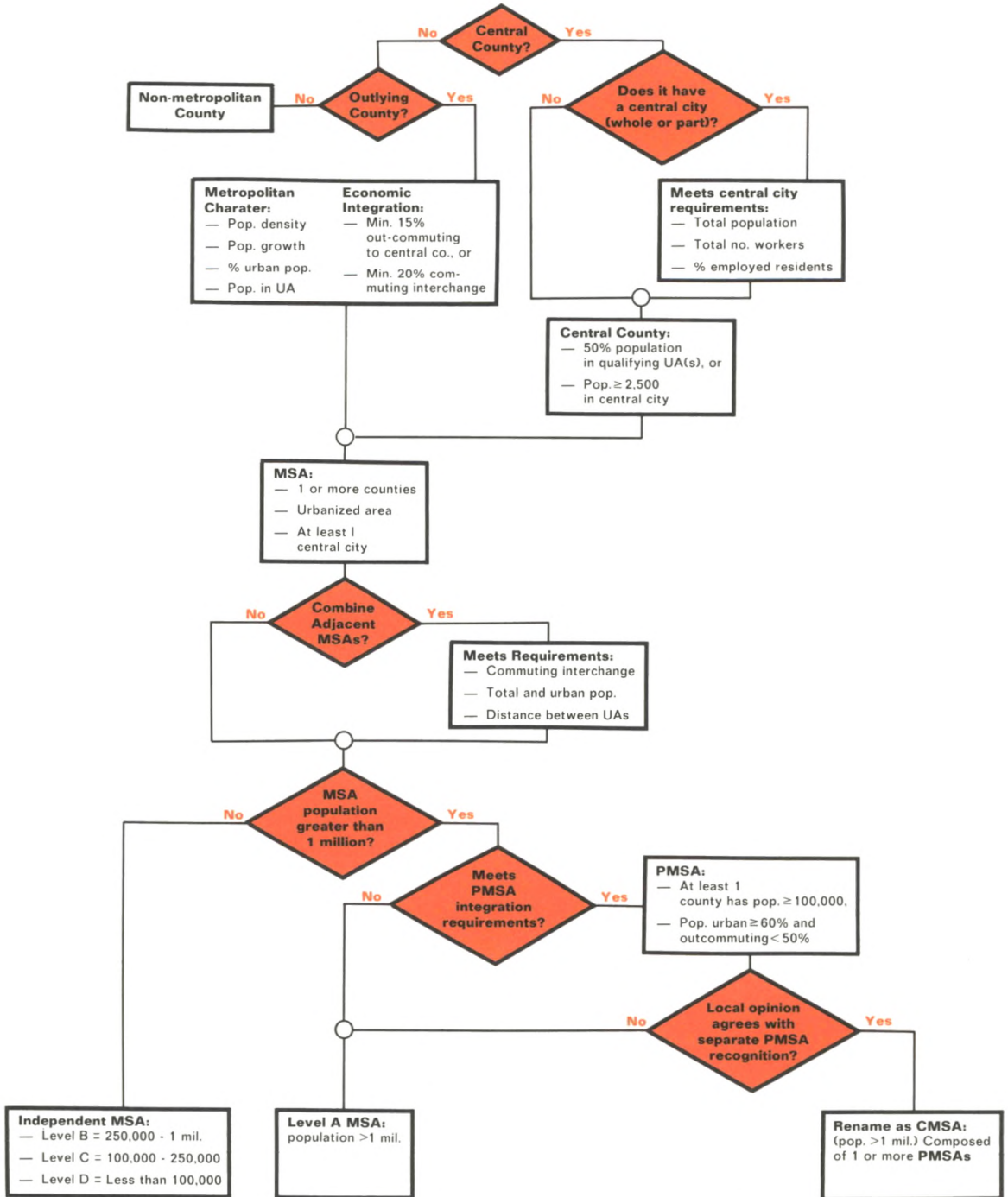
The 1983 MSA redefinitions left the District with one less (S)MSA and a net loss of

three counties from metropolitan status. Illinois gained the most metropolitan counties by adding three while Iowa added two. Wisconsin had no change in the number of metropolitan counties. Indiana and Michigan each had a net loss of four metropolitan counties. However, 9 of the District's 19 counties that changed status were added or deleted from metropolitan status not because of changes in their urban character or economic ties to a central county but solely as a result of rule changes.

### Deleted counties

Although economically tied to the metropolitan area's central county, 7 of the District's 11 deleted counties did not have enough urban population or population growth to maintain metropolitan area status. They qualified under the minimum 15 percent out-commuting rule but failed to meet the more rigorous 1983 metropolitan character requirements. However, Sullivan

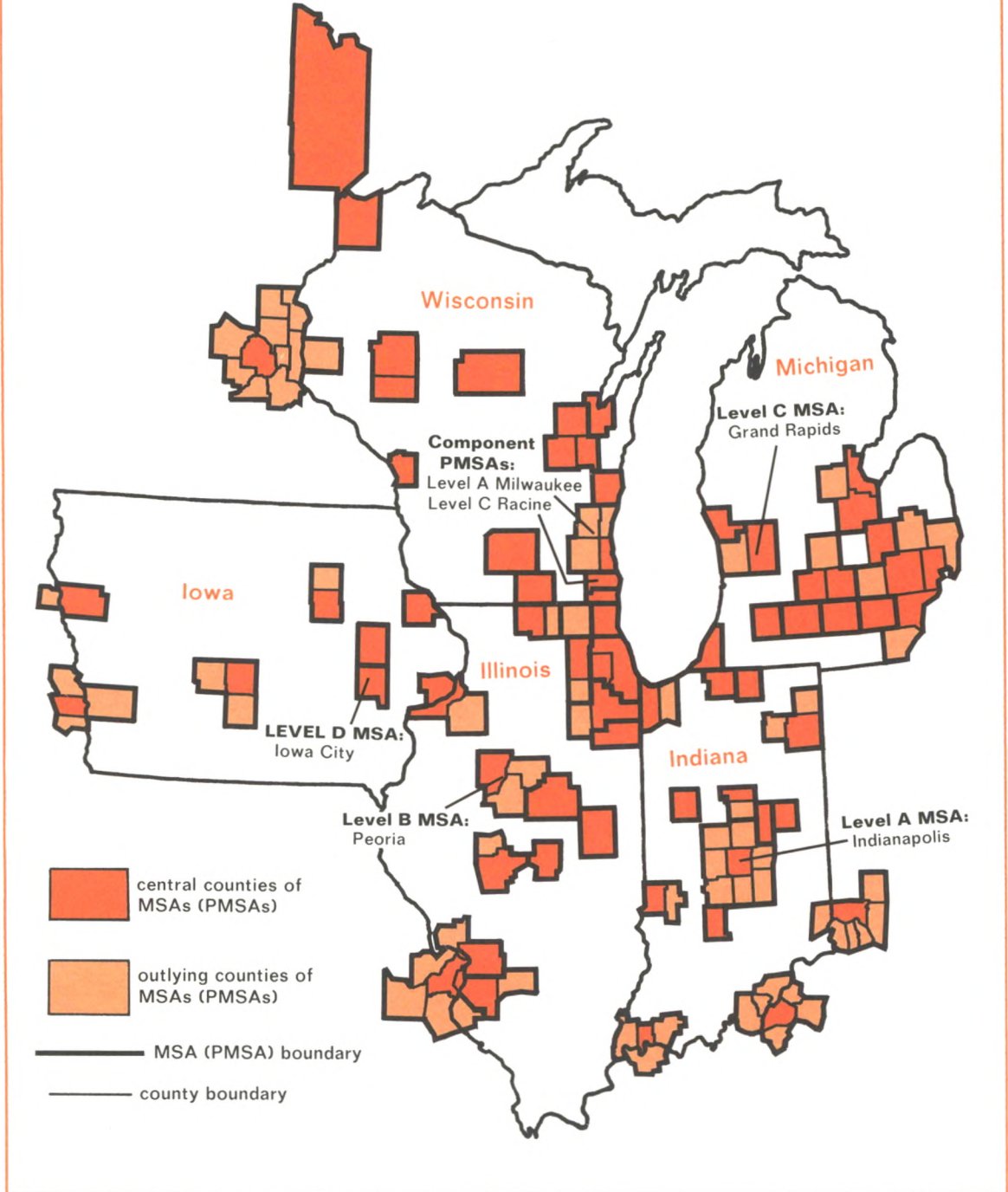
Figure 1  
**How metropolitan is your county?**  
 (generalization of MSA definitions)



**NOTE:** This is a generalization of the MSA definition process for county-based MSAs. For a precise and detailed explanation and list of qualifying criteria involved in this 35-step definitional process see: **Statistical Reporter**, August 1980, pp. 335-384. Examples of typical MSAs are noted on Figure 2.



Figure 2  
The metropolitan Midwest



**Table 4**  
**Changes in 7th District Metropolitan Counties\***

Counties added (8)		Counties deleted (11)	
Rule change	Real change	Rule change	Real change
<i>Metropolitan Character</i> INDIANA: Whitley	<i>Metropolitan Character</i> ILLINOIS: Jersey*** IOWA: Dallas	<i>Metropolitan Character</i> INDIANA: Vermillion, Wells MICHIGAN: Ionia, Oceana, Shiawassee,** Van Buren	<i>Metropolitan Character</i> INDIANA: Sullivan
<i>Economic Integration</i> MICHIGAN: Midland	<i>Economic Integration</i> IOWA: Bremer		<i>Economic Integration</i> INDIANA: Adams, Gibson MICHIGAN: Barry
<i>Metropolitan Character &amp; Economic Integration</i> ILLINOIS: Kendall, Grundy, Jersey***	<i>Metropolitan Character &amp; Economic Integration</i> INDIANA: Harrison		<i>Metropolitan Character &amp; Economic Integration</i> INDIANA: Marshall

\*Re-designations are based on criteria effective June 30, 1983 using 1980 decennial census data.

\*\*Even with its decline in metropolitan character from 1970 to 1980 this county would have met the 1980 standards but failed the 1983 requirements.

\*\*\*This county would not have become an outlying metropolitan county under the central city and central county rule changes without its increase in metropolitan character since 1970.

County, IN was the only one to be deleted for a real decline in metropolitan character. The other six counties would have qualified were the old metropolitan character requirements maintained. (43 counties elsewhere in the U.S. were also deleted due to these rule changes.) The remaining four District counties were deleted from MSA status *due to a real decline in economic integration*. They failed the minimum out-commuting requirement and except for Marshall County, IN would otherwise have met both the old and new metropolitan character criteria needed with a 15 percent out-commuting ratio.

### Added counties

*Rule changes relaxing central city and central county requirements* created four new central counties (Kane, Lake, Madison, and Will Counties, Illinois), which, in turn, changed three outlying counties (Grundy, Jersey, and Kendall Counties, Illinois) into metropolitan counties due to their economic and social ties to the newly defined central county. Kendall and Grundy Counties met the 1970 metropolitan criteria but failed to have significant economic integration with Cook County, the central county in 1970. However, Jersey County's metropolitan character had to in-

crease from 1970 to 1980 (while its commuting to Madison County remained about the same) for it to meet the 1983 rules.

*Other rule changes* added Whitley County, IN and Midland County, MI to MSA status. The new classification of higher out-commuting percentages with lower metropolitan character criteria added Whitley County (with no change in its 28.2 percent out-commuting to its central county, Allen County). The rule change for combining MSAs created the Saginaw-Bay City-Midland MSA, with the central counties of Bay and Saginaw, which then qualified Midland County as a metropolitan county based on the commuting interchange between it and the central counties. Thus, the District lost one independent MSA (the Bay City, MI MSA) but not its metropolitan county.

Three other counties, two in Iowa, were added based not on rule changes but on *changes in their metropolitan character and economic ties to central counties*. Commuting from Bremer County, IA to its central county, Black Hawk County, increased from 14.8 percent in 1970 to 25.1 percent in 1980 to qualify it in the Waterloo-Cedar Falls MSA. Dallas County's high level of out-commuting to its central county of Polk, IA allowed it to qualify as a metropolitan county by barely meeting only one of four metropolitan character criteria, that



of population density of 50 persons per square mile. Harrison County, IN is the only county that significantly changed in terms of commuting to its central county, and metropolitan character to become a MSA county.

### **Transferred counties**

As noted above, Bay County was transferred to the Saginaw-Bay City-Midland MSA due to a rule change on combining adjacent MSAs. The transfer of Monroe County, MI from the Toledo, OH-MI SMSA to the Detroit PMSA was based upon the rule change that allows for the consideration of local opinion, through the appropriate congressional delegation, in certain borderline cases.<sup>9</sup> Monroe County qualified on the basis of commuting to the central county (Lucas County, OH) of the Toledo MSA and the central counties (Macomb, Oakland, and Wayne Counties, MI) of the Detroit PMSA. Such commuting percentages were within 5 points of each other, thus instead of being assigned to the area to which the commuting was greatest, local opinion was considered in choosing the assigned metropolitan area. Hence, Monroe County is associated with the Detroit PMSA, although it has slightly more commuting to the Toledo MSA. (Monroe County had been added to the Toledo OH-MI SMSA in October 1963.)

The 1983 MSA redefinitions caused a heavy loss of metropolitan counties in Michigan and Indiana resulting in a net loss of metropolitan population (154,495) and land area (1,690 sq. miles) in the District. The remainder of the nation (excluding New England where metropolitan areas are not defined on a county basis) had a net gain of metropolitan counties (11) and metropolitan population (2.4 million), and a net loss of metropolitan land area (7,042 sq. miles). That is, the nation lost large sparsely populated counties and gained smaller densely populated counties. Nevertheless, the District provides approximately the same percentage of the nation's total population as metropolitan population.

The effects of the MSA redefinitions on the metropolitan character and economic integration of the District's metropolitan areas were negligible, as counties at the margin of metropolitan qualification were deleted and added. The metropolitan counties under the new designations have a slightly more dense

population and greater percentage of urban population than those under the old rules.

### **Effect on regulations & funding**

A more significant effect of the MSA redesignations is the impact on regulated institutions from changes in the administration of certain regulations, and the ability of certain areas to receive federal funds through Federal Grant-In-Aid programs. Particularly affected are depository organizations and entitlement grant recipients under the Community Development Block Grant Program (CDBG).

### **Regulation L: Management Interlocks**

The Federal Reserve Board's Regulation L implements the Depository Institution Management Interlocks Act.<sup>10</sup> The purpose of the regulation is to foster competition by generally prohibiting management interlocks among unaffiliated depository organizations that are of substantial size (total assets of \$500 million or more) or located in the same local area. The Board's Regulation L applies to state member banks, bank holding companies, and their nonbank affiliates. Other depository institution regulatory agencies have similar regulations implementing the Interlocks Act for their respective regulated institutions.

Generally, Regulation L prohibits persons from serving as management officials for unaffiliated depository organizations in the same metropolitan area. Thus the MSA redefinitions have made some previously permissible interlocks impermissible as well as creating permissible interlock opportunities for what would have been impermissible associations under the old SMSA definitions. The District's 184 depository organizations located in the counties added or deleted from MSA status may be affected by these regulatory changes regarding management interlocks.

*A previously prohibited interlock may now be permissible if a county has been deleted from a MSA or changed MSA affiliation.*

For example: The Fort Wayne, IN SMSA was defined as Adams, Allen, DeKalb, and Wells Counties, Indiana. The Fort Wayne, IN MSA is now defined as Allen, DeKalb, and Whitley Counties, Indiana. Thus, all else remaining the same, a management interlock between unaffiliated depository



organizations in Adams and Allen Counties which was previously prohibited is now permissible.

On the other hand, a *previously permissible interlock may have become prohibited*. This would occur if a county gained MSA status or a county changed MSA affiliation.

For example: A management interlock between unaffiliated depository organizations in Whitley and DeKalb Counties was permissible prior to June 30, 1983 because Whitley was not a metropolitan county. That interlock or the establishment of a similar one is now prohibited.

### **Regulation C: Home Mortgage Disclosure**

Another effect of the MSA redefinitions on bank-related regulations is its impact on the reporting burdens of the Board's Regulation C which is issued pursuant to the Home Mortgage Disclosure Act of 1975, as amended. One reason behind the Act was the finding by Congress that some depository institutions have sometimes contributed to the decline of certain geographic areas by their failure pursuant to their chartering responsibilities to provide adequate home financing to qualified applicants on reasonable terms and conditions. The purpose of this regulation is to provide the public with loan data to determine whether depository institutions are serving the housing needs of the communities in which they are located.

Home mortgage disclosure (HMDA) statements must be filed annually by all depository institutions with total assets of more than \$10 million that make federally related mortgages and have a home office or a branch office in a MSA.<sup>11</sup> The 1983 MSA redesignations have eliminated this reporting requirement for, at most, 112 of the District's organizations (59 commercial banks, 29 savings and loan associations, and 24 credit unions) which have an office in the 11 counties deleted from MSA status. This number may be less if an organization has offices in other counties that are part of an MSA. Likewise, the redefinitions may add a reporting requirement for, at most, 72 depository organizations (43 commercial banks, 14 savings and loan associations, and 15 credit unions) in the District's 8 counties added to MSA status.

A depository institution's HMDA statement must contain data on the number and total dollar amount of home purchase and home improvement loans (for single family and multi-family housing) that the institution originates or purchases. Aggregate data are available for each MSA by census tract for all reporting depository institutions. This information shows aggregate lending patterns for various categories of census tracts grouped according to location, age of housing stock, income level, and racial characteristics.

### **Community Reinvestment Act**

Such aggregate data are useful for regulatory agency examinations under the Community Reinvestment Act (CRA). This Act and the Board's Regulation BB, which implements the Act, are to encourage regulated financial institutions to meet the depository and credit needs of their local community consistent with safe and sound banking practices. The institution's record of doing so, as partially reflected in its HMDA statements, is taken into account in the evaluation of an application submitted by the institution to its regulatory agency (e.g., bank merger applications). Poor performance under the CRA may be grounds for denial of an application.

### **Federal funding**

Under the CDBG program, MSA central cities and counties are entitlement recipients which as a group receive 80 percent of CDBG funding. (See Box 2 for description of CDBG program.) Nonmetropolitan and other non-entitlement units are allocated the remaining 20 percent of funding on a competitive basis. Thus, the District's central cities and metropolitan counties dropped from MSA status lost their CDBG entitlement privilege. Likewise, cities and counties that gained MSA status became entitlement recipients. In the aggregate the District experienced a net addition of 23 qualifying entitlement central cities, a net loss of 3 metropolitan counties, and the loss of one independent MSA. However, what is good for the whole may not be good for each of its parts. As the number of MSAs and central cities increase nationwide, less funds are available per MSA or central city (given no change in the total funding under the CDBG).



**Box 2**  
**Community Development Block Grant Program (CDBG)**

Authorized under Title I of The Housing and Community Development Act of 1974, as amended, the CDBG program annually allocates funds to local areas on the basis of a formula. The formula considers population, poverty (weighted double), and overcrowding of housing. It is designed to give local control over community development funds.

The primary purpose of the CDBG program is to develop viable urban communities, provide decent housing and a suitable living environment, and expand economic opportunities, principally for low and moderate income individuals. Although its major goals are aimed at preventing slums and urban blight and conserving and expanding the nation's housing stock, its other goals include the improvement of local services, the rational utilization of land and natural resources, and the restoration of special value properties for esthetic, architectural, or historic reasons.

The distributional formula for CDBG funds is 80 percent to MSAs and

20 percent to nonmetropolitan areas. The funds are then allocated on an entitlement or discretionary basis. The entitlement areas are: MSA cities of 50,000 or more persons; cities with populations of less than 50,000 which are central cities of MSAs; and metropolitan counties of 200,000 or more persons (minus the population in the entitlement cities of the county). The amount of funds received by each metropolitan county is determined by a statutory formula, intended to measure housing needs based on total population, poverty and overcrowding. (In FY 1983, 716 grants were approved for 790 eligible units of local government.) Nonentitlement areas received funds based on the same statistical factors and formula. Such areas are ranked nationally based on these factors. To the extent funds are available these areas receive funds based on their ranking. (In FY 1983 there were 84 approvals under the CDBG Small Cities Program for nonentitlement areas.)

For the majority of formula and formula-project Grant-in-Aid programs, MSA designation alone does not directly determine funding recipients. Rather, the major factors are an area's: 1) population characteristics, (i.e., total population, percentage urban population and decennial population growth); 2) income characteristics, (i.e., per capita income, median family or median household income, and the number and percentage of persons or families below the poverty level or in low- to moderate-income areas); and, 3) housing characteristics (i.e., age of housing and housing conditions). These conditions, as measured by statistical factors using decennial census data, are used to determine need and the eligibility for and the amount of federal assistance.

General Revenue Sharing as well as 8 of the 12 Block Grant programs for FY 1984 used population or per capita income as eligibility criteria. Also 32.1 percent of all FY 1984

categorical grants to state and local governments were formula or formula-project grants allocated based on factors of total population (or the population of a special group, e.g., school age population) or per capita income (or per capita income of a special group or used to modify other formula factors, e.g, number of persons below poverty level).<sup>12</sup> Typically the larger metropolitan areas have larger, older cities and hence have more problems of urban blight. This is not to say that rural areas are immune from problems of poverty and inadequate housing. Indeed they are not and there are federal assistance programs designed specifically for rural areas, (e.g., Farm Home Administration low-income home loans). Yet, the fastest growing metropolitan areas (Level D areas) and rural areas are most likely to need CDBG funds to solve problems related to urban growth.



For the MSA redesignations to have significantly affected the funding for federal aid programs (except in the case of CDBGs), the redefinitions would have had to alter significantly the population, income, and housing factors upon which aid is based. Data for selected statistical factors calculated under the old and new designations for District MSAs reveal that this was not the case. The major losers were the counties in Indiana and Michigan dropped from CDBG entitlement because they lost metropolitan status, particularly those losing status as a result of rule changes rather than any metropolitan character change. Similarly, the most likely gainers are the new, relatively small metropolitan counties which have become entitlement recipients. This is particularly true if the addition was based solely on rule changes. In this case Illinois would be the greatest beneficiary. Illinois is also the District's greatest beneficiary in terms of cities gaining entitlement status.

Nonetheless, census statistics are important in tracking the social and economic well-being of both metropolitan and nonmetropolitan areas. Census data assist in the allocation of limited resources to areas of greatest need or with the greatest number of beneficiaries. The FY 1984 budget allotted \$90.8 billion dollars for Grant-In-Aid to state and local governments. A portrait of the District's population, income, and housing characteristics gives an indication of the relative impact of public policy changes, such as federal budget cuts on areas within the District. For example, (Chicago) Cook County, IL; (Milwaukee) Milwaukee County, WI and (Des Moines) Johnson County, IA would be most severely hurt by cuts to public transportation. Illinois with 83.3 percent urban population would be significantly affected by changes to the Urban Mass Transportation program. District areas with the lowest per capita income (Menominee and Delta Counties WI; and Lake County, MI) would be most affected by cuts in aid to low income individuals. Illinois and Michigan rank among the top ten states in terms of numbers of individuals or families below the poverty level.

## Conclusion

MSAs provide uniformity and continuity in the presentation of census data. The tabu-

lation of such data aids in the analysis of social, demographic, and economic trends of local economies, such as metropolitan areas. It also provides a basis for public and private sector policy decisions, i.e., urban development or the location of production and sales facilities.

The use of a standardized unit of measure is of prime importance in any time series analysis. Amidst decades of changing demographics, decennial MSA criteria revisions have been aimed at maintaining uniformity in the analysis of local areas. For example, to aid in the comparison across the universe of diverse metropolitan areas, MSA size level classifications were created with the 1983 standards.

For District MSAs, the 1983 redesignations had a negligible impact on aggregate metropolitan characteristics and selected federal aid factors. Michigan and Indiana had the greatest loss of metropolitan counties while Illinois not only gained the most metropolitan counties but also the most central cities.

As MSAs lost and gained counties, the people and institutions within the MSAs were affected to varying degrees. Changes in Federal Grant-In-Aid funds (i.e., CDBG funds) to local governments will affect the social and economic well-being of the county's residents. Regulatory requirements for certain types of institutions (e.g. depository organizations) may have changed for those located in counties gaining or losing MSA status. Finally, as evidenced by the legislative actions taken in the St. Louis and Kansas City cases, there is a perceived prestige and attractiveness associated with a MSA's relative rank in terms of buying power or population—an attractiveness that may translate into an area's prospects for future growth and economic viability.

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<sup>1</sup> "Benton Harbor Speaks", Charles Eckenstahler, (Executive Director, Southwestern Michigan Commission, St. Joseph, Michigan), *American Demographics*, May 1984, p. 8.

<sup>2</sup> Parishes in Louisiana, boroughs and census areas in Alaska, and independent cities in Georgia, Maryland, Missouri, and Nevada are county equivalents for metropolitan designations. Cities and towns are administratively more important than counties in the six New England states and thus are used as the basic metropolitan area unit in these states. The official standards for metropolitan areas are developed by the interagency Federal Committee on Metropolitan Statistical Areas.



Based on these standards, metropolitan areas are designated and defined by the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB).

<sup>3</sup> A few MSAs do not meet these population requirements, but are still recognized as MSAs because they qualified as such under previously used population standards for SMSAs.

<sup>4</sup> Central cities are those cities with: 1) the largest population in the metropolitan area or 2) 250,000 or more persons; or 3) 100,000 or more persons employed in the city; or 4) 25,000 or more persons, an employment/residence ratio of 75 percent or greater, and less than 60 percent of its employed residents working outside of the city; or 5) 15,000 to 25,000 persons and at least one-third the size of the largest central city, an employment/residence ratio of 75 percent or more, and less than 60 percent of its employed residents working outside of the city.

<sup>5</sup> This terminology, effective June 30, 1983, replaced the previous terms: Standard Metropolitan Statistical Area (SMSA)—now MSA; Standard Consolidated Statistical Area (SCSA)—now CMSA. The term PMSA was added to specify the components of CMSAs.

For the specific conditions needed to qualify as MSAs, PMSAs, or CMSAs: see “The Metropolitan Statistical Area Classification,” Federal Committee on Standard Metropolitan Statistical Areas, *Statistical Reporter*, December 1979, pp. 33-45 and “Documents Relating to the Metropolitan Area Classification for the 1980’s,” *Statistical Reporter*, August 1980, pp. 335-384.

<sup>6</sup> The initial criteria for a PMSA county are: 100,000 or more population, at least 60 percent urban population, and less than 50 percent resident workers working in a different county. Then, specific commuting interchange requirements and local opinion through the congressional delegation are used to designate single county or grouped county PMSAs.

<sup>7</sup> “Poughkeepsie’s Complaint, or Defining Metropolitan Areas”, Calvin L. Beale, *American Demographics*, January 1984, pg. 29.

<sup>8</sup> *NEW AREAS*: St. Louis-East St. Louis-Alton (MO-IL) CMSA, Aurora-Elgin PMSA, Joliet PMSA, Lake County PMSA, Alton-Granite City PMSA and East St. Louis-Belleville PMSA. *NEW COUNTIES*: IL: Aurora-Elgin PMSA – Kendall; Joliet PMSA – Grundy; Alton-Granite City PMSA – Jersey; IN: Fort Wayne MSA – Whitley; Louisville KY-IN MSA – Harrison; IA: Des Moines MSA – Dallas; Waterloo-Cedar Falls MSA – Bremer; and MI: Saginaw-Bay City-Midland – Midland. *DELETED COUNTIES*: IN: Evansville MSA – Gibson; Fort Wayne MSA – Adams and Wells; South Bend-Mishawaka MSA – Marshall; Terre Haute MSA – Sullivan and Vermillion; MI: Flint MSA – Shiawassee; Lansing-East Lansing MSA – Ionia; Battle Creek MSA – Barry; Kalamazoo MSA – Van Buren; Muskegon MSA – Oceana.

<sup>9</sup> Local opinion is considered in several cases: 1) approximately equal commuting (within 5 percentage points) to two different areas; 2) central cities within 25 miles of each other may be combined into a single MSA, without meeting the 15 percent commuting requirement, or left as parts of two separate MSAs; 3) the establishment of separately recognized PMSAs versus only inclusion in the Level A MSA and; 4) selecting appropriate PMSA and CMSA titles.

<sup>10</sup> The Interlocks Act was enacted as Title II of the Financial Institutions Regulatory and Interest Rate Control Act of 1978.

<sup>11</sup> Depository institutions include commercial banks, savings banks, savings and loan associations, building and loan associations, and credit unions.

<sup>12</sup> *A Catalog of Federal Grant-In-Aid to State and Local Governments: Grants Funded FY 1984*, Advisory Commission on Intergovernmental Relations, Washington, D.C.

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