

# The Great Lakes Economy Revisited

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In 1986, the First Chicago Economics Division published its first analysis of economic conditions in the industrialized Midwest. Amid widespread skepticism, that analysis concluded that the industrialized Midwest would experience an economic renaissance in the 1990s. At the time, this region was widely considered an economic “rust belt,” and the coasts were considered economic stars.

By the early 1990s, it became clear that the industrialized Midwest would be an economic “winner” in this decade. The shine on the coasts had faded, and the economy in this region of the country was coming back. The question for the remainder of the decade is whether this region can stay ahead of the pack. The coasts are showing signs of bottoming out, and risks of a cyclical downturn are mounting.

In 1996, the long-term regional outlook was updated.<sup>1</sup> The eight regions defined by the Bureau of Economic Analysis were ranked from winners to losers.<sup>2</sup> The following provides excerpts from the Great Lakes portion of that analysis. The first section focuses on the structural issues that differentiate the Great Lakes region from its cohorts. The second section is more analytical, and focuses on the model used to capture regional differences. The forecast for winners and losers in the 1990s is summarized in the second part of the report.

### Structural Issues

The First Chicago NBD Regional Model is based on a simple premise: *Regional economic performance should resemble national economic performance only to the extent that the structure of the regional economy resembles the structure of the national economy.* A link to the oil industry, for instance, was virtually devastating to the Southwest economy in the mid-1980s. Therefore, the first step in understanding the relative performance of a region rests in understanding what differentiates it.

The remainder of this section takes a look at the structural factors that differentiate the Great Lakes from the rest of the country, paying special attention to how those factors have changed since the late 1980s. The distribution of employment will be examined to identify the distinguishing industries of each region. Relative costs will be examined to determine the cost-competitiveness of each region, and demographic shifts will be examined to determine the age and labor force risks of each region. Older regions, with less migration, are expected to have a harder time weathering proposed cuts in Medicare and Medicaid.

### Industry Structure

Table 1 shows the distribution of Great Lakes employment relative to that for the nation as a whole. The Employment Coefficient (EC) is defined in box 1 below.

#### **Box 1** Employment Coefficient

The employment coefficient measures the distribution of employment in a region relative to the nation as a whole. For a regional industry  $i$ , the employment coefficient ( $EC_i$ ) is defined as the share of employment in industry  $i$  ( $S_i$ ) divided by that industry's share of employment in the nation as a whole ( $S$ ):

$$EC_i = \frac{S_i}{S}$$

At unity, the employment coefficient shows that the regional distribution of employment in industry  $i$  exactly matches the national average. Above unity the regional distribution of employment in industry  $i$  is greater than the national average.

**Table 1** Employment by Major Industry Groupings:  
Great Lakes vs. U.S. (1993)

Industry	Employment Coefficient
Agricultural Services	0.692
Mining	0.500
Construction	0.917
Manufacturing	1.304
Durable Goods	1.500
Nondurable Goods	1.029
Transportation & Public Utilities	0.930
Wholesale Trade	1.018
Retail Trade	1.010
Finance	0.921
Services	0.820
Government	0.838

Source: First Chicago NBD, Economics Division.

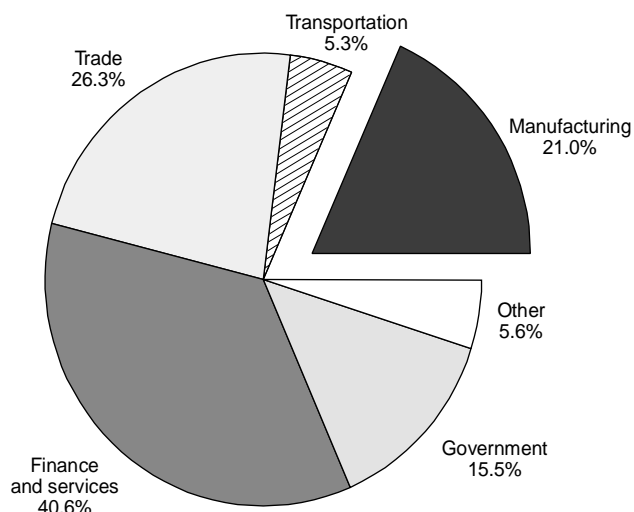
Values above unity indicate a disproportionate dependence on a given industry. Finance is under-represented and manufacturing is over-represented in the region. (See figure 1.) This is despite the widespread restructuring experienced in the heavy manufacturing sector in the 1980s and the extraordinary growth of the finance industry in Chicago over that period.

**Manufacturing.** Table 2 on page 4 illustrates the region's skew toward heavy manufacturing. The top 11 industries in table 2 are manufacturing industries. The top three are in the durable goods category. These are: motor vehicles, primary metals, and fabricated metals. The remaining eight are pretty much split between durable and nondurable goods categories. These are: rubber, machinery, paper, electric and electronic equipment, furniture and fixtures, chemicals (industrial and pharmaceutical), printing, and stone, clay and glass products.

The region's relative distribution of manufacturing employment has, however, shifted over time. The EC for manufacturing actually increased in the 1980s despite aggressive downsizing on the part of area manufacturers. One must use caution in interpreting this result, however. It probably tells us more about what was happening in the nonmanufacturing than in the manufacturing sector of the region's economy. Problems in the manufacturing sector essentially spilled over into the service sector in the 1980s. The result was a less dramatic loss than one would expect in manufacturing's share of the region's employment base. *The Great Lakes remains the most manufacturing intensive region in the country.*

**Nonmanufacturing.** Indeed, most nonmanufacturing industries are under-represented in the region. Only nine of the top-rated 25 industries in Table 2 are nonmanufacturing. Moreover, at least a portion of those are directly dependent on the heavy manufacturing sector for the bulk of their business. The trucking and railroad industries are good examples of this.

**Figure 1** Employment by Major Industry Groupings: Great Lakes (1993)



Note: Other = Agriculture, Mining, & Construction.

Nonmanufacturing has always been largely under-represented in the region. (The sheer size of the manufacturing sector did not allow for much else.) There are a few key industries, however, that have grown relative to the nation. The EC on general merchandise stores and eating and drinking establishments moved from below to above unity over the 1980s. Moreover, those trends continued in the early 1990s, with Chicago getting an especially large piece of the retail pie.

**Defense.** Table 3 on page 5 shows the distribution of per capita defense outlays in the Great Lakes versus the U.S. The region was clearly left out of the boom in defense spending in the 1980s. This is not surprising given the lack of defense industries in the region. The bulk of our heavy manufacturing industries do not rank high on the list of defense-related industries on table 4. Bases were also few and far between, although there were a few scattered across the region. (The strategic defense of Lake Michigan was a relatively low priority of the military in the 1980s.)

As a result, recent budget cuts were less costly for the region. The Great Lakes region was essentially giving up something that it was not very dependent on. Moreover, key base closings had a mixed effect on the region. In some cases, communities found that they had better alternative uses for the land in question. The bang for the dollar of private expenditures turned out to be greater than that on government spending. This is especially true of bases in the Chicago metropolitan area, where both commercial and residential uses of the land were readily available. In 1994, the Great Lakes remained the least defense-dependent region in the country, with per capita outlays averaging less than half the national average.

**Table 2** Great Lakes Employment Coefficients (1993)

Industry	Ratio
Motor vehicles and equipment	3.378
Primary metal industries	2.243
Fabricated metal products	1.935
Rubber and miscellaneous plastic products	1.847
Machinery, excluding electrical	1.728
Paper and allied products	1.341
Electric and electronic equipment	1.245
Furniture and fixtures	1.208
Chemicals and allied products	1.193
Printing and publishing	1.189
Stone, clay, and glass products	1.165
Insurance carriers	1.11
Museums, botanical, and zoological gardens	1.105
Trucking and warehousing	1.103
Membership organizations	1.103
General merchandise stores	1.097
Railroad transportation	1.061
Eating and drinking places	1.048
Food and kindred products	1.046
Miscellaneous services	1.036
Medical and other health services	1.035
Miscellaneous manufacturing industries	1.026
Electric, gas and sanitary services	1.019
Miscellaneous retail stores	1.015
Automotive dealers and service stations	1.004
Personal services	0.987
Banking	0.984
Social services	0.978
Special trade contractors	0.952
Automobile repair, services, and garages	0.947
Miscellaneous repair services	0.939
Mining and quarrying of nonmetallic minerals, excluding fuels	0.928
Business services	0.924
Food stores	0.922
Petroleum and coal products	0.919
Furniture and home furnishings stores	0.917
General building contractors	0.916
Insurance agents, brokers, and services	0.91
Transportation services	0.907
Local and interurban passenger transit	0.895
Apparel and accessory stores	0.881
Educational services	0.874
Leather and leather products	0.869
Holding and other investment companies	0.861
Amusement and recreation services	0.854
Lumber and wood products, excluding furniture	0.848
Coal mining	0.847
Real estate	0.826
Security and commodity brokers and services	0.824
Legal services	0.808
Communications	0.788
Instruments and related products	0.781
Motion pictures	0.741
Agricultural services	0.725
Air transportation	0.723
Pipelines, except natural gas	0.707
Heavy construction contractors	0.664
Private households	0.636
Hotels and other lodging places	0.613
Forestry	0.597
Transportation equipment, excluding motor vehicles	0.539
Water transportation	0.463
Oil and gas extraction	0.383
Apparel and other textile products	0.366
Building materials and farm equipment	0.361
Metal mining	0.352
Fisheries	0.154
Textile mill products	0.119
Other	0.093
Tobacco manufacturers	0.047

Source: *First Chicago NBD, Economics Division; Bureau of Economic Analysis.*

**Table 3** Per Capita Defense Outlays:<sup>1</sup> Great Lakes vs. U.S.

	Great Lakes	U.S. Avg.	Ratio <sup>2</sup>
1980	\$249	\$556	0.447
1985	451	908	0.497
1986	448	907	0.495
1987	415	899	0.461
1988	376	864	0.435
1989	392	861	0.455
1990	377	844	0.447
1991	411	877	0.468
1992	346	830	0.417
1993	357	833	0.429
1994	334	807	0.413

<sup>1</sup>Includes prime contract awards.

<sup>2</sup>Ratio is regional outlays divided by national outlays.

Source: Department of Defense, *Prime Contract Awards for States*

**Table 4** Top Ten Defense-Funded Industries<sup>1</sup>

	Percentage of Output Attributable to Defense
1. Ordnance and accessories	77.0%
2. Aircraft and parts	48.7
3. Radio, T.V., and communication equipment	31.9
4. Other transportation equipment	24.9
5. Government industry	23.3
6. Miscellaneous machinery, except electrical	14.7
7. Materials handling machinery and equipment	13.4
8. Electronic components and accessories	6.8
9. Office, computing, and accounting machines	6.0
10. Optical, ophthalmic, and photographic equipment	5.6

<sup>1</sup>Broken down by three-digit SIC codes.

Source: Survey of Current Business. Analysis based on 1987 data.

**Agriculture.** Table 5 shows the distribution of per capita farm cash receipts in the Great Lakes versus the U.S. Agriculture was clearly more important to this region of the country in the 1980s than to either New England or the Mideast. It was not, however, a distinguishing characteristic of the region. Except for a few isolated areas in southern Illinois, the region largely escaped the worst of the problems associated with both the farm crisis of the mid-1980s and the drought of 1988. (It should be noted, however, that Chicago's exchanges were affected by the 1988 drought. Corn and grain prices soared that year.)

Not much changed in the early 1990s. Agriculture remained an important but not distinguishing characteristic of the region. Even the effects of the floods of 1993 were fairly isolated. In 1994, the Great Lakes region ranked sixth in its dependence on agriculture, and was averaging well below the national average on per capita receipts.

**Table 5** Per Capita Farm Cash Receipts: Great Lakes vs. U.S.

	Great Lakes	U.S. Avg.	Ratio <sup>1</sup>
1980	\$578	\$617	0.937
1985	588	605	0.973
1986	524	560	0.936
1987	514	577	0.890
1988	536	620	0.865
1989	565	655	0.863
1990	630	690	0.912
1991	594	670	0.887
1992	585	669	0.875
1993	613	680	0.903
1994	600	689	0.870

<sup>1</sup>Ratio is regional receipts divided by national receipts. Errors due to rounding may occur.

Source: U.S. Department of Agriculture, *Economic Indicators of the Farm Sector*.

**Key Industries.** On balance, the Great Lakes region maintained its link to heavy manufacturing in the early 1990s, despite aggressive downsizing in that sector. Durable goods producers of both capital equipment and autos are both over-represented in the region. This is in contrast to the defense lean of New England industries. Nondurable goods producers are also over-represented in the region. The bulk of those producers, however, are concentrated in the chemicals and paper industries. Defense and agriculture are less important to the region.

### Relative Costs

**Manufacturing Wages.** Table 6 compares manufacturing wages in the Great Lakes with those in the nation. The Great Lakes region was and still is the most expensive region for manufacturing wages in the country. The restructuring of heavy manufacturing in the 1980s helped to mitigate but did not erase the region's propensity for a more expensive wage structure. However, caution should be used as these data are limited to the highly unionized wages of the auto and capital equipment sectors of the economy. Anecdotal evidence suggests that wages elsewhere in the region's economy were actually fairly inexpensive in the 1980s.

The 1990s were a different story for the region. Wages started to accelerate again in 1991 and 1992. The most dramatic move occurred in 1994. Area wages jumped to an average \$13.95 per hour in the region, a full 14.3% above the national average and the highest in the country. This is not surprising, given the record level of overtime hours worked that year. Anecdotal reports suggest that nonmanufacturing wages are also accelerating in the region. The region has not yet reached the levels, however, experienced on a relative basis in New England in the late 1980s.

**Home Values.** Table 7 compares the median value of a home in the Great Lakes with that for the nation. Housing in this region of the country got increasingly more affordable in the 1980s. This is not surprising, given the path of wages over the decade. Stress in the heavy manufacturing sector carried over into the housing market. The pressure on Michigan home values was especially severe.

**Table 6** Manufacturing Wages: Great Lakes vs. U.S.

	Great Lakes	U.S. Avg.	Ratio <sup>1</sup>
1980	\$8.56	\$6.60	1.300
1985	11.30	9.68	1.168
1986	11.50	9.90	1.162
1987	11.67	10.12	1.153
1988	11.86	10.35	1.146
1989	12.08	10.63	1.136
1990	12.39	10.98	1.129
1991	12.82	11.34	1.131
1992	13.13	11.63	1.129
1993	13.54	11.92	1.136
1994	13.95	12.21	1.143

<sup>1</sup>Ratio is regional wages divided by national wages.

Source: Bureau of Labor Statistics, *Employment and Earnings*.

**Table 7** Median Home Values: Great Lakes vs. U.S.

	Great Lakes	U.S. Avg.	Ratio <sup>1</sup>
1980	\$46,185	\$62,050	0.744
1985	57,835	75,350	0.719
1986	61,589	80,250	0.718
1987	64,183	85,600	0.709
1988	66,897	89,200	0.719
1989	68,575	92,950	0.727
1990	73,358	95,225	0.754
1991	75,864	99,725	0.769
1992	79,551	103,600	0.786
1993	83,119	106,500	0.797
1994	88,242	109,550	0.824

<sup>1</sup>Ratio is regional home values divided by national home values.

Source: National Association of Realtors.

The situation in the early 1990s was substantially better. Home values appreciated, and the ratio of median values in the region to that for the nation rose over the period. However, the region remains among the most affordable in the nation, especially when compared against area wages. The ratio of regional to national home values is still well below unity. The only major exception is Chicago, where housing has gotten increasingly out of line with the underlying income data in recent years. In 1994, the median price of a home in the Great Lakes was \$90,298, still about 18% below the national average.

**Totaling it Up.** On balance, the Great Lakes remains a relatively affordable region, despite a fairly expensive wage structure. A high dependence on light vehicle production, however, is distorting the data on wages. Recent appreciation has done little to undermine the competitiveness of the region's cost structure.



## Demographic Shifts

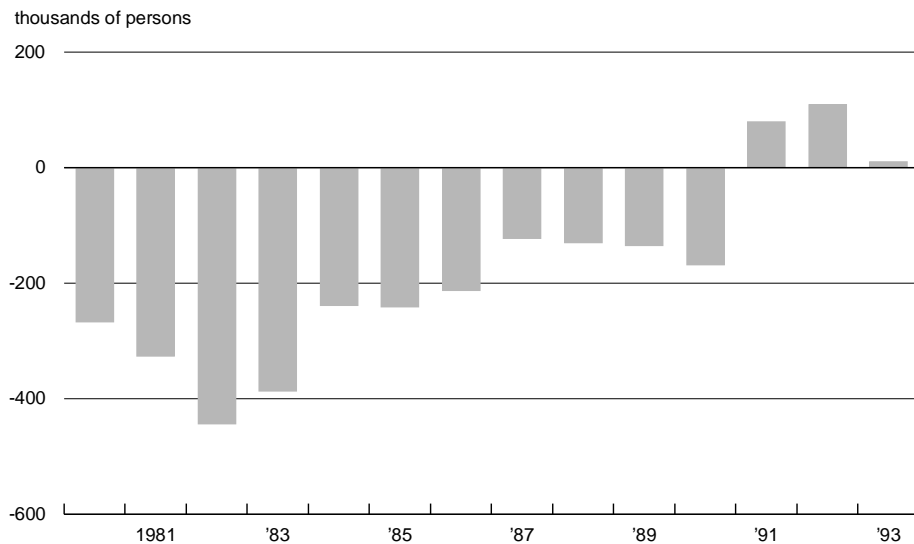
**Net Migration.** Figure 2 shows the migration patterns to (from) the Great Lakes in the 1980s and 1990s. There was a large movement out of the region in the 1980s. Once again, this is not surprising given the downsizing of the heavy manufacturing sector over that period. Widespread layoffs were prompting younger workers to relocate to the Southeast and Southwest, where jobs were plentiful.

Those trends reversed themselves, however, once manufacturing sector activity picked up in the early 1990s. More people entered than left the region in 1991, 1992, and 1993, but migration to the region is still marginal when compared to other parts of the country.

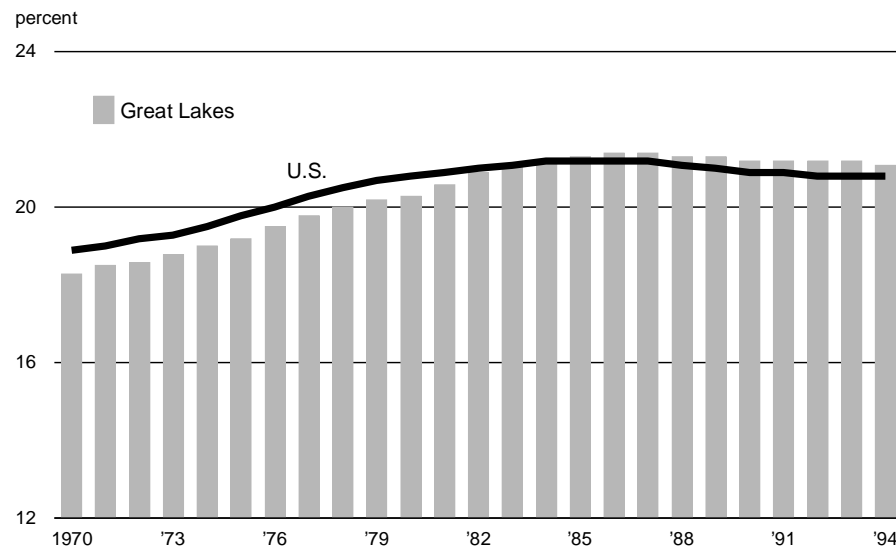
**Age Risks.** Figure 3 compares the share of the population in the Great Lakes which is above the age of 55 with that for the nation. Unlike the New England and Mideast regions, the Great Lakes is not much older than the U.S. average. The gap between the regional and national percentage of people over the age of 55 widened only slightly over the 1980s.

Those trends continued in the 1990s. The region could still not be distinguished, however, by its distribution of the over 55 cohort. In 1994, about 21% of the population was over the age of 55, about the same as the national average.

**Figure 2** Net Migration (thousands) Great Lakes



**Figure 3** Percentage of Population Over Age 55: Great Lakes vs. U.S.



### Analytical Issues

The structure of the regional model is laid out in detail in the 1990 version of this report, and is summarized in box 2. *Essentially, key differences in the structure of a regional economy explain much of the diverging performance of a given region.*

New England and its experience with the defense industry is a good example of this concept. New England outperformed much of the country in the 1980s, when defense spending was on the rise. The region saw a sharp turnaround in growth in the 1990s, however, once that funding dried up.

The remainder of this section takes a closer look at the underlying logic of the First Chicago NBD Regional Model, paying special attention to the relationship between key structural factors and different regional economies. Biases that may arise in the statistical portion of the analysis are also discussed. Statistics are important, but only explain a portion of what is actually happening in the world.

### Key Structural Factors

Over the years, the Economics Division identified seven factors that were especially influential in determining the economic differences that we were seeing across regions in the late 1980s.<sup>3</sup> These included:

- A favorable *trade* situation which was boosting growth in the heavy manufacturing industries of the Great Lakes;

**Box 2** The First Chicago NBD Model: A Theoretical Framework

Equation 1 summarizes the concepts implicit in the First Chicago NBD Regional Model:

$$(1) \quad E_i = f(E, S_i)$$

where  $E_i$  represents the economic performance of region  $i$  (in our example New England),  $E$  represents national economic performance, and  $S_i$  represents the structural factors that differentiate the region. For simplicity, inflation-adjusted personal disposable income growth is used to represent the economic performance of any given region. Income growth was thought to provide a better summary statistic of economic health than other regional measures, as it captures the effects of overheating as well as shifts in economic growth.

The structural factors which differentiate regions,  $S_i$ , are described in the text. In our New England example,  $S_i$  would be represented by changes in defense outlays. The remaining structural factors identified by the model are laid out in *Equation 2*:

$$(2) \quad E_i = f(E, \$, OIL, DEF, IP, PROP, POP_i)$$



where  $\$$  represents shifts in the trade-weighted value of the dollar lagged over time; *OIL* represents changes in the producer price index for crude petroleum prices; *DEF* represents inflation-adjusted changes in defense outlays; *IP* represents changes in the Index of Industrial Production; *PROP* represents inflation-adjusted shifts in proprietors' (farm) income; and  $POP_i$  represents changes in the population in region  $i$ . Shifts in entitlement spending, demographics, and relative costs are also important, but harder to capture within a standard statistical framework, and are judgmentally adjusted for in the final analysis.

- Falling *oil prices*, which were hurting growth in the oil producing industries of the Southwest and Rocky Mountains, but boosting growth in the oil-consuming industries of the Great Lakes, New England, and Far West;
- Cutbacks in *government spending* (largely defense cuts), which were hurting growth in the defense industries of New England and the Far West;
- An extended *business cycle* expansion, which was boosting growth in the cyclically sensitive heavy manufacturing industries of the Great Lakes;
- An end to the crisis in the *farm* sector, which was easing the pressure on the agricultural industries of the Plains, the Southeast, and parts of the Far West;
- *Economic rationalization*, which was capping growth in the more expensive New England, Mideast, and Far West regions, and boosting growth in the less expensive Southeast, Southwest, Plains, and Great Lakes regions; and,
- *Demographics*, which will determine which regions will suffer more from proposed caps on entitlement spending. Older regions are more susceptible than younger regions to cuts.

In 1996, these factors are still seen as extremely important in determining regional differences. In some cases, such as demographics, they are expected to be more important than they were during the early part of the decade.

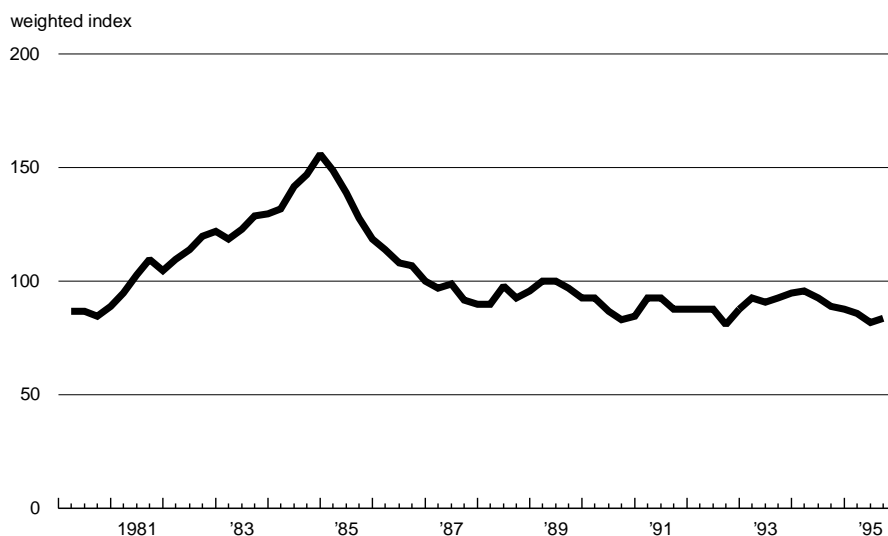
**Trade.** Figure 4 shows the behavior of the trade-weighted value of the dollar in the 1980s and first half of the 1990s. Everything from structural trade deficits with Japan to chronic federal budget deficits in the U.S. has kept the dollar on a long-term downtrend relative to our largest trading partners since the mid-1980s. This, combined with reforms in China and the emerging markets, resulted in widespread shifts in trade:

- Exports of high value-added manufactured goods surged;
- Imports of high value-added manufactured goods slowed; and,
- Imports of low value-added manufacturer goods and computers surged.

Chronic imbalances with Japan and continued market reforms abroad suggest that these patterns should continue over the next several years. Even Mexico appears to be getting back on track again, after a substantial set-back at the end of 1994. Exports of high value-added goods are expected to accelerate in the remaining years of the decade, and imports are expected to slow (albeit modestly). ***The result will be moderate trade improvement, especially for the more traditional manufacturing industries of the Great Lakes.*** The lighter industries (apparel and textile) of New England, the Mideast, and the Southeast, however, are expected to continue to suffer from increased production in the emerging markets.

***Bias?*** *The use of the trade-weighted value of the dollar likely understates the role that trade has played in the more trade-sensitive regions of the country. It does not capture trading conditions with the developing nations or target specific industries. Exports to the industrialized*

**Figure 4** The Trade-Weighted Value of the Dollar



Source: The Federal Reserve Board of Governors.

as well as the developing economies have surged in recent years. Moreover, shifts in the dollar are cumulative over time. Recent decisions by the Germans and the Japanese to increase their productive capacity in the U.S. were the result of several years of dollar depreciation.

**Oil Prices.** Figure 5 shows the behavior of oil prices in the 1980s and 1990s. Except for a minor blip during the Gulf War in 1990 and 1991, oil prices have also been on a relatively long-term downtrend since the mid-1980s. This is important for two reasons. First, it explains why the oil patch states were hit so hard in the late 1980s. Second, it helps to explain why some of the more oil consuming areas of the country did better in the early 1990s. Heavy manufacturers, in particular, were helped by widening profit margin where oil represents a fairly large percentage of the cost of production.

Oil prices have remained relatively stable for the last several years, and oil reserves are in fairly good shape worldwide. Moreover, the Gulf War proved the willingness of smaller producers to come on-line should oil prices jump again. *The best bet is that oil price shifts will not be the shock that they were for the oil producing regions in the late 1980s, and will provide additional support for the more oil consuming portions of the country.*

**Bias?** Most regions are probably not as sensitive to oil price shifts today as they were in the early 1980s. Oil consumers now hedge against higher oil prices. It is also arguable that movements in the price of oil in the \$18 to \$20 per barrel range, which is where we are today, are

**Figure 5** Crude Petroleum Prices (Domestic Production)



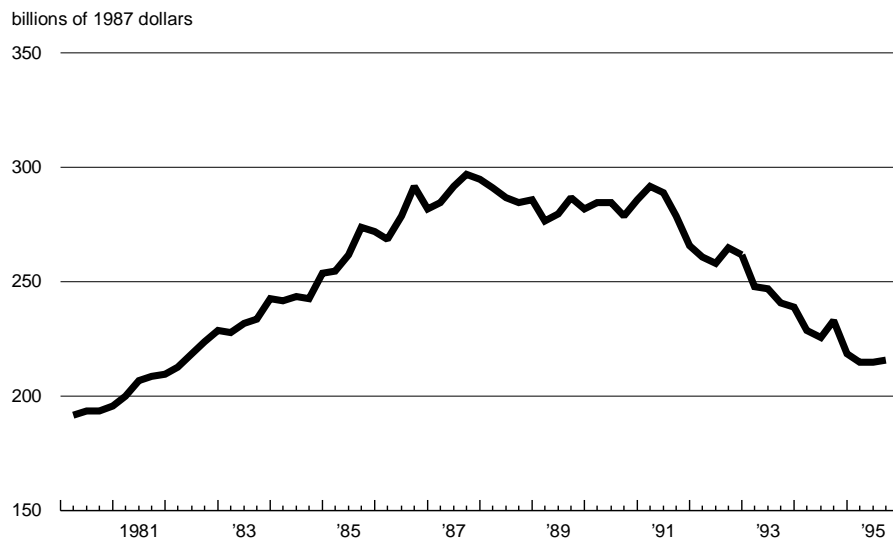
Source: The Producer Price Index.

exponentially easier to absorb than shifts in the \$40 to \$42 per barrel range. Most standard statistical models assume that price shifts are symmetric in their effects over time, and would tend to overstate the effects of price shifts at the current level of prices.

**Government Spending.** Figure 6 shows the movement of defense spending in the 1980s and 1990s. After a fairly substantial runup in the early 1980s, defense spending was cut dramatically in the late 1980s and early 1990s. The results were fairly predictable. Those regions with the highest concentration of defense industries fell apart. New England was especially hard hit. The only exception was the Southeast, which had a larger concentration of military bases than private sector defense contracts. Funding for military bases was harder to cut than contract awards for both political and environmental reasons. (Some military bases were so polluted that they cost more to clean up than keep open.)

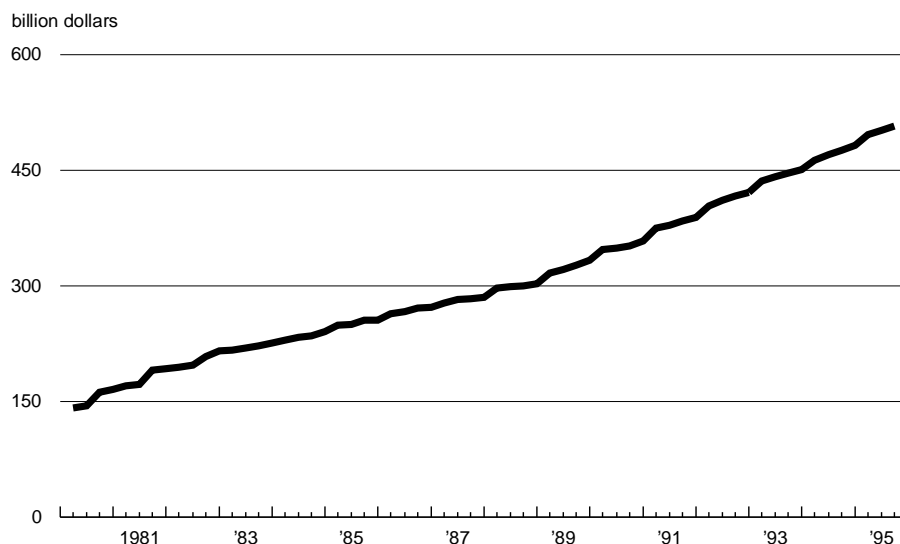
Pressure on the federal budget remains high in 1996, and is expected to intensify during the remainder of the decade. *More of the pressure to cut spending, however, is likely to fall on entitlement spending rather than defense spending during the remainder of the decade.* Entitlements have had an extraordinary run in recent years (see figure 7), and defense has already been cut. Everything from entitlement spending to farm subsidies was on the block in the most recent round of federal budget negotiations. A move to reallocate spending from previously high spending to low spending areas (a shift from the Northeast to Southeast) is also underway. The

**Figure 6** Federal Defense Outlays



Source: U.S. Department of Defense.

**Figure 7** Federal Entitlement Spending\*



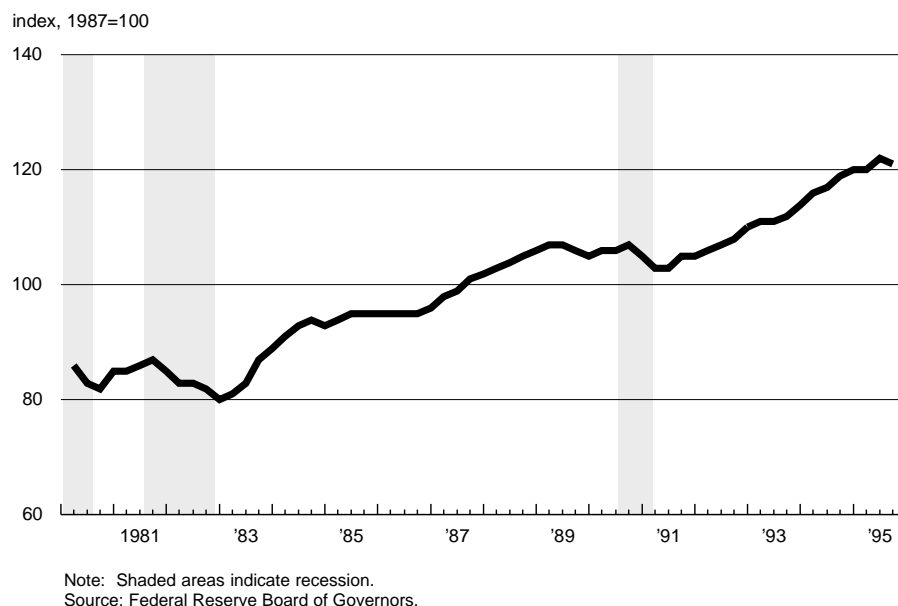
\*Includes Social Security, Medicare, and Medicaid payments.

implications of those moves are fairly straightforward. New England and the Mideast are likely to suffer more from those shifts, as they have higher concentration of health care industries. They also have a relatively high distribution of older people.

***Bias?** The problem with measuring the effects of budget cuts on the economy rests in the aggregation of the data. The initial cuts in the defense budget, for instance, were heavily weighted on the private sector. Effects were greater in New England than the Southeast. A similar problem exists with the nondefense end of the equation. Cuts in farm subsidies are likely to be substantially harder on the Southeast and Plains than they will be on other parts of the country. Likewise, the Mideast and New England are likely to be more sensitive to cuts in health care spending. (They are among the most medicated of regions in the country.) On net, the losses associated with spending cuts in any particular region of the country are likely to be substantially more than is estimated by a standard statistical model.*

**Business Cycles.** Figure 8 shows the behavior of industrial production in the 1980s and early 1990s. No other single indicator better captures the timing and duration of recessions than industrial production. Manufacturing is, by its very nature, more sensitive to business cycle shifts than other sectors of the economy. Heavy manufacturing is especially hard hit by economic downturns. In the early 1980s, autos and the traditional equipment industries of the Great Lakes were hit while in the early 1990s, aerospace, computers, and defense were hit.

**Figure 8** U.S. Industrial Production



The current expansion is getting old. A recession seems unlikely for 1996, which is an election year. The game gets much riskier, however, in 1997 and 1998. ***Some sort of an economic slowdown is extremely likely before the end of the decade.*** This will take a toll on the more industrialized regions of the Great Lakes, Mideast, and parts of the Far West.

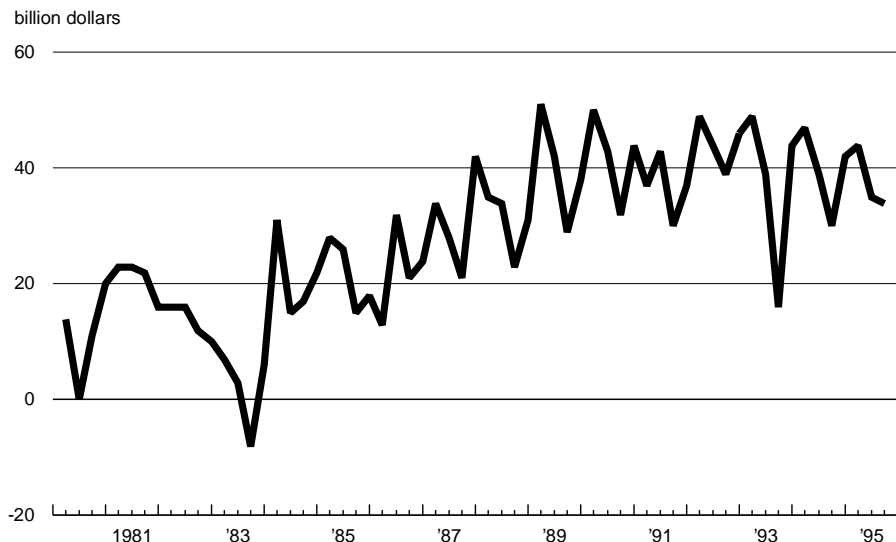
***Bias?*** *The index of industrial production is a catch-all indicator, which may be closely correlated with other indicators of the Regional Model. It responds to all kinds of shifts in the U.S. economy in addition to changes in the business cycle. Recent shifts in trade make it a particularly hard indicator to decipher. Increased production at the Japanese transplants and a surge in exports suggest that it reflects demand abroad as well as demand at home. Statistical models may tend to overestimate the negative effects of a downturn on domestic production in key sectors.*

***Farming.*** Figure 9 shows the volatility of farm income in the 1980s and early 1990s. Increased agriculture output abroad, especially among the developing economies, took its toll on farm income over the period. Farm income actually dipped below zero on an inflation-adjusted basis in the 1980s.

The 1990s have been somewhat better for farm income. Those gains are likely to be short-lived, however, as farm subsidies are on the cutting block. The funds available for disasters, in particular, were cut back in the wake of the Midwest floods. It is also somewhat telling that President Clinton was one of the first presidents to be



**Figure 9** Farm Income



Source: U.S. Department of Commerce.

elected without making promises to the farm sector. *Farm subsidies are expected to continue to be curtailed during the remaining years of the decade.* Recent negotiations, however, were somewhat more protective of subsidies in the Southeast than of those in the Plains. This will likely take some of the steam out of the more agricultural economies of the Plains and Southeast.

***Bias?** Widespread consolidation in the farm sector in the 1980s has reduced many regions' sensitivity to farm income shifts. Larger farms and corporations are better able to weather shifts in farm income than the smaller farms of the past. The fallout from farm defaults is also much less severe for sectors that service the farm sector, such as banking, than it was in the past. Statistical models may tend to overestimate the negatives associated with subsidy cuts.*

***Economic Rationalization.** An overwhelming force guiding regional economic development can be found in the mechanisms of a market economy. Competition between regions for scarce resources (land, labor, and infrastructure) push regions through long relative economic swings. Periods of relatively rapid economic expansion tend to be followed by periods of relative economic decline. Regional economies tend to rationalize over time.*

Economic rationalization can be summed up by the substitution rule: One thing will eventually replace another if it is cheaper and does the job better. In the context of regional growth, it translates to competition, both domestically and abroad, for investment. Investors tend to shift their assets to regions where they believe the returns on their assets are greatest, and leave regions where they are the least. More

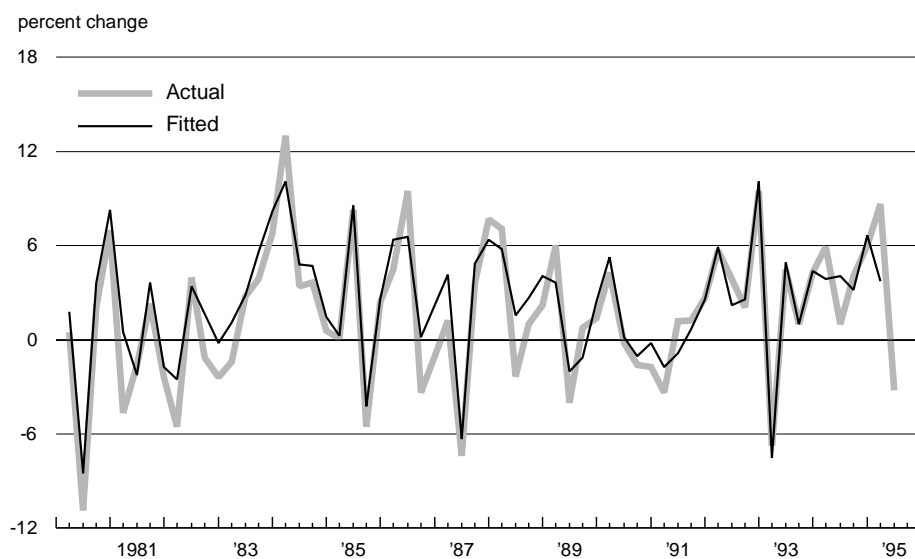
to the point, people tend to migrate to where the jobs are. The current migration from California to nearby states is perhaps one of the more dramatic examples of this phenomenon. Those trends, however, are already showing signs of abating. **The more dominant longer term trend will be the movement from the Far West, New England, and the Mideast to the less expensive Southeast, Southwest, Plains, and Great Lakes regions.** Milder weather in the South is an added plus, as it makes those regions a retirement destination.

**Bias?** Some regions may be at a disadvantage if the bulk of their gains are coming from retirement shifts alone. This model does not separate the retirement from the rationalization trends in the population data. More on this below.

**Demographics.** Finally, demographic shifts, which are difficult to put directly into the empirical analysis, are also important. **Older regions of the country, all else being equal, are expected to be at a disadvantage in this environment.** Entitlement spending on retirees, in particular, is expected to get squeezed, which will affect everything from state and local tax bases to loan defaults. Retirees are already less likely to vote in favor of tax hikes, and changes to entitlement spending in Washington (Medicare, Medicaid, and at some point Social Security) are likely to crimp their ability to cover basic expenses. Medical bills could become particularly difficult to cover. This will be an especially large problem for the more medicated New England and Mideast regions. Parts of the Southeast are also at a higher risk going forward, but those losses will be more concentrated in Florida.

**Bias?** Wealth shifts are likely to provide some offset to these trends in parts of the country that have become popular retirement destinations. Wealthier retirees are more likely to migrate than less wealthy retirees.

**Figure 10** Great Lakes  
 $E_{GL} = f(E_{US}, \$LAG, OIL, IP)$



## Model Results

From the structural analysis, the Great Lakes region can be distinguished by one overwhelming characteristic: A disproportionate dependence on heavy manufacturing. Automakers, equipment producers, and their suppliers are all over-represented in the region.

**Empirical Results.** Figure 10 shows the empirical results of the analysis on the Great Lakes economy. The black line shows the actual shifts in disposable income growth over the 1980s and early 1990s. The grey line shows the role that national shifts in income, changes in the business cycle, lagged changes in the trade-weighted value of the dollar, and changes in oil prices had in determining those shifts. They captured roughly 85% of the actual movements in regional income growth over the period. There were differences in the degree to which those variables dominated the equation over time, however. A more stable period of oil prices after the Gulf War, for instance, has diminished the importance of oil shocks in the regional equation. The region also appears to be less sensitive to business cycle shifts than it was in the 1980s. This may be due to the role that exports are playing in the business cycle. Exports helped to keep production afloat during the last recession. (See appendix for more detailed model results.)

**Other Issues.** The Great Lakes region remains relatively inexpensive, with only a moderately higher distribution of the elderly than other parts of the country. Economic rationalization continues to work for the region, despite several years of economic gains.

Some markets, however, are beginning to show signs of overheating. The housing markets in Chicago, IL and Madison, WI, have seen a particularly high rate of appreciation over the last several years, and could be ripe for some sort of correction later in the decade.

**Prospects for the remainder of the 1990s.** The Great Lakes region is well positioned to benefit from the shifts that we are expecting during the remainder of the decade. The only major risk may be a cyclical downturn. Much like the experience of 1990, however, strong exports and continued gains in equipment spending are expected to provide some offset to cyclical losses. There is also a sense that the region is hitting its head on the ceiling of economic growth. Labor markets are getting particularly tight, and the risk of overheating is high. Some in-migration may be necessary to keep growth on an upward trend. The good news is that movement to the region has picked up since the late 1980s. On net, real disposable income is expected to rise at an annual 2.6% average rate during the balance of the decade, 0.5% ahead of the national average. (See Table 8.)

**Table 8** Real Disposable Income Growth: Great Lakes vs. U.S.

	Great Lakes	U.S.
1980-89 avg.	1.3%	2.5%
1990-95 avg.	2.3	2.3
1996-99 avg.	2.6	2.2

## Winners and Losers

The final section of this analysis takes a look at the regional winners and losers of the forecast. *The 1990s are shaping up to be almost exactly as we had expected in 1990, with economic strength much more heavily concentrated in the south and mid-portions of the country than the coasts.*

Table 9 shows the restacking of regional economies that has occurred since the 1980s. Regions are ranked by their average disposable income growth over the period. Essentially, previous winners became losers, and previous losers moved up in their ranking in the 1990s:

- New England, the Mideast, and the Far West collapsed;
- The Rocky Mountain region surged; and,
- The Southwest, Great Lakes, and Plains improved.

The only major exception was the Southeast, which was a winner in both periods.

**Conclusions.** The restacking of regional economies that began at the start of the decade is expected to continue through the end of the decade. *Previous winners are becoming losers, and previous losers are becoming winners.* Those hoping for a rebound in New England are likely to be particularly disappointed. The restructuring in health care is expected to pick up where defense cuts left off in holding down growth in that region. The Great Lakes and portions of the South remain the best bets for the remainder of the decade.

All good things must eventually come to an end, however, and signs of another restacking are beginning to emerge. By the turn of the century, California might even be an affordable place to live. Then again, these shifts take time, and I wouldn't hold my breath.

**Table 9** Ranked from Winners to Losers

1980-89	1990-95	1996-99
New England	Rocky Mtn.	Great Lakes
Southeast	Southeast	Southeast
Far West	Southwest	Rocky Mtn.
Southwest	Great Lakes	Southwest
Mideast	Plains	Plains
Rocky Mtn.	Far West	Far West
Plains	Mideast	Mideast
Great Lakes	New England	New England

**Appendix: Model Results for the Great Lakes Region**

Dependent Variable	Independent Variables				R <sup>2</sup> %	DW
	YUS	OIL	IP	\$PDL 10 2		
YGL	0.999 (14.11)	-8.446 (-2.16)	0.040 (0.75)	-0.035 (-1.4)	0.844	1.97

**Definition of Variables\***

**Great Lakes Region Variables**

YGL	Real disposable income growth for the Great Lakes Region.
YUS	Real disposable income growth for the United States.
OIL	The Producer Price Index for crude petroleum prices, domestic production.
IP	Index for Industrial Production.
\$	Trade-weighted value of the dollar.
PDL 10 2	Denotes a ten quarter distributed lag.

\* All variables reflect seasonally adjusted annual rates of growth.

**Footnotes**

- <sup>1</sup> Regional Winners and Losers Revisited: Part I and Part II, *Economic Backgrounder Issue*, Diane C. Swonk, February 1996.
- <sup>2</sup> Bureau of Economic Analysis Regions  
**New England:** Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont. **Great Lakes:** Illinois, Indiana, Michigan, Ohio, Wisconsin. **Plains:** Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota. **Mideast:** Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania. **Southeast:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia. **Southwest:** Arizona, New Mexico, Oklahoma, Texas. **Rocky Mountain:** Colorado, Idaho, Montana, Utah, Wyoming. **Far West:** California, Nevada, Oregon, Washington. (Alaska and Hawaii are not included in the Bureau of Economic Analysis regional breakdown.)
- <sup>3</sup> "The Outlook for the Great Lakes Economy: The Effect of Structural Change," Internal Research Paper, James E. Annable, January 1996; and "Encouraging Outlook for Christmas Retail Sales," *First Regional Report*, Diane C. Swonk, Autumn 1986.
- <sup>4</sup> "Regional Winners and Losers," *Economic Backgrounder Issue*, Diane C. Swonk, May 1990.

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