Federal Reserve Bank of Cleveland

2005 Annual Report

FEDERAL RESERVE BANK OF CLEVELAND 2005 ANNUAL REPORT

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The Federal Reserve System is responsible for formulating and implementing U.S. monetary policy. It also supervises banks and bank holding companies and provides financial services to depository institutions and the federal government.

The Federal Reserve Bank of Cleveland is one of 12 regional Reserve Banks in the United States that, together with the Board of Governors in Washington, D.C., comprise the Federal Reserve System.

The Federal Reserve Bank of Cleveland, including its branch offices in Cincinnati and Pittsburgh and its check-processing center in Columbus, serves the Fourth Federal Reserve District (Ohio, western Pennsylvania, the northern panhandle of West Virginia, and eastern Kentucky).

Contents

Shrinking the World

Issued in 1876, Alexander Graham Bell's patent for the telephone has been called the most valuable ever issued, revolutionizing the daily lives of ordinary people. In 1935, the first telephone call was made around the world. Although the two men spoke from adjoining rooms in New York, their voices circled the globe.

The Electronic Age

The 1990s to the present are widely considered to be the electronic age: In 1998, Americans averaged 2,300 phone calls a year, and in 2003, computer and Internet capabilities were added to cell phones. One in five people under the age of 30 say the Internet is their main source of information.

President's Foreword

Trade and innovation have profoundly influenced patterns of economic development throughout the ages. The Federal Reserve Bank of Cleveland addressed this topic at some length in our 2003 *Annual Report*. We noted that although trade and technological change invariably favor some industries, skills, and locations more than others, they are ultimately the only sources of rising living standards for all Americans.

During the past several decades, we have witnessed an intense period of globalization and technological change. These forces have affected the United States not only on a national level but on a state level as well. The states, in turn, are focused on how they might influence their *own* economic development paths.

The fact is that per capita income differences among the states have declined significantly over time, primarily because the poorest states have improved their relative positions by so much. Income convergence among the states makes sense: People and businesses are free to locate wherever they wish, and the declining costs of transportation and communication foster mobility. But this convergence is far from complete.

This year's *Annual Report* essay examines factors that might account for differences in the evolution of states' income growth. In seeking to understand why some states appear to be faring much better than others, we conclude that innovation and workforce skills make the difference.

I am proud of the significant strides that our Bank has made in achieving its strategic objectives in 2005: leadership in thought and deed, external focus, and operational excellence. In the Operational Highlights section of this report, we focus on some of these achievements: converting a steadily increasing number of paper checks to Automated Clearinghouse (ACH) debits and Check 21 clearings; becoming one of the nation's largest providers of Treasury services; and leading the effort to consolidate savings bond and TreasuryDirect operations into the Federal Reserve's Pittsburgh and Minneapolis offices.

(l–r): Charles E. Bunch, deputy chairman; R. Chris Moore, first vice president and chief operating officer; Sandra Pianalto, president and chief executive officer; and Robert W. Mahoney, chairman.

The completion of the Bank's Learning Center and Money Museum exemplifies all three of our strategic objectives. The center was designed to educate students and visitors of all ages about what gives money value and how the Federal Reserve supports the integrity of money, banking, and the payments system. I hope that all of our constituents in the Fourth District and beyond will take the opportunity to visit this wonderful new facility located in our Bank's main lobby.

The Bank's success last year was sustained by the guidance and support of our boards of directors in the Cleveland, Cincinnati, and Pittsburgh offices and by the members of our advisory councils.

I am especially grateful for the exemplary service of our outgoing chairman of the board, Robert W. Mahoney (retired chairman and chief executive officer, Diebold, Incorporated). Mr. Mahoney has led our board during the past three years and has served as a director since 2000. His wise counsel and skilled leadership have guided us through many important changes, both internal and external.

Thanks also go to another longtime director, Phillip R. Cox (president and CEO, Cox Financial Corporation). Mr. Cox joined the Cincinnati board in 1994 and served two terms there before joining the Cleveland board in 2000. He has been an energetic contributor, member, and chair of several board committees.

I also offer sincere thanks to V. Daniel Radford (executive secretary–treasurer, Cincinnati AFL–CIO Labor Council) for six years of dedicated service on our Cincinnati board and to Martin G. McGuinn (chairman and CEO, Mellon Financial Corporation), who has served with distinction as our Federal Advisory Council representative for the past three years and as chairman of the council in 2005.

Finally, I offer my profound thanks to the officers and staff of the Federal Reserve Bank of Cleveland. Their contributions in every area of our organization are both inspiring to me personally and essential to our Bank's capacity to change and grow. I know that we will not only meet our future challenges, but that we will achieve new levels of success thanks to our employees' skills, energy, pride, and resourcefulness.

Look to the Federal Reserve Bank of Cleveland for a continued focus on the community, region, and nation. This focus helps us to serve our customers well, to inform economic discourse, and to partner with other organizations that are committed—as we are—to promoting economic prosperity for all of our citizens.

Sandra Pianalto
President and Chief Executive Officer

Farmer with Horse-Drawn Plow, 1930s

Farming was one of the top three occupations in the Fourth District in 1930. The Rural Electrification Act of 1936 brought electric power to many isolated U.S. farms for the first time.

Still a Dominant Force

While both the number of farmers and the percentage of Ohio residents who are farmers have decreased since the mid-twentieth century, average farm size and output have increased.

Altered States: A Perspective on 75 Years of State Income Growth

All of us, it seems, would like to increase our incomes. If elected officials represent our interests, then it follows that these officials would like to help their citizens do just that. Yet boosting collective income levels is a difficult goal to achieve. There are no simple, one-size-fits-all solutions for raising income growth. Still, governments can—and do—try to improve the fortunes of their citizens through initiatives like providing public education systems, recruiting businesses to locate in their region, and assisting in the development and growth of new technologies. In this *Annual Report*, we ask: Why do residents of some states have higher incomes than residents of other states? Why have these income differences persisted for the past 75 years?

To answer these questions, we analyze the patterns of per capita income growth across the 48 contiguous U.S. states from the 1930s to 2004. We find that, over the long run, factors like innovation and a skilled labor force appear to make a big difference in explaining why some states have grown more than others.

Since our research does not examine *specific* policies for state taxation, spending, and regulation, we do not offer advice on any specific policies designed to raise state per capita incomes: Individual policies should be evaluated on cost–benefit criteria. Nevertheless, our findings suggest directions that public policy makers might consider pursuing as they chart their economic development strategies.

This essay begins by providing some facts about state incomes from 1930 to 2004, and we consider these facts in terms of economic growth models. Next, we discuss our own research and how it identifies factors that help to explain the paths of state incomes over this time period. Finally, we address state economic development strategies in light of what we have learned from our research.

THEN AND NOW: The 1930s and the 21st Century

U.S. incomes have risen dramatically over the decades, and how people spend their money has changed as well. Today, the percent of household consumption devoted to transportation expenditures (18 percent) is nearly double that of the 1930s, as lower auto prices, innovations in consumer credit, and rising incomes have made multiple-vehicle ownership widespread. Our food expenditures, on the other hand, have dropped from 34 percent of the U.S. household budget to just 13 percent; low-cost production techniques, refrigeration, and distribution improvements have made this drop possible.

Homeownership rates are also on the rise, increasing from roughly 48 percent in 1930 to 69 percent in 2004. These rising rates were spurred by increasing incomes, the availability of less-expensive suburban land and housing, and financing innovations.

U.S. demographics have changed, too. While the population of the entire United States grew 139 percent from 1930 to 2004, the Fourth Federal Reserve District did not keep pace: West Virginia grew at a meager 5 percent, Pennsylvania at 28 percent, and Kentucky at 58 percent. Ohio's 72 percent growth—the strongest in the District—was still no match for the national average (by comparison, California exploded by 528 percent). In 1930, all four states in the Fourth District were within the top 15 most densely populated states. Although each District state has fallen from its 1930 ranking, Ohio and Pennsylvania still ranked high in the 2004 list.

State Incomes

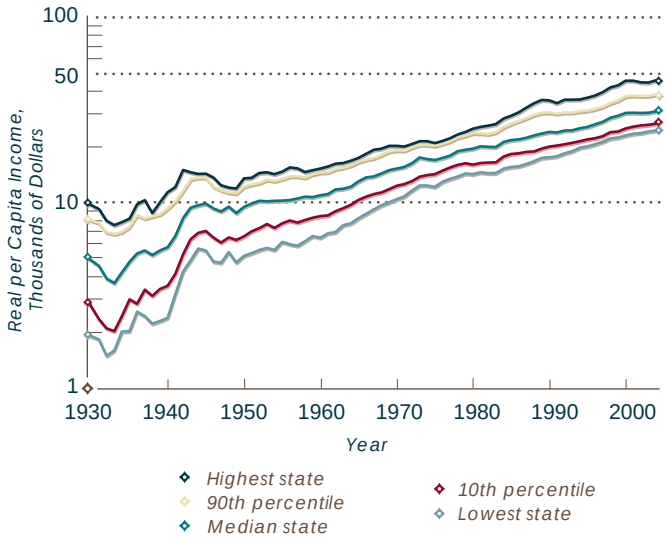
We begin with an analysis of the patterns of per capita income growth across U.S. states. All states have seen their incomes grow in real (inflation-adjusted) terms over the past few generations. Figure 1 shows the income-level growth in all states over the past 75 years: Even accounting for rising prices, the 2004 median of state per capita incomes is more than *six* times higher than it was in 1930.[1] Much of that growth occurred in the expansion that accompanied World War II. The longer-run picture also reveals that the slower growth linked to most recessions is short-lived and that per capita income levels rose faster than inflation in 59 of the past 75 years.

States that had lower incomes in 1930 have tended to grow at a faster pace than those whose incomes were greater at that time. For example, the poorest state—Mississippi—had a per capita income that was roughly one-fifth of the highest-income state at the time, New York. By 2003, the per capita income of the lowest-income state—still Mississippi—was only a little less than *half* of the highest-income state, Connecticut. The progressively smaller gaps among state incomes since the 1930s result in a decline in the standard deviation (a statistic that reveals how tightly state incomes are clustered around the average), as seen in figure 2. This decline is known as convergence—the notion that, over time, the per capita income of states (or countries) will become closer to average.

Within the Fourth Federal Reserve District, the lower-income states of 1930 have also experienced more rapid growth.[2] Kentucky, which had the lowest per capita income of the Fourth District

Figure 1

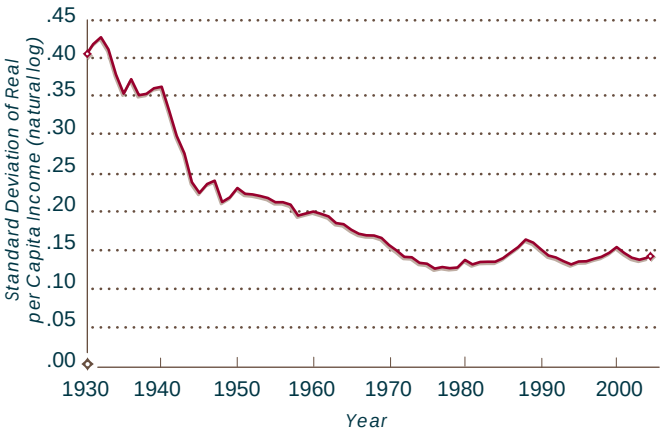
Income Growth



Source: Authors' calculations.

Figure 2

Income Convergence



Source: Authors' calculations.

1 The median is the value below and above which there is an equal number of values or, in this case, where exactly half of the states have higher incomes and half have lower incomes.

2 The Fourth Federal Reserve District includes the entire state of Ohio, western Pennsylvania, eastern Kentucky, and the northern panhandle of West Virginia.

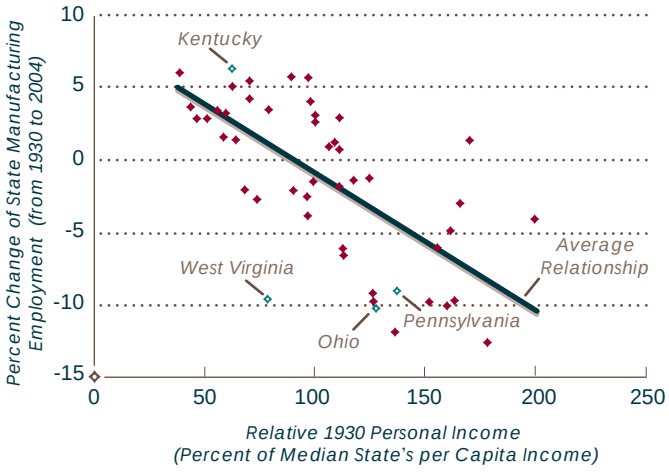
states, experienced the fastest income growth. West Virginia, whose per capita income was low but still well above Kentucky's in 1930, experienced noticeably slower growth than Kentucky. Pennsylvania and Ohio, which had significantly higher incomes than West Virginia and Kentucky, have seen the slowest annual income growth rates in the Fourth District since then.[3]

Does this mean that the economic policies of the lower-income states in the 1930s supported faster income growth than did the policies of the higher-income states? Not necessarily. Economic theory leads us to expect a certain amount of convergence among states.[4] U.S. states share a common set of technologies, and labor and capital are free to locate wherever the return for their services is highest.[5] Over time, the movement of labor and capital should reduce differences in the average amount of capital per worker in a state, a concept known as capital equalization. Applying the basic economic model of total production and growth (see sidebar on Solow and the basics of economic growth), this process should cause incomes to rise in the areas where incomes are lowest.

Evidence shows that capital equalization, which occurs through capital investments in existing plants as well as in the opening and closing of facilities over time, has helped to reduce differences in state income levels. Businesses stand to gain the most when they add capital in places that start with very low relative capital levels (and, therefore, generally lower incomes). Just as the basic economic growth model predicts, the changing location of capital-intensive industries—like

Figure 3

State Manufacturing Employment



Source: Authors' calculations.

manufacturing—in the United States over the past 75 years reveals a clear pattern: States that had lower incomes in 1930 have tended to see, for example, a growing share of total manufacturing employment, while higher-income states have typically seen a declining share (see figure 3). It is exactly this kind of development pattern that should lead to an equalization of capital-per-worker levels within the United States, almost regardless of state policies.

This trend suggests that the reason state incomes have become more equalized is that states' initial levels of capital have become more equalized. In the process, living standards have improved throughout the country. In this simplified version of the growth process, the lower-income states could remain fairly passive and still see their fortunes improve.[6]

3 Kentucky's per capita income growth rate from 1930 to 2004 was 3.0 percent per year. West Virginia's was 2.6, while Pennsylvania and Ohio each had a 2.2 percent annual growth rate.
4 For a basic review of the theory and data, see Gomme and Rupert (2004).
5 The simple version of economic theory neglects states' fixed attributes that might also limit convergence, such as natural resources, access to the ocean, and climate.
6 Realistically, though, states could not sit on their hands. They would still need to build and maintain their public capital stocks just to keep in line with changing national practices.

SOLOW AND THE BASICS OF ECONOMIC GROWTH

Good economic research is built on strong economic models. One of the most durable economic models of the past few decades—the Solow model—shows us what we should expect to see as economies grow.

Fifty years ago, Robert Solow developed what would become a Nobel Prize-winning model of economic growth. Beginning with "A Contribution to the Theory of Economic Growth" in 1956, he crafted a basic model that is still considered a workhorse of macroeconomics today.

The Solow model shows what level of economic growth we can expect using a given amount of capital and labor with a particular level of technology. This is like thinking of the economy as a gradually improving factory that produces one product using both people (labor) and machines (capital).

In this model, per capita income growth comes from a single direction—productivity gains—or, in other words, how our ability to generate per capita income evolves. Productivity gains can be achieved in two ways:

- By increasing the amount of capital for each worker through saving and investment
- Through technical progress or innovation—finding a better way to get things done with what you already have

The Solow model has important implications for how economies grow. It tells us that even if two regions start off with different living standards and different amounts of capital and labor, their amounts of capital per worker will converge. This implies that the regions' per capita income levels will also converge.

Not So Fast

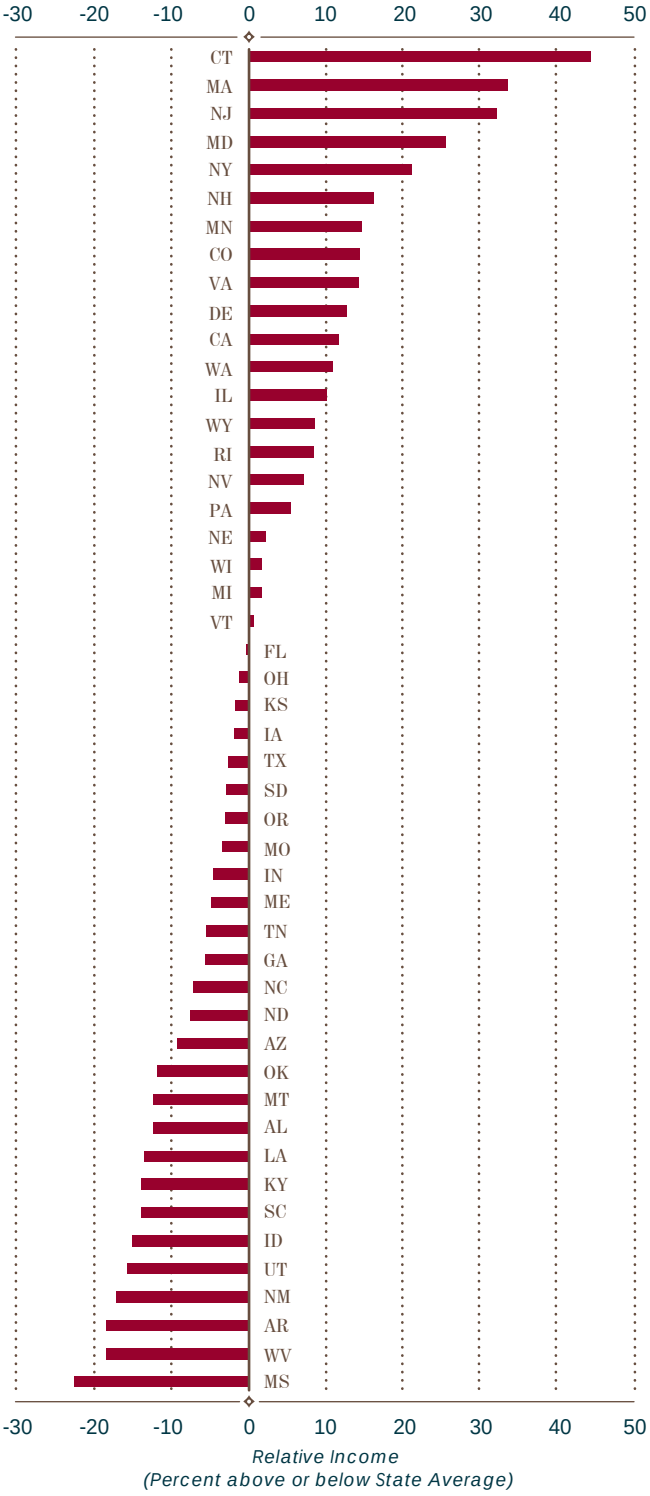
The basic economic model would lead us to expect almost complete convergence by now in state incomes. Has this happened? One way to measure the dispersion of state incomes around the average is with standard deviation; in a country with complete convergence, the standard deviation of state incomes would decline to zero. In fact, the standard deviation of state incomes *has* declined considerably, reaching a minimum in 1976, at roughly 31 percent of the 1930 level. Since then, however, it has risen gradually (see figure 2), with the standard deviation of the 2004 state incomes at roughly 35 percent of the 1930 level. This means that state incomes are now dispersed a bit more widely around the state average than they were in the mid-1970s.[7]

This stalling out of gradual convergence is not evident in all states. Over the past 25 years, lower-income states like Mississippi have actually continued to close in on the median state. But a comparison of state income levels in 2004 (figure 4) shows that substantial income differences remain between low- and high-income states. Why hasn't convergence persisted across the nation? Statistically, the reason is that the income levels reached by our most prosperous states are moving farther away from the median. For example, Connecticut was the highest-income state in both 1976 and 2004: In 1976, it was only 23 percent above the median, whereas it was 47 percent above in 2004.

7 Romer (2000) provides an excellent summary of the basic model and how to calculate the expected rate of convergence.

Figure 4

State Relative Incomes in 2004



Source: Authors' calculations.

The basic economic growth model has no explanation for this divergence of relatively high-income states. Rather, it has a strong prediction that economies sharing technologies should generally tend to converge. In this basic model, states have identical rates of technical progress, and there is no scope for government policies.[8] To help explain the per capita income differences we still observe among states, the basic model must be expanded.

More sophisticated models direct us to recognize that companies and governments might be able to stimulate technical progress through purposeful action. In other words, rather than just relying on labor and capital to move on their own, public officials and private businesses might be able to execute purposeful strategies that expand their abilities to produce goods and services. It is not clear, however, which strategies will best support the evolution of technical progress. We review only the categories that might be particularly relevant within the United States: education levels, taxes and public infrastructure, and patents and technology.[9]

Education Levels. The basic economic growth model does not account for human capital—the accumulated investment in workforce skills. This is important because during the past 75 years, we have seen a tremendous rise in education investment across the country: The share of the U.S. population with college degrees has grown from approximately 4 percent in 1930 to more than 27 percent today.

8 Differing saving rates across states could account for some of this short-run divergence, but if savings move smoothly across state lines, then convergence should be even faster.

9 We did not examine the effects of state programs that offer specific tax breaks or subsidies to businesses in order to attract or retain them. Analysis by the Federal Reserve Bank of Minneapolis (1995) suggests that while such programs benefit the recipients, they do not boost income at the state level.

WHAT CAN EDUCATIONAL ATTAINMENT TELL US?

Just as physical capital is a key determinant of how much an economy can actually produce, human capital is a key determinant of an economy's productive potential. While true human capital can be difficult to quantify, we can use levels of educational attainment as a proxy.

By this measure, U.S. human capital has grown sharply since World War II. For instance, in 1940, less than 25 percent of the U.S. population had completed high school; today, that figure has more than tripled to roughly 85 percent. In the same time span, the percent of college-educated Americans has shot up from less than 5 percent of the U.S. population to more than 25 percent.

Despite this general upward trend, there are still noticeable differences in educational attainment across states, and this has implications for how these economies perform. Among all U.S. states, Massachusetts has the highest proportion of college-educated adults at 36.7 percent and has one of the highest per capita incomes in the United States.

New Hampshire, Minnesota, Georgia, and Alabama have seen some of the largest increases in their share of college-educated citizens in the past 15 years, although Alabama remains one of the states with a relatively low level of bachelor's degree attainment at 22.3 percent. West Virginia—a Fourth District state—has the smallest proportion of college-educated citizens among all states. The other Fourth District states are also below the median, with Kentucky at 21.0 percent, Ohio at 24.6 percent, and Pennsylvania at 25.3 percent. The State-Level Growth Analysis section of the essay addresses the implications of these education patterns for income levels.

More human capital means more productivity, even without incorporating new technology. This may not be the whole story, though. More human capital may also affect which technologies can be adopted. For example, computerization often requires workers to have at least basic programming skills. More human capital may even advance the rate of technological innovation. Empirical studies on international income levels do find a substantial relationship between education levels and income growth, although education differences among countries still fall far short of explaining the remaining income differences.[10] Education differences, large at times, continue to persist and thus may be a factor within the United States as well.

Taxes and Public Infrastructure. What about taxes and public infrastructure? Taxes matter because they lower the amount of money potentially available for private investment, but spending on an improved public infrastructure can also help to boost the economy's productivity. These decisions have potentially offsetting effects on income. In an international study, Kocherlakota and Yi find that U.S. decisions on taxes and public capital have, indeed, been roughly offsetting over a span of many decades.[11] This helps to explain the robust postwar economic growth, despite tax rates that more than doubled during World War II and remained far higher afterward. Public investment also rose dramatically. At the state and local levels, tax and public-spending variations certainly make these factors a plausible source of state differences.

10 Bosworth and Collins (2003) provide recent research accounting for the role of international human-capital differences.
11 Kocherlakota and Yi (1997).

Patents and Technology. Finally, it stands to reason that research and development activity might differ among the states, and this creates a channel through which per capita incomes diverge. Just think about the tremendous effect of electrification—the spread of electricity to nearly universal usage—on twentieth-century society.[12] Advances of this scale cannot help but alter how the economy develops, and they may, at least initially, be unevenly spread through the economy. Smaller increments to our technological base, when cumulated over time, will also improve living standards substantially. Consider the advances of the telephone:

- Early in the twentieth century, operator-assisted rotary phones were still attached to big boxes that housed the ringer.
- The mid-twentieth century saw the telephone become more compact, and modular connections finally allowed phones to be plugged directly into the wall.
- Small, fast, and functional cell phones began replacing many standard phones in the later part of the century and continue to evolve today.

Patents, the most consistent measure of new technical advances, have been employed at each stage of the telephone's progress to protect the many inventors' intellectual property. Patent statistics are typically regarded as an indicator of a broad range of innovative activities rather than as direct producers of income. Past research has connected patent data to more general forms of research and development activities that could vary substantially from state to state.[13]

State-Level Growth Analysis

Even if factors such as human capital, patents, and taxes are likely to have an impact, it remains to be seen just how important these factors are in explaining the differences evident today in state incomes. A recent research project completed at the Federal Reserve Bank of Cleveland by Bauer, Schweitzer, and Shane examines a variety of factors that could influence the evolution of state per capita incomes over time.[14] They use a model grounded in growth theory to consider factors that contributed to per capita income growth in the 48 contiguous U.S. states from 1939 to 2004. This model estimates both the general pattern of convergence among states and the roles of a variety of growth factors like education, patents, taxes, and infrastructure spending.

Part of the model's accuracy stems from including information on the relative income five years earlier, which allows both past investments and past factors outside the model to boost (or lower) state income levels. The model estimates imply that approximately 66 percent of that relative income differential will remain after five years: High-income states will, on average, remain higher-income, and low-income states will remain lower-income.

However, the fact that this estimate is less than 100 percent of the income differential means that the difference between the highest- and lowest-income states should decline each year unless other factors intervene. Without these other factors, income differentials should have shrunk to less than a half of one percent of their starting values over the 65-year period starting in 1939. This pattern is consistent with the income

12 The National Academy of Engineering cites electrification as the most important technical advance of the twentieth century.
13 Griliches (1990) discusses the interpretation of patent statistics as a general economic indicator.
14 Bauer, Schweitzer, and Shane (2006).

INNOVATION IN THE FOURTH DISTRICT

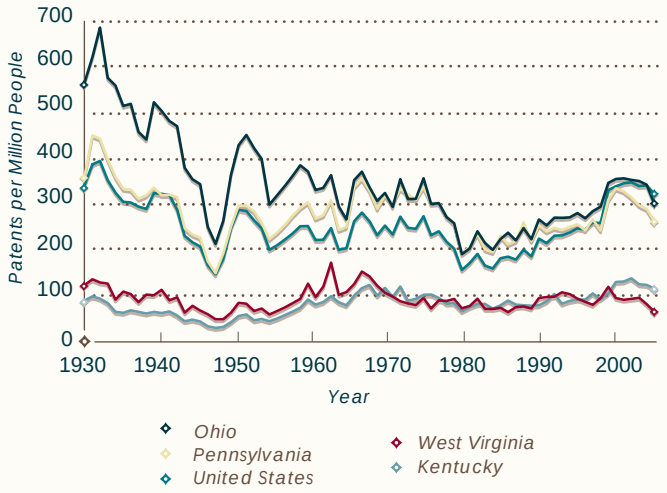
The Fourth District has been the birthplace of many of our nation's inventions: the vacuum cleaner, aluminum, and the Ferris wheel, to name a few. In 1999 alone, our region was granted 4,614 utility patents—that is, "patents for invention." How does our region stack up against the national average, and just who is receiving these Fourth District patents?

In 1930, applicants from Kentucky, Ohio, Pennsylvania, and West Virginia were awarded 7,673 total patents—nearly 20 percent of all patents originating in the United States. After 1930, the number of patents issued to residents of Fourth District states fluctuated greatly, but by 2004, the total granted was 7,216—nearly the same number as was issued 75 years earlier. However, the 2004 total amounted to only 7.7 percent of all patents originating in the United States.

The share of the population involved in research and development activities is better approximated by looking at per capita patents. In 1930, Ohio had significantly more patents per person than the United States as a whole. However, after significantly outpacing the nation for decades, Ohio's per capita patents fell from 566 for every million residents in 1930 to 299 in 2004. Kentucky and West Virginia still have significantly fewer patents per person than the nation, as has been the case since 1917. On a positive note, the number of per capita patents originating in Fourth District states is higher than it was 10 years ago.

Individual companies play a large role in a region's level of patent activity. In just the past five years, more than 35,367 utility patents were awarded to residents of Fourth District states; of these, almost 18 percent were assigned to just 10 companies.

Patents per Capita



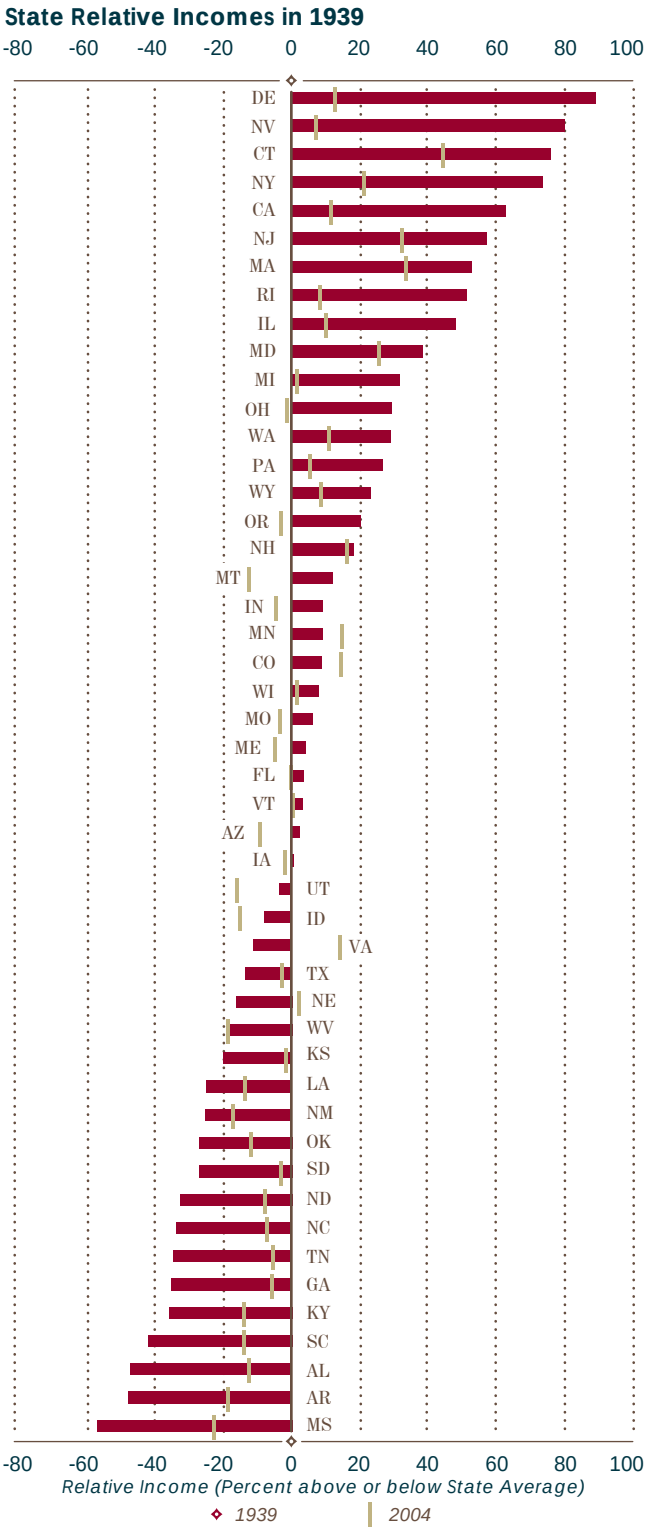
Sources: U.S. Department of Commerce, Bureau of the Census; *Annual Report of the Commissioner of Patents* (various years); *www.uspto.gov/index.html;* and authors' calculations.

Rank	Company*	Industry	Fourth District States' Patent Total, 2000–2004
1	Procter & Gamble	Nondurable Household Products	1,463
2	General Electric Company	Diversified Industrials	1,245
3	SmithKline Beecham Corporation	Pharmaceuticals	604
4	Lexmark International, Inc.	Computer Hardware	558
5	The Goodyear Tire & Rubber Company	Tires	536
6	Lucent Technologies Inc.	Telecommunications Equipment	474
7	Delphi Technologies, Inc.	Automobile Parts	405
8	PPG Industries Ohio, Inc.	Specialty Chemicals	347
9	Air Products and Chemicals, Inc.	Specialty Chemicals	345
10	Rohm and Haas Company	Specialty Chemicals	324

Sources: *www.uspto.gov/web/offices/ac/ido/oeip/taf/asgstc/oh_stc.htm; www.money.cnn.com;* and authors' calculations.

* Patent origin is determined by the residence of the first-named inventor listed on the patent grant.

Figure 5



Source: Authors' calculations.

convergence predicted by the basic growth model with factor mobility and is also consistent with past studies.[15]

This estimated rate of convergence implies that essentially no part of the 1939 state-income distribution remains today. Yet considering the 1939 state relative incomes, shown in figure 5, it is evident that some states have retained their relative status while others have moved substantially. Connecticut, New Jersey, and Massachusetts were all relatively high-income states, and they ended 2004 as the three highest-income states. Mississippi and Arkansas, the lowest-income states in 1939, are still among the lowest-income states today. On the other hand, Nevada's relative income has fallen, while Tennessee's and Alabama's incomes have moved up considerably in the distribution.

Bauer, Schweitzer, and Shane identify several factors as statistically reliable indicators for growth: education levels, patents, and industry specializations.[16] Figure 6 shows the model's predicted 65-year impact of these factors on state incomes in 2004 (see figure 4 to compare these predicted incomes to the actual 2004 incomes). Each factor is represented by a colored bar specifying how much that factor boosted or reduced the income prediction of each state. Take Ohio as an example: Ohio's history of above-average patent levels boosts its income prediction by almost 10 percent, while its slightly below-average levels of education and industry specialization have small negative effects on Ohio's predicted income in 2004. In cases where one of the factors offsets the others (states with both positive and negative bars), the

15 See Barro and Sala-i-Martin (1995) for examples and for citations to earlier work on the topic.

16 They also identify a statistically significant role for climate variables, although the effect of climate on income is not nearly as large a factor as the others.

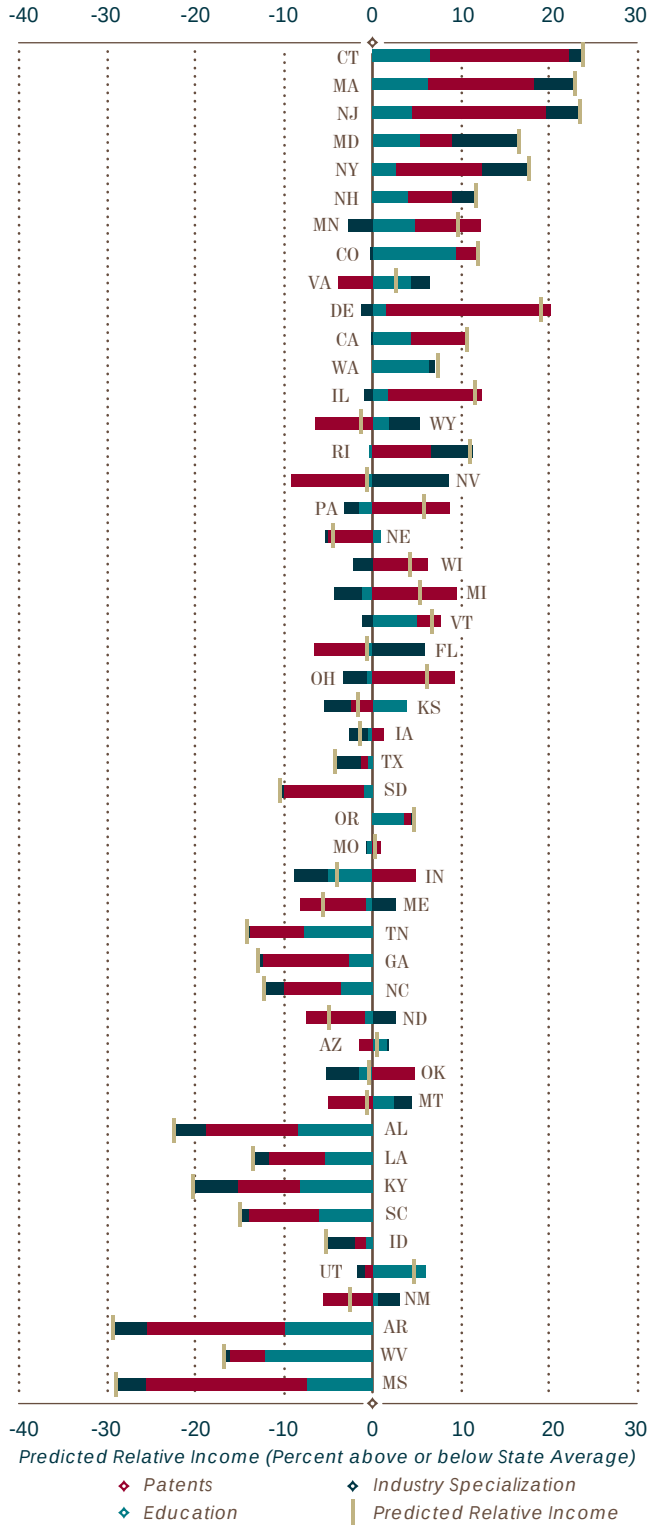
predicted relative income is the sum of the positive and negative effects, marked by the gold lines. This means that although it looks like Ohio's predicted 2004 income is almost 10 percent above average, it is really only approximately 6 percent above.

Long-run variations in state education levels, patents, and industry specializations explain much of the 2004 income differences. If the predicted rankings from the authors' model were perfect, the bars in figure 6 would *steadily* shift from the bottom-left to the top-right. This is not the case, but, in line with the model's prediction, negative bars are typically seen toward the bottom (lower-income states), while positive bars are almost exclusively seen toward the top. Also note that the scale of the predicted effects is generally smaller than the actual 2004 values (shown in figure 4) but not by a large amount. Collectively, this visual evidence shows that the model does account for much of the current differences in state income levels.

The authors conclude from figure 6 that the largest factor underlying relative income differences in 2004 is patents, followed by education then industry specialization. This is supported by the predominance of the red bars and their strong positive association with 2004 incomes. Patent data are particularly informative, even though most estimates of profits accruing to firms that hold patents are not particularly high. Bauer, Schweitzer, and Shane interpret the strong patent result shown in figure 6 as income accruing to places that are relatively innovative and produce more patented inventions than other places.

Figure 6

Predicted Impact of Key Factors on 2004 State Incomes



Source: Authors' calculations.

Listing the states with the highest levels of patents per capita at the end of the sample reveals why this variable works so well: Delaware ranks first, New Jersey second, and Connecticut third. In terms of income, Connecticut is first and New Jersey is third; both have shown surprising income growth. Most lower-income states have very low levels of patenting per capita. Delaware deviates from the pattern noticeably in that its income level is not among the top states, but the overall correlation is clear in the data.

Bauer, Schweitzer, and Shane suggest that these differences likely reflect higher (or lower) levels of knowledge-building activities (which are correlated with patents) within these states. In their interpretation, something about Connecticut and New Jersey makes them more active in generating innovation, although the specific sources of these advantages are not identified. For example, patents might be a proxy for success in commercialization of technology.

The education factor in figure 6 comes from combining high school and college completion statistics. Colorado, Connecticut, and Massachusetts are the current education leaders; again, their income levels stand out. Education is also a fairly reliable indicator of lower income levels and weak convergence, with West Virginia and Arkansas having the lowest education scores. It is important to see that while patents and education levels are correlated, the statistical procedure used by the authors indicates that these factors are distinct from one another.

Industry specialization is yet another reliable indicator of state growth differences. For instance, states with larger-than-usual mining incomes tend to grow more slowly than states with other specialties. States with higher levels of manufacturing also tend to grow more slowly, even though these states initially had higher incomes. Indeed, both the familiar manufacturing centers, like Ohio and Indiana, and the new manufacturing centers of the South, like Mississippi and Kentucky, are estimated to have lower income levels due to their industry specializations. Today, the states with larger-than-average service sectors are the ones estimated to have experienced more income growth (see the dark-blue bars in figure 6).

State tax differences and investments in infrastructure (in the form of roads) play smaller roles in interstate income differences and typically are statistically insignificant, as are banking deposits. Climate differences are statistically valid for predicting income growth, with warmer and drier states showing more income growth, yet the effects of the climate variables are substantially smaller and more-erratic predictors of 2004 income levels.

Overall, Bauer, Schweitzer, and Shane's study emphasizes the role of knowledge building—through research and education—in aiding income growth. A separate study (see sidebar on dashboard indicators) analyzing the growth patterns of U.S. metropolitan areas during the past 10 years corroborates this role: Although this study differs considerably in its methodology, it agrees that patents and education are associated with higher incomes in metropolitan areas.[17]

17 Eberts, Erickcek, and Kleinhenz (2006).

DASHBOARD INDICATORS

Not surprisingly, experts in many metropolitan areas have sharpened their focus on increasing regional growth prospects. A good example is "Dashboard Indicators for the Northeast Ohio Economy," a paper by Randall Eberts, George Erickcek, and Jack Kleinhenz. This study analyzes which local economic indicators have contributed to growth in terms of output, employment, per capita income, and productivity in more than 100 metro areas.

The authors' research was supported by The Fund for Our Economic Future, which seeks to advance a regional economic development agenda that can lead to long-term economic transformation.[1]

The "Dashboard" study considers a broad set of state-income-growth variables. Forty economic indicators were combined into eight summary measures of related variables: skilled workforce, assimilation center (a set of variables focused on recent immigrants), racial inclusion, legacy of place, income equality, locational amenities, business dynamics, and urban/metro structure.[2] The statistically derived factors combine the effects of underlying variables that are highly correlated among the metro areas.

The authors then analyze these factors for their effect on economic growth measures, including per capita income. The four factors that contribute to higher income growth are—in order of importance—skilled workforce (which includes patents), urbanization/metro governance (which focuses on the governmental structure), income equality, and locational amenities (as evaluated in *Places Rated Almanac*).[3] They also find that the legacy-costs factor (which includes their measures for industry specialization) is significantly associated with lower income growth.

The skilled-workforce factor is consistent with both general education results and growth in the technology base in the Bauer–Schweitzer–Shane project (see the State-Level Growth Analysis section); these two distinct measures are highly correlated in recent metropolitan-level data and thus are combined into one measure. The "Dashboard" study estimates that the skilled-workforce factor is at least twice as important as the other explanations of income differences.

The authors' legacy-cost variable largely reflects the share of the workforce in manufacturing, which the Bauer–Schweitzer–Shane study also noted as a factor that held back income growth. The additional factors that the authors identify as statistically significant point to issues that local economic development economists have observed as appearing to be new, potential growth sources.

These two studies bring new empirical findings to the question of how communities can boost their income levels. As is true with most growth models in the national and international arenas, education levels stand out as important factors, but both of these studies also help to direct attention to other factors that matter. As such, they help to push the focus of economic development beyond just the recruitment and retention of capital investments.

1 The Fund for Our Economic Future (2006).

2 For example, "legacy of place" combines the number of government units in the metropolitan area, a crime index, a climate index, the percent of houses built before 1940, and the total number of layoffs and hires within the economy (a measure of how dynamically an economy is adapting to either positive or negative shocks). For descriptions of the other factors, please refer to Eberts, Erickcek, and Kleinhenz's report, which can be found at *www.clevelandfed.org/Research/Workpaper/2006/index.cfm*.

3 Savageau (1999).

Lessons for the States

Does the rising importance of knowledge in the economy necessarily mean that industries like manufacturing—a prominent one in the Fourth District—no longer have a place? After all, the results show that a manufacturing concentration negatively affects a state's income, at least when the model holds the state's other characteristics—most importantly its income history—constant. As it turns out, in the 1930s, manufacturing and high state income levels tended to go together.[18] But in the model estimates, the negative effect of manufacturing and the general pattern of income convergence have largely eliminated the income advantage that manufacturing once had. The negative estimates for the industry-specialization factor likely reflect the importance of circumstances that have particularly affected manufacturers over this 75-year period.[19]

Statistically speaking, little correlation remains today between a state's manufacturing share and its income level. This leaves us close to the premise that manufacturing's expected return to investment should be equalized across the economy. In this case, there is no reason for states to avoid manufacturing, but there is also no reason to favor it over other economic activities.

A SHIFT IN FOURTH DISTRICT OCCUPATIONS

Goods-producing industries such as steel and farming have historically been the lifeblood of the Fourth District economy. But since the 1930s, shifts in the labor force have caused this region to reevaluate its place in the national economy.

In 1930, the Fourth District's three largest occupations—laborer, operative worker, and farmer—accounted for nearly 30 percent of its labor force. While these occupations remain significant to the Fourth District's vitality, they accounted for just over 10 percent of its labor force in 2004, and farmer dropped from the third-most-common job to the forty-ninth.

At the same time, health-care occupations have seen a significant increase, with nurses, hospital attendants, and medical technicians accounting for nearly 5 percent of employment today, versus only about $^1/_2$ percent in 1930. This trend in occupational employment shows a movement in Fourth District states toward a more service-based economy, similar to the trend in the rest of the country.

18 The correlation in 1930 was 0.57.

19 International trade may have played an increasingly important role in manufacturing activity's value to a state's income during our sample period, but we did not examine this proposition directly.

The results suggest a possible exception for at least some manufacturing companies: the exceptional innovators. Many states with high levels of patents over the past 10 years generate a large fraction of their patents in companies with a manufacturing link to the state, even if their manufacturing facilities are now often located elsewhere. Several of the companies listed as top producers of patents in Fourth District states between 2000 and 2004 are global companies with relatively few local manufacturing sites. Innovative companies like this appear to offer benefits to their states potentially beyond the direct value of their activities, even though these benefits are often thought of as supplemental.

Innovation and education certainly stand out in the Bauer–Schweitzer–Shane study; and past research has also pointed in this direction, although the scale of the factors was less certain.[20] However, it is one thing to establish that being a center of innovation or having a large number of highly educated residents—or both—promotes faster income growth. It's another to determine which state and local policies can be most effective.

Policy initiatives should be evaluated on cost–benefit criteria, and states can differ in their abilities to get the most out of any policy initiative. For these reasons, growth-promoting strategies should not be blindly pursued. For example, subsidizing companies that register their patents in particular states or localities would probably not promote much growth, unless the companies also relocated their research activities. Furthermore, any realistic plan should take into account the activities of other areas: Not every region can be the preeminent center of the latest hot technology.

To be effective, all policies require careful thought and planning. Research evaluating specific policy options will necessarily be more focused on the details that make policies successful. We intend to follow up this work with additional research on how the identified factors can be boosted in a state or region. Indeed, conferences hosted by the Federal Reserve Bank of Cleveland on the economics of education policy over the past two years have been focused on reaching a better understanding of the economic policy issues of education reform.

Caveats aside, the evidence provided by the growing study of expanded growth models suggests pursuing policies that increase the knowledge base of the region. This may sound like the mantra of the Internet age, but the results presented here show that innovation has been pivotal to income growth at the state level since the 1930s.

20 For example, see Glaeser and Saiz (2004).

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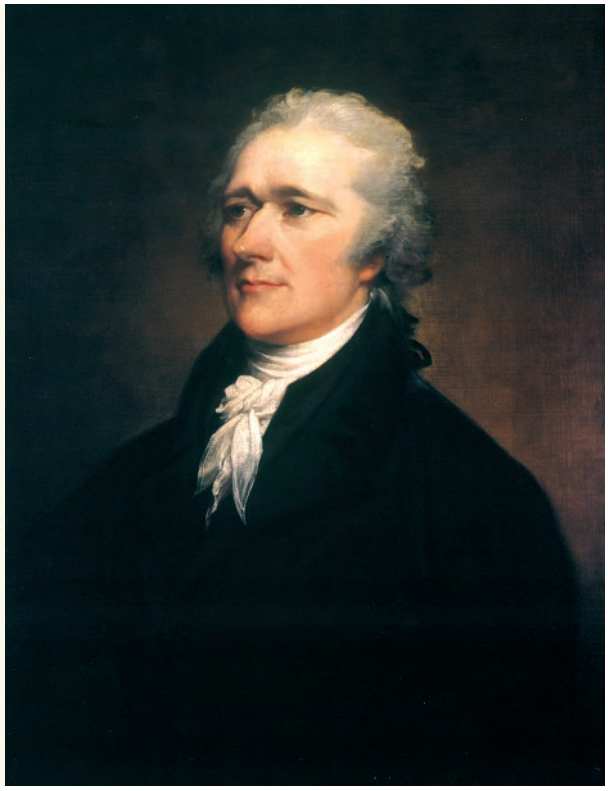
A Depressing Reality

Before the Great Depression, education was one of the top priorities in America. But by 1933, two hundred thousand teachers were unemployed, 2.2 million children were out of school, and two thousand rural schools had failed to open. Even if children were fortunate enough to go to school, class and racial barriers prevented many of them from going to college.

The Rise of Universal Education

Enrollment in prekindergarten through eighth grade at private and public schools rose to 40.0 million children in 2004. Private- and public-college enrollment of undergraduates and grad students hit a record level in 2004 at 17.4 million, and the share of bachelor's degrees obtained by African Americans, Caucasians, and Hispanics have all increased over the years.

Operational Highlights: Even the Treasury Needs a Bank



Alexander Hamilton,
first Secretary of the U.S. Treasury

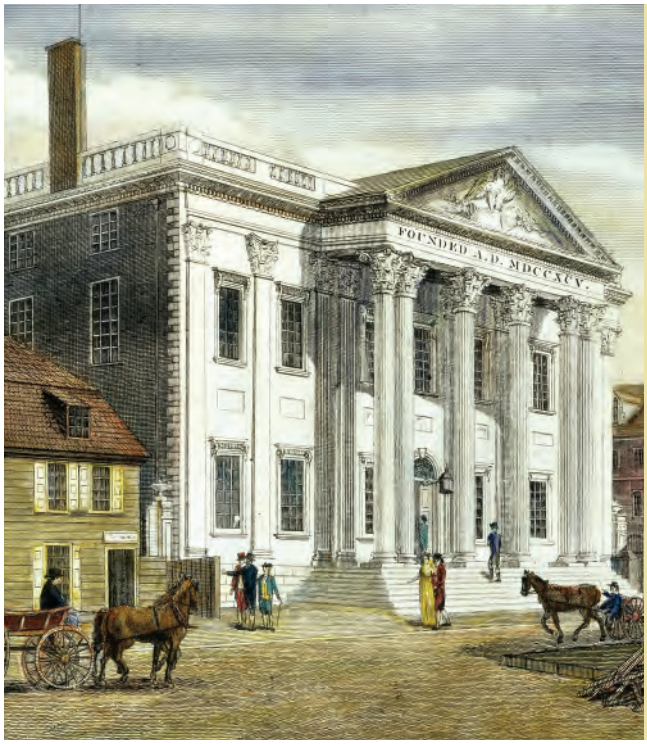
Hamilton's Treasury

When Alexander Hamilton reported to work as the first Secretary of the U.S. Treasury on September 14, 1789, he faced daunting fiscal challenges: The new nation's public credit was in shambles, with the outstanding public debt trading at significant discounts; soldiers in the federal army—in fact, all federal employees—needed their paychecks; and the federal government had no liquid bank balances, relying instead on loans from the Bank of New York and the Bank of North America to begin operations.

Much of Hamilton's attention in that first year was, naturally, focused on policy matters, such as whether the federal government should assume the Revolutionary War debts of the states and whether the nation needed a national bank.

But Hamilton also devoted considerable attention to the day-to-day financial business of the government. In that first year, the federal government's revenues consisted almost entirely of the $4.4 million earned in customs receipts, of which 55 percent was spent on debt service and another 15 percent on the military. But how could the federal government reliably and efficiently collect revenues from all customs and land sales across a land mass of 900,000 square miles, an area larger than any European state of the period save the Russian Empire? How could the Treasury combine funds from borrowings, note issues, and taxes to meet its daily obligations? And how could the Treasury assure the many creditors of the new nation, foreign and domestic, that the obligations owed them would be paid in full and on time?

Hamilton addressed those challenges by running the Treasury the way he knew how—like a business enterprise. Hamilton was among the few founding fathers with substantial commercial business experience, having worked for several years in a thriving St. Croix trading enterprise before coming to the American colonies in 1772. In his state papers, Hamilton emphasized the importance of paying the government's bills on time, collecting revenues in an efficient manner, and maintaining cordial relationships with creditors and other stakeholders.[1]



First Bank of the United States, Philadelphia, 1799

With 27 employees, the Treasury was the largest department in the new government, but it did not have sufficient national reach or commercial expertise to efficiently execute its day-to-day operations. The Treasury needed a *fiscal agent* with a national presence to make payments, collect funds owed to the government, and manage relationships with the government's creditors. The Bank of the United States—our nation's first central bank—began serving in 1791 as the Treasury's first fiscal agent, a role that the Federal Reserve System continues to play today.

1 Hamilton's state papers, *Report on Public Credit* (January 9, 1790) and *Report on a National Bank* (December 13, 1790), are particularly instructive in this area.

Savings bonds

Liberty Loan bonds

The Federal Reserve as Fiscal Agent

The Federal Reserve Act was signed into law in December 1913. Toward the end of 1914, the 12 Federal Reserve Banks opened for business, but they only gradually took on the fiscal agency role. In 1915 and 1916, the Reserve Banks were designated as depositories to maintain the Treasury's bank account, facilitating nationwide collection and disbursement of funds for the federal government. In 1917, Reserve Banks began handling an unprecedented volume of securities processing associated with the Liberty Loan bonds and Victory Notes issued to finance U.S. involvement in World War I. In 1921, the Treasury closed its network of regional offices, which dated to the mid-1840s. The duties of those offices to hold collateral for government funds held on deposit at commercial banks and to distribute the nation's currency and coin were transferred to the Federal Reserve.

The partnership between the Treasury and the Federal Reserve continued to grow in succeeding decades, with the Reserve Banks assuming an increasing share of the back-office duties involved in day-to-day Treasury operations. Among the Federal Reserve's fiscal agency activities today are collecting and holding balances due the Treasury; making and receiving payments for the federal government using checks, Automated Clearinghouse (ACH), and wire transfers; printing, issuing, and retiring U.S. savings bonds; managing the relationship between the Treasury and its creditors, i.e., purchasers of government securities; and processing U.S. postal money orders. In 2005, the Federal Reserve spent $376 billion, or nearly 15 percent of its total spending, on Treasury support.

Using the Federal Reserve as its fiscal agent has provided the Treasury with an alternative to operating a national financial institution of its own. Like Alexander Hamilton, who moved most of the Treasury's payment processing to the Bank of the United States, today's Treasury has outsourced much of its daily payment and debt-processing activities to the Federal Reserve.

Technology and Consolidation

The Treasury's relationship with the Federal Reserve Banks is a "dynamic partnership based on common goals of delivery of high quality service and efficiency of operations."[2] The Treasury and the Reserve Banks have used technology and consolidation to cut costs and improve the delivery of services to millions of U.S. citizens.

Services such as Treasury securities and savings bond processing, which, as recently as 1990, were provided by all 35 main offices and branches in the Federal Reserve System, have now been consolidated into just two locations. Treasury check services, which were handled in 45 Federal Reserve check-processing locations until 1990, have also been consolidated into two offices.

The Treasury and the Federal Reserve have migrated to straight-through processing of some activities, using the Internet, telecommunications, and data processing technology as more efficient and cost-effective substitutes for manual processing. By using ACH to convert checks to electronic payments, certain types of check clearing that used to take two or three weeks can now be done overnight, lowering the cost of clearing and of after-the-fact exceptions processing. By using the Internet, consumers can conduct business with the Treasury and federal agencies 24/7.

Straight-through processing illustrates one of the most remarkable accomplishments of the Treasury/Federal Reserve collaboration: the transition from a system dominated by paper processing to one with a large electronic component. The Federal Reserve Bank of Cleveland has played an important role in that evolution.

Transactions Converted from Paper to Electronics

Category	*1970*	*2005*
Federal payments made electronically	0%	79%
Savings bond applications received electronically	0%	65%

The Cleveland Bank's Role in Supporting the U.S. Treasury

In the 1980s, the Federal Reserve Bank of Cleveland's role in providing fiscal agency services to the Treasury was much like those of the other 11 Reserve Banks. However, by 2005, the Cleveland Reserve Bank had become one of the largest providers of Treasury services in terms of staff levels, comprising 27 percent of the System's total.

2 Bureau of the Public Debt. 2003. *Public Debt Strategic Plan 2003-2008. www.publicdebt.treas.gov/oa/oastrategicplan.pdf*, accessed April 3, 2006.

A number of factors contributed to the Cleveland Bank's role in providing Treasury services:

- Transfer of activities from the Treasury to the Federal Reserve, such as the processing of redeemed bonds, which was moved from the Treasury's office in Parkersburg, West Virginia, to the Federal Reserve Bank of Cleveland's Pittsburgh Branch in 1999
- Consolidation of Treasury services once performed in all Federal Reserve Districts into progressively fewer offices, such as the consolidation of Treasury securities and savings bond servicing into the Pittsburgh and Minneapolis Federal Reserve offices in 2005
- Treasury efforts to move services from commercial banks and other private-sector providers into the Federal Reserve, such as the *Over-the-Counter Paper Check Conversion to ACH* program that is now centralized in the Cleveland office
- Initiatives chosen by the U.S. Treasury to be sourced from the Federal Reserve, especially those that were placed in the Fourth District for production and day-to-day management, such as the *Pay.gov* program, which Web-enables and makes electronic many Treasury and other federal collection transactions that were once done with paper

CASH AND CHECK OPERATIONS

Fiscal agency functions were not the only Federal Reserve operations to be affected by consolidations in recent years. In 2004, the Federal Reserve Bank of Cleveland's Cincinnati office began processing cash for financial institutions in the Federal Reserve's Louisville territory. In 2006, the Bank's Cleveland office is scheduled to absorb the cash activities of the Federal Reserve office in Buffalo, New York.

Check-processing volume in the Fourth District has grown from an average of 6.3 million checks per day in 2002—before consolidation began—to 7.6 million in 2005, despite a 38 percent decline in overall check volume in the Federal Reserve System. The Cleveland Bank's Cincinnati office, in addition to serving its own territory, now clears checks for territories once served by the Charleston, Indianapolis, and Louisville Federal Reserve offices. In mid-2005, the Cleveland office absorbed the check-processing operation of the Federal Reserve's Detroit office, and in early 2006, Cleveland and Cincinnati will absorb all check processing from the Cleveland Bank's Columbus office.

Federal Reserve check-processing operations are also being impacted by Check 21, which became effective in October 2004. The volume of checks being converted to images or to substitute checks rose rapidly throughout 2005. By year's end, such checks represented approximately 5 percent of the number, and roughly 20 percent of the dollar value, of checks processed by the Federal Reserve.

Treasury Retail Securities

The Treasury Retail Securities Department, housed in Cleveland's Pittsburgh Branch, led the System's effort to consolidate savings bond and TreasuryDirect operations into the Federal Reserve's Pittsburgh and Minneapolis offices. The Treasury expects the consolidation to result in $30 million in annual savings for U.S. taxpayers.

In 2005, the Pittsburgh office processed 5.7 million savings bond applications, printed and mailed 32 million bonds, and redeemed 48 million bonds. Also, as part of its fiscal agency activities, Pittsburgh managed the Treasury's book-entry and payroll savings bond programs and its TreasuryDirect bond and note-purchasing program.

eGovernment

The eGovernment function, housed in Cleveland, is responsible for the conversion of paper checks—received over the counter and at government-contracted lockbox operations—to ACH debits and Check 21 clearings. These paper-check-conversion programs reduce the Treasury's clearing costs and its exposure to risk from bounced checks.

The programs have grown significantly in the past year: The Cleveland office currently receives over-the-counter check images from a total of 463 government sites on six continents and U.S. Navy ships at sea. In 2005, the Cleveland office handled 1.9 million over-the-counter payments worth $1.75 billion. Lockbox paper-check conversion, launched in 2005, involved 415,000 transactions worth $456 million.

The eGovernment function also administers the Pay.gov program, which involves collections management for 87 federal agencies, which themselves manage 208 separate federal programs. Pay.gov handles payments received over the Web; the hosting of electronic versions of paper forms, which can be completed on the Web; and the electronic presentment of bills for federal services, which can be executed there. Pay.gov offers consumers and businesses electronic access to information and transaction processing, while reducing the Treasury's operating costs.

The U.S. Treasury anticipates that $30 billion in transactions will move across Pay.gov in 2006, including $24 billion associated with the Customs and Border Protection Service.

Principles That Stand the Test of Time

Alexander Hamilton could not possibly have foreseen the way technology would transform Treasury operations or the role that the Federal Reserve System would play in that transformation. But Hamilton would no doubt recognize the business principles that guided the process: timeliness, efficiency, and customer service.

Financial Statements

The firm engaged by the Board of Governors for the audits of the individual and combined financial statements of the Reserve Banks for 2005 was PricewaterhouseCoopers LLP (PwC). Fees for these services totaled $4.6 million. To ensure auditor independence, the Board of Governors requires that PwC be independent in all matters relating to the audit. Specifically, PwC may not perform services for the Reserve Banks or others that would place it in a position of auditing its own work, making management decisions on behalf of the Reserve Banks, or in any other way impairing its audit independence. In 2005, the Bank did not engage PwC for any material advisory services.

Management's Report on Responsibility for Financial Reporting

March 2, 2006

To the Board of Directors of the Federal Reserve Bank of Cleveland:

The management of the Federal Reserve Bank of Cleveland ("FRBC") is responsible for the preparation and fair presentation of the Statement of Financial Condition, Statement of Income, and Statement of Changes in Capital as of December 31, 2005 (the "Financial Statements"). The Financial Statements have been prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System and as set forth in the *Financial Accounting Manual for the Federal Reserve Banks* ("Manual"), and as such, include amounts, some of which are based on judgments and estimates of management. To our knowledge, the Financial Statements are, in all material respects, fairly presented in conformity with the accounting principles, policies and practices documented in the Manual and include all disclosures necessary for such fair presentation.

The management of the FRBC is responsible for maintaining an effective process of internal controls over financial reporting including the safeguarding of assets as they relate to the Financial Statements. Such internal controls are designed to provide reasonable assurance to management and to the Board of Directors regarding the preparation of reliable Financial Statements. This process of internal controls contains self-monitoring mechanisms, including, but not limited to, divisions of responsibility and a code of conduct. Once identified, any material deficiencies in the process of internal controls are reported to management, and appropriate corrective measures are implemented.

Even an effective process of internal controls, no matter how well designed, has inherent limitations, including the possibility of human error, and therefore can provide only reasonable assurance with respect to the preparation of reliable financial statements.

The management of the FRBC assessed its process of internal controls over financial reporting including the safeguarding of assets reflected in the Financial Statements, based upon the criteria established in the "Internal Control—Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, we believe that the FRBC maintained an effective process of internal controls over financial reporting including the safeguarding of assets as they relate to the Financial Statements.

President
and Chief Executive Officer
Federal Reserve Bank of Cleveland

First Vice President
and Chief Operating Officer
Federal Reserve Bank of Cleveland

Senior Vice President
and Chief Financial Officer
Federal Reserve Bank of Cleveland

PricewaterhouseCoopers LLP
BP Tower, 27th Floor
200 Public Square
Cleveland OH 44114-2301
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Facsimile (216) 566 7846

Report of Independent Accountants

To the Board of Directors of the Federal Reserve Bank of Cleveland:

We have examined management's assertion, included in the accompanying Management Assertion, that the Federal Reserve Bank of Cleveland ("FRB Cleveland") maintained effective internal control over financial reporting and the safeguarding of assets as of December 31, 2005, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. FRB Cleveland's management is responsible for maintaining effective internal control over financial reporting and safeguarding of assets. Our responsibility is to express an opinion on management's assertion based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants and, accordingly, included obtaining an understanding of internal control over financial reporting, testing and evaluating the design and operating effectiveness of internal control, and performing such other procedures as we considered necessary in the circumstances. We believe that our examination provides a reasonable basis for our opinion.

Because of inherent limitations in any internal control, misstatements due to error or fraud may occur and not be detected. Also, projections of any evaluation of internal control over financial reporting to future periods are subject to the risk that the internal control may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, management's assertion that FRB Cleveland maintained effective internal control over financial reporting and over the safeguarding of assets as of December 31, 2005 is fairly stated, in all material respects, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

This report is intended solely for the information and use of management and the Board of Directors and Audit Committee of FRB Cleveland, and any organization with legally defined oversight responsibilities and is not intended to be and should not be used by anyone other than these specified parties.

PricewaterhouseCoopers LLP

March 8, 2006
Cleveland, Ohio

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Facsimile (216) 566 7846

Report of Independent Auditors

To the Board of Governors of the Federal Reserve System and
the Board of Directors of the Federal Reserve Bank of Cleveland:

We have audited the accompanying statements of condition of the Federal Reserve Bank of Cleveland (the "Bank") as of December 31, 2005 and 2004, and the related statements of income and changes in capital for the years then ended, which have been prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System. These financial statements are the responsibility of the Bank's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

As described in Note 3, these financial statements were prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System. These principles, policies, and practices, which were designed to meet the specialized accounting and reporting needs of the Federal Reserve System, are set forth in the *Financial Accounting Manual for Federal Reserve Banks* and constitute a comprehensive basis of accounting other than accounting principles generally accepted in the United States of America.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Bank as of December 31, 2005 and 2004, and results of its operations for the years then ended, on the basis of accounting described in Note 3.

PricewaterhouseCoopers LLP

March 8, 2006
Cleveland, Ohio

Comparative Financial Statements

Statements of Condition *(in millions)*

	December 31, 2005	December 31, 2004
Assets		
Gold certificates	$ 453	$ 452
Special drawing rights certificates	104	104
Coin	55	52
Items in process of collection	820	814
U.S. government securities, net	31,692	31,004
Investments denominated in foreign currencies	1,712	1,757
Accrued interest receivable	247	217
Interdistrict settlement account	833	—
Bank premises and equipment, net	185	183
Interest on Federal Reserve notes due from U.S. Treasury	—	234
Other assets	73	85
Total assets	**$ 36,174**	**$ 34,902**
Liabilities and Capital		
Liabilities:		
Federal Reserve notes outstanding, net	$ 31,457	$ 29,103
Securities sold under agreements to repurchase	1,289	1,315
Deposits:		
Depository institutions	658	1,272
Other deposits	7	3
Deferred credit items	581	505
Interest on Federal Reserve notes due U.S. Treasury	78	—
Interdistrict settlement account	—	495
Accrued benefit costs	65	65
Other liabilities	11	14
Total liabilities	**34,146**	**32,772**
Capital:		
Capital paid-in	1,014	1,065
Surplus	1,014	1,065
Total capital	**2,028**	**2,130**
Total liabilities and capital	**$ 36,174**	**$ 34,902**

The accompanying notes are an integral part of these financial statements.

Statements of Income *(in millions)*

	For the year ended December 31, 2005	For the year ended December 31, 2004
Interest income:		
Interest on U.S. government securities	$ 1,191	$ 963
Interest on investments denominated in foreign currencies	25	22
Total interest income	**1,216**	**985**
Interest expense:		
Interest expense on securities sold under agreements to repurchase	34	13
Net interest income	**1,182**	**972**
Other operating income (loss):		
Income from services	—	61
Compensation received for check services provided	60	—
Reimbursable services to government agencies	55	43
Foreign currency (losses)/gains, net	(243)	101
Other income	5	3
Total other operating income (loss)	**(123)**	**208**
Operating expenses:		
Salaries and other benefits	106	103
Occupancy expense	15	13
Equipment expense	11	13
Assessments by the Board of Governors	50	45
Other expenses	64	48
Total operating expenses	**246**	**222**
Net income prior to distribution	**$ 813**	**$ 958**
Distribution of net income:		
Dividends paid to member banks	$ 65	$ 45
Transferred (from)/to surplus	(51)	338
Payments to U.S. Treasury as interest on Federal Reserve notes	799	575
Total distribution	**$ 813**	**$ 958**

Statements of Changes in Capital *(in millions)*

For the years ended December 31, 2005 and December 31, 2004

	Capital Paid-in	Surplus	Total Capital
Balance at January 1, 2004 (14.5 million shares)	$ 727	$ 727	$ 1,454
Transferred to surplus	—	338	338
Net change in capital stock issued (6.8 million shares)	338	—	338
Balance at December 31, 2004 (21.3 million shares)	$ 1,065	$ 1,065	$ 2,130
Transferred from surplus	—	(51)	(51)
Net change in capital stock redeemed (1.0 million shares)	(51)	—	(51)
Balance at December 31, 2005 (20.3 million shares)	$ 1,014	$ 1,014	$ 2,028

The accompanying notes are an integral part of these financial statements.

Notes to Financial Statements

1. STRUCTURE

The Federal Reserve Bank of Cleveland ("Bank") is part of the Federal Reserve System ("System") and one of the twelve Reserve Banks ("Reserve Banks") created by Congress under the Federal Reserve Act of 1913 ("Federal Reserve Act"), which established the central bank of the United States. The Reserve Banks are chartered by the federal government and possess a unique set of governmental, corporate, and central bank characteristics. The Bank and its branches in Cincinnati and Pittsburgh serve the Fourth Federal Reserve District, which includes Ohio and portions of Kentucky, Pennsylvania, and West Virginia.

In accordance with the Federal Reserve Act, supervision and control of the Bank are exercised by a Board of Directors. The Federal Reserve Act specifies the composition of the Board of Directors for each of the Reserve Banks. Each board is composed of nine members serving three-year terms: three directors, including those designated as Chairman and Deputy Chairman, are appointed by the Board of Governors, and six directors are elected by member banks. Banks that are members of the System include all national banks and any state-chartered banks that apply and are approved for membership in the System. Member banks are divided into three classes according to size. Member banks in each class elect one director representing member banks and one representing the public. In any election of directors, each member bank receives one vote, regardless of the number of shares of Reserve Bank stock it holds.

The System also consists, in part, of the Board of Governors of the Federal Reserve System ("Board of Governors") and the Federal Open Market Committee ("FOMC"). The Board of Governors, an independent federal agency, is charged by the Federal Reserve Act with a number of specific duties, including general supervision over the Reserve Banks. The FOMC is composed of members of the Board of Governors, the president of the Federal Reserve Bank of New York ("FRBNY"), and, on a rotating basis four other Reserve Bank presidents.

2. OPERATIONS AND SERVICES

The System performs a variety of services and operations. Functions include formulating and conducting monetary policy; participating actively in the payments system including large-dollar transfers of funds, automated clearinghouse ("ACH") operations, and check processing; distributing coin and currency; performing fiscal agency functions for the U.S. Treasury and certain federal agencies; serving as the federal government's bank; providing short-term loans to depository institutions; serving the consumer and the community by providing educational materials and information regarding consumer laws; supervising bank holding companies, state member banks, and U.S. offices of foreign banking organizations; and administering other regulations of the Board of Governors. The System also provides certain services to foreign central banks, governments, and international official institutions.

The FOMC, in the conduct of monetary policy, establishes policy regarding domestic open market operations, oversees these operations, and annually issues authorizations and directives to the FRBNY for its execution of transactions. FRBNY is authorized to conduct operations in domestic markets, including direct purchase and sale of U. S. government securities, the purchase of securities under agreements to resell, the sale of securities under agreements to repurchase, and the lending of U.S. government securities. FRBNY executes these open market transactions and holds the resulting securities, with the exception of securities purchased under agreements to resell, in the portfolio known as the System Open Market Account ("SOMA").

In addition to authorizing and directing operations in the domestic securities market, the FOMC authorizes and directs FRBNY to execute operations in foreign markets for major currencies in order to counter disorderly conditions in exchange markets or to meet other needs specified by the FOMC in carrying out the System's central bank responsibilities. The FRBNY is authorized by the FOMC to hold balances of, and to execute spot and forward foreign exchange ("F/X") and securities contracts for nine foreign currencies and to invest such foreign currency holdings ensuring adequate liquidity is maintained. In addition, FRBNY is authorized to maintain reciprocal currency arrangements ("F/X swaps") with two central banks, and "warehouse" foreign currencies for the U.S. Treasury and Exchange Stabilization Fund ("ESF") through the Reserve Banks. In connection with its foreign currency activities, FRBNY may enter into contracts that contain varying degrees of off-balance-sheet market risk, because they represent contractual commitments involving future settlement and counter-party credit risk. The FRBNY controls credit risk by obtaining credit approvals, establishing transaction limits, and performing daily monitoring procedures.

Although Reserve Banks are separate legal entities, in the interests of greater efficiency and effectiveness, they collaborate in the delivery of certain operations and services. The collaboration takes the form of centralized competency centers, operations sites, and product or service offices that have responsibility for the delivery of certain services on behalf of the Reserve Banks. Various operational and management models are used and are supported by service agreements between the Reserve Bank providing the service and the other eleven Reserve Banks. In some cases, costs incurred by a Reserve Bank for services provided to other Reserve Banks are not shared; in other cases, Reserve Banks are billed for services provided to them by another Reserve Bank.

Major services provided on behalf of the System by the Bank, for which the costs were not redistributed to the other Reserve Banks, include: Retail Payments Office, FedImage, Savings Bonds technology, National Check Adjustments, Check 21, National Check Restructure, Cash Automation and Materials Handling Software, Check Automation Services, National Billing Operations, and Audit Application Competency Center.

Beginning in 2005, the Reserve Banks adopted a new management model for providing check services to depository institutions. Under this new model, the Federal Reserve Bank of Atlanta ("FRBA") has the overall responsibility for managing the Reserve Banks' provision of check services and recognizes total System check revenue on its Statements of Income. FRBA compensates the other eleven Reserve Banks for the costs incurred to provide check services. This compensation is reported as "Compensation received for check services provided" in the Statements of Income. If the management model had been in place in 2004, the Bank would have reported $58 million as compensation received for check services provided and $61 million in check revenue would have been reported by FRB Atlanta rather than the Bank.

3. SIGNIFICANT ACCOUNTING POLICIES

Accounting principles for entities with the unique powers and responsibilities of the nation's central bank have not been formulated by the various accounting standard-setting bodies. The Board of Governors has developed specialized accounting principles and practices that it believes are appropriate for the significantly different nature and function of a central bank as compared with the private sector. These accounting principles and practices are documented in the *Financial Accounting Manual for Federal Reserve Banks* ("Financial Accounting Manual"), which is issued by the Board of Governors. All Reserve Banks are required to adopt and apply accounting policies and practices that are consistent with the Financial Accounting Manual and the financial statements have been prepared in accordance with the Financial Accounting Manual.

Differences exist between the accounting principles and practices in the Financial Accounting Manual and those generally accepted in the United States ("GAAP") primarily due to the unique nature of the Bank's powers and responsibilities as part of the nation's central bank. The primary difference is the presentation of all security holdings at amortized cost, rather than using the fair value presentation requirements in accordance with GAAP. Amortized cost more appropriately reflects the Bank's security holdings given its unique responsibility to conduct monetary policy. While the application of current market prices to the securities holdings may result in values substantially above or below their carrying values, these unrealized changes in value would have no direct affect on the quantity of reserves available to the banking system or on the prospects for future Bank earnings or capital. Both the domestic and foreign components of the SOMA portfolio may involve transactions that result in gains or losses when holdings are sold prior to maturity. Decisions regarding security and foreign currency transactions, including their purchase and sale, are motivated by monetary policy objectives rather than profit. Accordingly, market values, earnings, and any gains or losses resulting from the sale of such securities and currencies are incidental to the open market operations and do not motivate its activities or policy decisions.

In addition, the Bank has elected not to present a Statement of Cash Flows because the liquidity and cash position of the Bank are not a primary concern given the Bank's unique powers and responsibilities. A Statement of Cash Flows, therefore, would not provide any additional meaningful information. Other information regarding the Bank's activities is provided in, or may be derived from, the Statements of Condition, Income, and Changes in Capital. There are no other significant differences between the policies outlined in the Financial Accounting Manual and GAAP.

The preparation of the financial statements in conformity with the Financial Accounting Manual requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates. Certain amounts relating to the prior year have been reclassified to conform to the current-year presentation. Unique accounts and significant accounting policies are explained below.

a. Gold and Special Drawing Rights Certificates

The Secretary of the U.S. Treasury is authorized to issue gold and special drawing rights ("SDR") certificates to the Reserve Banks.

Payment for the gold certificates by the Reserve Banks is made by crediting equivalent amounts in dollars into the account established for the U.S. Treasury. These gold certificates held by the Reserve Banks are required to be backed by the gold of the U.S. Treasury. The U.S. Treasury may reacquire the gold certificates at any time and the Reserve Banks must deliver them to the U.S. Treasury. At such time, the U.S. Treasury's account is charged, and the Reserve Banks' gold certificate accounts are lowered. The value of gold for purposes of backing the gold certificates is set by law at $42 2/9 a fine troy ounce. The Board of Governors allocates the gold certificates among Reserve Banks once a year based on the average Federal Reserve notes outstanding in each Reserve Bank.

Special drawing rights ("SDRs") are issued by the International Monetary Fund ("Fund") to its members in proportion to each member's quota in the Fund at the time of issuance. SDRs serve as a supplement to international monetary reserves and may be transferred from one national monetary authority to another. Under the law providing for United States participation in the SDR system, the Secretary of the U.S. Treasury is authorized to issue SDR certificates, somewhat like gold certificates, to the Reserve Banks. At such time, equivalent amounts in dollars are credited to the account established for the U.S. Treasury, and the Reserve Banks' SDR certificate accounts are increased. The Reserve Banks are required to purchase SDR certificates, at the direction of the U.S. Treasury, for the purpose of financing SDR acquisitions or for financing exchange stabilization operations. At the time SDR transactions occur, the Board of Governors allocates SDR certificate transactions among Reserve Banks based upon Federal Reserve notes outstanding in each District at the end of the preceding year. There were no SDR transactions in 2005 or 2004.

b. Loans to Depository Institutions

All depository institutions that maintain reservable transaction accounts or nonpersonal time deposits, as defined in regulations issued by the Board of Governors, have borrowing privileges at the discretion of the Reserve Bank. Borrowers execute certain lending agreements and deposit sufficient collateral before credit is extended. Loans are evaluated for collectibility. If loans were ever deemed to be uncollectible, an appropriate reserve would be established. Interest is accrued using the applicable discount rate established at least every fourteen days by the Board of Directors of the Reserve Bank, subject to review by the Board of Governors. There were no outstanding loans to depository institutions at December 31, 2005 and 2004.

c. U.S. Government Securities and Investments Denominated in Foreign Currencies

U.S. government securities and investments denominated in foreign currencies comprising the SOMA are recorded at cost, on a settlement-date basis, and adjusted for amortization of premiums or accretion of discounts on a straight-line basis. Interest income is accrued on a straight-line basis. Gains and losses resulting from sales of securities are determined by specific issues based on average cost. Foreign-currency-denominated assets are revalued daily at current foreign currency market exchange rates in order to report these assets in U.S. dollars. Realized and unrealized gains and losses on investments denominated in foreign currencies are reported as "Foreign currency gains (losses), net."

Activity related to U.S. government securities, including the related premiums, discounts, and realized and unrealized gains and losses, is allocated to each Reserve Bank on a percentage basis derived from an annual settlement of interdistrict clearings that occurs in April of each year. The settlement equalizes

Reserve Bank gold certificate holdings to Federal Reserve notes outstanding in each District. Activity related to investments in foreign-currency-denominated assets is allocated to each Reserve Bank based on the ratio of each Reserve Bank's capital and surplus to aggregate capital and surplus at the preceding December 31.

d. U.S. Government Securities Sold Under Agreements to Repurchase and Securities Lending

Securities sold under agreements to repurchase are accounted for as financing transactions and the associated interest expense is recognized over the life of the transaction. These transactions are carried in the Statements of Condition at their contractual amounts and the related accrued interest is reported as a component of "Other liabilities."

U.S. government securities held in the SOMA are lent to U.S. government securities dealers and to banks participating in U.S. government securities clearing arrangements in order to facilitate the effective functioning of the domestic securities market. Securities-lending transactions are fully collateralized by other U.S. government securities and the collateral taken is in excess of the market value of the securities loaned. The FRBNY charges the dealer or bank a fee for borrowing securities and the fees are reported as a component of "Other income" in the Statements of Income.

Activity related to U.S. government securities sold under agreements to repurchase and securities lending is allocated to each Reserve Bank on a percentage basis derived from the annual settlement of interdistrict clearings. Securities purchased under agreements to resell are allocated to FRBNY and not to the other Banks.

e. Foreign Currency Swaps and Warehousing

F/X swap arrangements are contractual agreements between two parties to exchange specified currencies, at a specified price, on a specified date. The parties agree to exchange their currencies up to a pre-arranged maximum amount and for an agreed-upon period of time (up to twelve months), at an agreed-upon interest rate. These arrangements give the FOMC temporary access to the foreign currencies it may need to intervene to support the dollar and give the counterparty temporary access to dollars it may need to support its own currency. Drawings under the F/X swap arrangements can be initiated by either FRBNY or the counterparty (the drawer) and must be agreed to by the drawee. The F/X swaps are structured so that the party initiating the transaction bears the exchange rate risk upon maturity. FRBNY will generally invest the foreign currency received under an F/X swap in interest-bearing instruments.

Warehousing is an arrangement under which the FOMC agrees to exchange, at the request of the U.S. Treasury, U.S. dollars for foreign currencies held by the U.S. Treasury or ESF over a limited period of time. The purpose of the warehousing facility is to supplement the U.S. dollar resources of the U.S. Treasury and ESF for financing purchases of foreign currencies and related international operations.

Foreign currency swaps and warehousing agreements are revalued daily at current market exchange rates. Activity related to these agreements, with the exception of the unrealized gains and losses resulting from the daily revaluation, is allocated to each Reserve Bank based on the ratio of each Reserve Bank's capital and surplus to aggregate capital and surplus at the preceding December 31. Unrealized gains and losses resulting from the daily revaluation are allocated to FRBNY and not to the other Reserve Banks.

f. Bank Premises, Equipment, and Software

Bank premises and equipment are stated at cost less accumulated depreciation. Depreciation is calculated on a straight-line basis over estimated useful lives of assets ranging from one to fifty years. Major alterations, renovations, and improvements are capitalized at cost as additions to the asset accounts and are amortized over the remaining useful life of the asset. Maintenance, repairs, and minor replacements are charged to operating expense in the year incurred. Capitalized assets including software, building, leasehold improvements, furniture, and equipment are impaired when it is determined that the net realizable value is significantly less than book value and is not recoverable.

Costs incurred for software, either developed internally or acquired for internal use, during the application development stage are capitalized based on the cost of direct services and materials associated with designing, coding, installing, or testing software. Capitalized software costs are amortized on a straight-line basis over the estimated useful lives of the software applications, which range from one to five years.

g. Interdistrict Settlement Account

At the close of business each day, each Reserve Bank assembles the payments due to or from other Reserve Banks as a result of the day's transactions that involve depository institution accounts held by other Districts. Such transactions may include funds settlement, check clearing, and ACH operations. The cumulative net amount due to or from the other Reserve Banks is reflected in the "Interdistrict settlement account" in the Statements of Condition.

h. Federal Reserve Notes

Federal Reserve notes are the circulating currency of the United States. These notes are issued through the various Federal Reserve agents (the Chairman of the Board of Directors of each Reserve Bank) to the Reserve Banks upon deposit with such agents of certain classes of collateral security, typically U.S. government securities. These notes are identified as issued to a specific Reserve Bank. The Federal Reserve Act provides that the collateral security tendered by the Reserve Bank to the Federal Reserve agent must be equal to the sum of the notes applied for by such Reserve Bank.

Assets eligible to be pledged as collateral security include all Bank assets. The collateral value is equal to the book value of the collateral tendered, with the exception of securities, whose collateral value is equal to the par value of the securities tendered. The par value of securities pledged for securities sold under agreements to repurchase is deducted.

The Board of Governors may, at any time, call upon a Reserve Bank for additional security to adequately collateralize the Federal Reserve notes. To satisfy the obligation to provide sufficient collateral for outstanding Federal Reserve notes, the Reserve Banks have entered into an agreement that provides for certain assets of the Reserve Banks to be jointly pledged as collateral for the Federal Reserve notes of all Reserve Banks. In the event that this collateral is insufficient, the Federal Reserve Act provides that Federal Reserve notes become a first and paramount lien on all the assets of the Reserve Banks. Finally, as obligations of the United States, Federal Reserve notes are backed by the full faith and credit of the United States government.

The "Federal Reserve notes outstanding, net" account represents the Bank's Federal Reserve notes outstanding, reduced by the currency issued to the Bank but not in circulation, of $5,081 million and $5,408 million at December 31, 2005 and 2004, respectively.

i. Items in Process of Collection and Deferred Credit Items

The balance in the "Items in process of collection" line in the Statements of Condition primarily represents amounts attributable to checks that have been deposited for collection by the payee depository institution and, as of the balance sheet date, have not yet been collected from the payor depository institution. Deferred credit items are the counterpart liability to items in process of collection, and the amounts in this account arise from deferring credit for deposited items until the amounts are collected. The balances in both accounts can fluctuate and vary significantly from day to day.

j. Capital Paid-in

The Federal Reserve Act requires that each member bank subscribe to the capital stock of the Reserve Bank in an amount equal to 6 percent of the capital and surplus of the member bank. These shares are nonvoting with a par value of $100 and may not be transferred or hypothecated. As a member bank's capital and surplus changes, its holdings of Reserve Bank stock must be adjusted. Currently, only one-half of the subscription is paid-in and the remainder is subject to call. By law, each Bank is required to pay each member bank an annual dividend of 6 percent on the paid-in capital stock. This cumulative dividend is paid semiannually. A member bank is liable for Reserve Bank liabilities up to twice the par value of stock subscribed by it.

k. Surplus

The Board of Governors requires Reserve Banks to maintain a surplus equal to the amount of capital paid-in as of December 31. This amount is intended to provide additional capital and reduce the possibility that the Reserve Banks would be required to call on member banks for additional capital. Pursuant to Section 16 of the Federal Reserve Act, Reserve Banks are required by the Board of Governors to transfer to the U.S. Treasury as interest on Federal Reserve notes excess earnings, after providing for the costs of operations, payment of dividends, and reservation of an amount necessary to equate surplus with capital paid-in.

In the event of losses or an increase in capital paid-in at a Reserve Bank, payments to the U.S. Treasury are suspended and earnings are retained until the surplus is equal to the capital paid-in. Weekly payments to the U.S. Treasury may vary significantly.

In the event of a decrease in capital paid-in, the excess surplus, after equating capital paid-in and surplus at December 31, is distributed to the U.S. Treasury in the following year. This amount is reported as a component of "Payments to U.S. Treasury as interest on Federal Reserve notes."

l. Income and Costs related to U.S. Treasury Services

The Bank is required by the Federal Reserve Act to serve as fiscal agent and depository of the United States. By statute, the Department of the Treasury is permitted, but not required, to pay for these services.

m. Assessments by the Board of Governors

The Board of Governors assesses the Reserve Banks to fund its operations based on each Reserve Bank's capital and surplus balances. The Board of Governors also assesses each Reserve Bank for the expenses incurred for the U.S. Treasury to issue and retire Federal Reserve notes based on each Reserve Bank's share of the number of notes comprising the System's net liability for Federal Reserve notes on December 31 of the previous year.

n. Taxes

The Reserve Banks are exempt from federal, state, and local taxes, except for taxes on real property. The Bank's real property taxes were $2 million for each of the years ended December 31, 2005 and 2004, and are reported as a component of "Occupancy expense."

o. Restructuring Charges

In 2003, the System began the restructuring of several operations, primarily check, cash, and U.S. Treasury services. The restructuring included streamlining the management and support structures, reducing staff, decreasing the number of processing locations, and increasing processing capacity in the remaining locations. These restructuring activities continued in 2004 and 2005.

Footnote 10 describes the restructuring and provides information about the Bank's costs and liabilities associated with employee separations and contract terminations. The costs associated with the write-down of certain Bank assets are discussed in footnote 6. Costs and liabilities associated with enhanced pension benefits in connection with the restructuring activities for all Reserve Banks are recorded on the books of the FRBNY and those associated with enhanced post-retirement benefits are discussed in footnote 9.

4. U.S. GOVERNMENT SECURITIES, SECURITIES SOLD UNDER AGREEMENTS TO REPURCHASE, AND SECURITIES LENDING

The FRBNY, on behalf of the Reserve Banks, holds securities bought outright in the SOMA. The Bank's allocated share of SOMA balances was approximately 4.225 percent and 4.273 percent at December 31, 2005 and 2004, respectively.

The Bank's allocated share of U.S. Government securities, net, held in the SOMA at December 31, was as follows (in millions):

	2005	2004
Par value:		
U.S. government:		
Bills	$ 11,460	$ 11,237
Notes	16,058	15,418
Bonds	3,921	4,017
Total par value	31,439	30,672
Unamortized premiums	372	402
Unaccreted discounts	(119)	(70)
Total allocated to Bank	$ 31,692	$ 31,004

The total of the U.S. government securities, net held in the SOMA was $750,202 million and $725,584 million at December 31, 2005 and 2004, respectively.

At December 31, 2005 and 2004, the total contract amount of securities sold under agreements to repurchase was $30,505 million and $30,783 million, respectively, of which $1,289 million and $1,315 million, were allocated to the Bank. The total par value of the SOMA securities pledged for securities sold under agreements to repurchase at December 31, 2005 and 2004 was $30,559 million and $30,808 million, respectively, of which $1,291 million and $1,316 million was allocated to the Bank.

The maturity distribution of U.S. government securities bought outright and securities sold under agreements to repurchase, that were allocated to the Bank at December 31, 2005, was as follows (in millions):

Maturities of Securities Held	U.S. Government Securities (Par value)	Securities Sold Under Agreements to Repurchase (Contract amount)
Within 15 days	$ 1,732	$ 1,289
16 days to 90 days	7,277	—
91 days to 1 year	7,870	—
Over 1 year to 5 years	8,903	—
Over 5 years to 10 years	2,395	—
Over 10 years	3,262	—
Total	$ 31,439	$ 1,289

At December 31, 2005 and 2004, U.S. government securities with par values of $3,776 million and $6,609 million, respectively, were loaned from the SOMA, of which $160 million and $282 million, respectively, were allocated to the Bank.

5. INVESTMENTS DENOMINATED IN FOREIGN CURRENCIES

The FRBNY, on behalf of the Reserve Banks, holds foreign currency deposits with foreign central banks and the Bank for International Settlements and invests in foreign government debt instruments. Foreign government debt instruments held include both securities bought outright and securities purchased under agreements to resell. These investments are guaranteed as to principal and interest by the foreign governments.

The Bank's allocated share of investments denominated in foreign currencies was approximately 9.043 percent and 8.220 percent at December 31, 2005 and 2004, respectively.

The Bank's allocated share of investments denominated in foreign currencies, including accrued interest, valued at current foreign currency market exchange rates at December 31, was as follows (in millions):

	2005	2004
European Union Euro:		
Foreign currency deposits	$ 491	$ 500
Securities purchased under agreements to resell	174	176
Government debt instruments	322	324
Japanese Yen:		
Foreign currency deposits	237	127
Government debt instruments	488	630
Total	$ 1,712	$ 1,757

Total System investments denominated in foreign currencies were $18,928 million and $21,368 million at December 31, 2005 and 2004, respectively.

The maturity distribution of investments denominated in foreign currencies which were allocated to the Bank at December 31, 2005, was as follows (in millions):

Maturities of Investments Denominated in Foreign Currencies	European Euro	Japanese Yen	Total
Within 15 days	$ 306	$ 237	$ 543
16 days to 90 days	233	61	294
91 days to 1 year	189	91	280
Over 1 year to 5 years	258	336	594
Over 5 years to 10 years	1	—	1
Over 10 years	—	—	—
Total	$ 987	$ 725	$ 1,712

At December 31, 2005 and 2004, there were no open or outstanding foreign exchange contracts.

At December 31, 2005 and 2004, the warehousing facility was $5,000 million, with no balance outstanding.

6. BANK PREMISES, EQUIPMENT, AND SOFTWARE

A summary of bank premises and equipment at December 31 is as follows (in millions):

	Useful Life Range (in Years)	2005	2004
Bank premises and equipment:			
Land	N/A	$ 8	$ 7
Buildings	1–43	170	163
Building machinery and equipment	1–20	49	48
Construction in progress	N/A	3	6
Furniture and equipment	1–9	70	68
Subtotal		$ 300	$ 292
Accumulated depreciation		(115)	(109)
Bank premises and equipment, net		$ 185	$ 183
Depreciation expense, for the years ended		$ 11	$ 11

The Bank leases space to outside tenants with lease terms ranging from one to nine years. Rental income from such leases was $1 million for each of the years ended December 31, 2005 and 2004. Future minimum lease payments under noncancelable agreements in existence at December 31, 2005, were (in millions):

2006	$ 1
2007	1
2008	1
2009	1
2010	1
Thereafter	3
	$ 8

The Bank has capitalized software assets, net of amortization, of $39 million for each of the years ended December 31, 2005 and 2004. Amortization expense was $12 million and $8 million for the years ended December 31, 2005 and 2004, respectively. Capitalized software assets are reported as a component of "Other assets" and related amortization is reported as a component of "Other expenses." Obsolete software assets of $1 million were written off for each of the years ended December 31, 2005 and 2004. The majority of the write offs were reimbursed by the Department of the Treasury.

Assets impaired as a result of the Bank's restructuring plan, as discussed in footnote 10, include building, leasehold improvements, furniture, and equipment. Asset impairment losses of $2 million for the period ending December 31, 2004, were determined using fair values based on quoted market values or other valuation techniques and are reported as a component of "Other expenses." The Bank had no impairment losses in 2005.

7. COMMITMENTS AND CONTINGENCIES

At December 31, 2005, the Bank was obligated under noncancelable leases for premises and equipment with terms ranging from one to approximately two years. These leases provide for increased rental payments based upon increases in real estate taxes, operating costs, or selected price indices.

Rental expense under operating leases for certain operating facilities, warehouses, and data processing and office equipment (including taxes, insurance and maintenance when included in rent), net of sublease rentals, was $1 million for each of the years ended December 31, 2005 and 2004. Certain of the Bank's leases have options to renew.

Future minimum rental payments under noncancelable operating leases and capital leases, net of sublease rentals, with terms of one year or more, at December 31, 2005, were not material.

At December 31, 2005, the Bank, acting on its own behalf, had other commitments and long-term obligations extending through the year 2010 with a remaining amount of $14 million. As of December 31, 2005, commitments of $50 million were recognized. Purchases of $22 million and $18 million were made against these commitments during 2005 and 2004, respectively. These commitments represent Electronic Treasury Financial Services, facilities-related expenditures, and Cash and Check transportation and have variable and fixed components. The variable portion of the commitments is primarily for Cash and Check transportation. The fixed payments for the next five years under these commitments are (in millions):

	Fixed Commitment
2006	$ 6.6
2007	2.1
2008	2.0
2009	0.3
2010	0.1

At December 31, 2005, the Bank, acting on behalf of the Reserve Banks, had contractual commitments extending through the year 2012 totaling $41 million. As of December 31, 2005, commitments of $54 million were recognized. Purchases of $16 million and $7 million were made against these commitments during 2005 and 2004, respectively. It is estimated that the Bank's allocated share of these commitments will be $8 million. These commitments represent Check software and hardware license and maintenance fees and have only fixed components. The fixed payments for the next five years under these commitments are (in millions):

	Fixed Commitment
2006	$ 12.7
2007	12.3
2008	10.0
2009	5.9
2010	0.1

Under the Insurance Agreement of the Federal Reserve Banks, each Reserve Bank has agreed to bear, on a per incident basis, a pro rata share of losses in excess of one percent of the capital paid-in of the claiming Reserve Bank, up to 50 percent of the total capital paid-in of all Reserve Banks. Losses are borne in the ratio that a Reserve Bank's capital paid-in bears to the total capital paid-in of all Reserve Banks at the beginning of the calendar year in which the loss is shared. No claims were outstanding under such agreement at December 31, 2005 or 2004.

The Bank is involved in certain legal actions and claims arising in the ordinary course of business. Although it is difficult to predict the ultimate outcome of these actions, in management's opinion, based on discussions with counsel, the aforementioned litigation and claims will be resolved without material adverse effect on the financial position or results of operations of the Bank.

8. RETIREMENT AND THRIFT PLANS

Retirement Plans

The Bank currently offers three defined benefit retirement plans to its employees, based on length of service and level of compensation. Substantially all of the Bank's employees participate in the Retirement Plan for Employees of the Federal Reserve System ("System Plan"). Employees at certain compensation levels participate in the Benefit Equalization Retirement Plan ("BEP") and certain Bank officers participate in the Supplemental Employee Retirement Plan ("SERP").

The System Plan is a multi-employer plan with contributions fully funded by participating employers. Participating employers are the Federal Reserve Banks, the Board of Governors of the Federal Reserve System, and the Office of Employee Benefits of the Federal Reserve System. No separate accounting is maintained of assets contributed by the participating employers. The FRBNY acts as a sponsor of the System Plan and the costs associated with the Plan are not redistributed to other participating employers. The Bank's benefit obligation and net pension costs for the BEP and the SERP at December 31, 2005 and 2004, and for the years then ended, are not material.

Thrift Plan

Employees of the Bank may also participate in the defined contribution Thrift Plan for Employees of the Federal Reserve System ("Thrift Plan"). The Bank's Thrift Plan contributions totaled $4 million and $3 million for the years ended December 31, 2005 and 2004, respectively, and are reported as a component of "Salaries and other benefits." The Bank matches employee contributions based on a specified formula. For the years ended December 31, 2005 and 2004, the Bank matched 80 percent on the first 6 percent of employee contributions for employees with less than five years of service and 100 percent on the first 6 percent of employee contributions for employees with five or more years of service.

9. POSTRETIREMENT BENEFITS OTHER THAN PENSIONS AND POSTEMPLOYMENT BENEFITS

Postretirement Benefits other than Pensions

In addition to the Bank's retirement plans, employees who have met certain age and length of service requirements are eligible for both medical benefits and life insurance coverage during retirement.

The Bank funds benefits payable under the medical and life insurance plans as due and, accordingly, has no plan assets.

Following is a reconciliation of beginning and ending balances of the benefit obligation (in millions):

	2005	2004
Accumulated postretirement benefit obligation at January 1	$ 66.3	$ 56.1
Service cost-benefits earned during the period	1.6	1.8
Interest cost of accumulated benefit obligation	3.1	4.1
Actuarial (gain) loss	(9.0)	20.2
Special termination (gain) loss	—	0.1
Contributions by plan participants	0.3	0.2
Benefits paid	(3.1)	(2.8)
Plan amendments	—	(13.4)
Accumulated postretirement benefit obligation at December 31	$ 59.2	$ 66.3

At December 31, 2005 and 2004, the weighted-average discount rate assumptions used in developing the postretirement benefit obligation were 5.50 percent and 5.75 percent, respectively.

Discount rates reflect yields available on high quality corporate bonds that would generate the cash flows necessary to pay the plan's benefits when due.

Following is a reconciliation of the beginning and ending balance of the plan assets, the unfunded postretirement benefit obligation, and the accrued postretirement benefit costs (in millions):

	2005	2004
Fair value of plan assets at January 1	$ —	$ —
Actual return on plan assets	—	—
Contributions by the employer	2.8	2.6
Contributions by plan participants	0.3	0.2
Benefits paid	(3.1)	(2.8)
Fair value of plan assets at December 31	$ —	$ —
Unfunded postretirement benefit obligation	$ 59.2	$ 66.3
Unrecognized prior service cost	10.2	12.5
Unrecognized net actuarial (loss)	(13.7)	(23.1)
Accrued postretirement benefit costs	$ 55.7	$ 55.7

Accrued postretirement benefit costs are reported as a component of "Accrued benefit costs."

For measurement purposes, the assumed health care cost trend rates at December 31 are as follows:

	2005	2004
Health care cost trend rate assumed for next year	9.00%	9.00%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	5.00%	4.75%
Year that the rate reaches the ultimate trend rate	2011	2011

Assumed health care cost trend rates have a significant effect on the amounts reported for health care plans. A one percentage point change in assumed health care cost trend rates would have the following effects for the year ended December 31, 2005 (in millions):

	One Percentage Point Increase	One Percentage Point Decrease
Effect on aggregate of service and interest cost components of net periodic postretirement benefit costs	$ 0.8	$ (0.6)
Effect on accumulated postretirement benefit obligation	7.9	(6.5)

The following is a summary of the components of net periodic postretirement benefit costs for the years ended December 31 (in millions):

	2005	2004
Service cost–benefits earned during the period	$ 1.6	$ 1.8
Interest cost of accumulated benefit obligation	3.1	4.1
Amortization of prior service cost	(2.3)	(0.6)
Recognized net actuarial loss	0.4	0.8
Total periodic expense	$ 2.8	$ 6.1
Curtailment (gain)	—	(1.1)
Special termination loss	—	0.1
Net periodic postretirement benefit costs	$ 2.8	$ 5.1

Net postretirement benefit costs are actuarially determined using a January 1 measurement date. At January 1, 2005 and 2004, the weighted-average discount rate assumptions used to determine net periodic postretirement benefit costs were 5.75 percent and 6.25 percent, respectively.

Net periodic postretirement benefit costs are reported as a component of "Salaries and other benefits."

A plan amendment that modified the credited service period eligibility requirements created curtailment gains in 2004. The recognition of special termination losses is primarily the result of enhanced retirement benefits provided to employees during the restructuring described in footnote 10.

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 established a prescription drug benefit under Medicare ("Medicare Part D") and a federal subsidy to sponsors of retiree health care benefit plans that provide benefits that are at least actuarially equivalent to Medicare Part D. The benefits provided by the Bank's plan to certain participants are at least actuarially equivalent to the Medicare Part D prescription drug benefit. The estimated effects of the subsidy, retroactive to January 1, 2004, are reflected in actuarial loss in the accumulated postretirement benefit obligation and net periodic postretirement benefit costs.

Following is a summary of expected benefit payments (in millions):

	Without Subsidy	With Subsidy
2006	$ 3.0	$ 2.7
2007	3.1	2.8
2008	3.3	2.9
2009	3.4	3.0
2010	3.5	3.1
2011–2015	20.2	17.7
Total	$ 36.5	$ 32.2

Postemployment Benefits

The Bank offers benefits to former or inactive employees. Postemployment benefit costs are actuarially determined using a December 31, 2005, measurement date and include the cost of medical and dental insurance, survivor income, disability benefits, and self-insured workers' compensation expenses. The accrued postemployment benefit costs recognized by the Bank at December 31, 2005 and 2004, were $8.7 million and $8.6 million, respectively. This cost is included as a component of "Accrued benefit costs." Net periodic postemployment benefit costs included in 2005 and 2004 operating expenses were $1 million and $3 million, respectively and are recorded as a component of "Salaries and other benefits."

10. BUSINESS RESTRUCTURING CHARGES

In 2003, the Bank announced plans for restructuring to streamline operations and reduce costs, including consolidation of Check operations and staff reductions in various functions of the Bank. In 2004 and 2005, additional consolidation and restructuring initiatives were announced in the Check operations, Check Automation Services, and Marketing. These actions resulted in the following business restructuring charges (in millions):

	Total Estimated Costs	Accrued Liability 12/31/2004	Total Charges	Total Paid	Accrued Liability 12/31/2005
Employee separation	$ 1.1	$ 1.2	$ —	$ 0.3	$ 0.9

Employee separation costs are primarily severance costs related to identified staff reductions of approximately 70, including 16 staff reductions related to restructuring announced in 2004. These costs are reported as a component of "Salaries and other benefits." Contract termination costs include the charges resulting from terminating existing lease and other contracts and are shown as a component of "Other expenses."

Restructuring costs associated with the write-downs of certain Bank assets, including software, buildings, leasehold improvements, furniture, and equipment are discussed in footnote 6. Costs associated with enhanced pension benefits for all Reserve Banks are recorded on the books of the FRBNY as discussed in footnote 8. Costs associated with enhanced postretirement benefits are disclosed in footnote 9.

Future costs associated with the announced restructuring plans are not material.

The Bank anticipates substantially completing its announced plans by March 2006.

National Road, 1941

Concrete began to surpass brick and dirt as the preferred road-surface material in 1912, but it wasn't until the Federal Highway Act of 1938 that an interstate highway system was considered, proposed by President Roosevelt as a way of providing jobs. The goal of the act was to study the feasibility of a national, six-route, toll-road network.

Superhighways: An American Icon

The Dwight D. Eisenhower System of Interstate and Defense Highways has over 40,000 miles of interstates, which represent 1 percent of our nation's total road length, yet carry over 20 percent of its traffic. There is hardly one aspect of American society that has not been affected by the interstates.

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Supervision and Regulation

Federal Reserve Banks each have a board of nine directors. Directors supervise the Bank's budget and operations, make recommendations on the primary credit rate, and, with the Board of Governors' approval, appoint the Bank's president, first vice president, and officers.

Class A directors are elected by and represent the interests of Fourth District member banks. Class B directors also are elected by member banks but represent the public interests of agriculture, commerce, industry, services, labor, and consumers. Class C directors are selected by the Board of Governors and also represent these public interests.

Directors serve for three years. Two Class C directors are designated by the Board of Governors as chairman and deputy chairman of the board. Directorships generally are limited to two successive terms to ensure that the individuals who serve the Federal Reserve System represent a diversity of backgrounds and experience.

The Cincinnati and Pittsburgh branch offices each have a board of seven directors who serve three-year terms. Board members are appointed by the Federal Reserve Bank of Cleveland and the Board of Governors.

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Business Advisory Councils *(as of December 31, 2005)*

Business Advisory Council members are a diverse group of Fourth District businesspeople who advise the president and senior officers on current business conditions.

In 2005, the Bank's Business Advisory Council expanded into three councils—in Cleveland, Cincinnati, and Pittsburgh—to provide greater regional presence and outreach.

Each council meets with senior Bank leaders at least twice yearly. These meetings provide anecdotal information that is useful in the consideration of monetary policy direction and economic research activities.

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Federal Reserve Bank of Cleveland

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