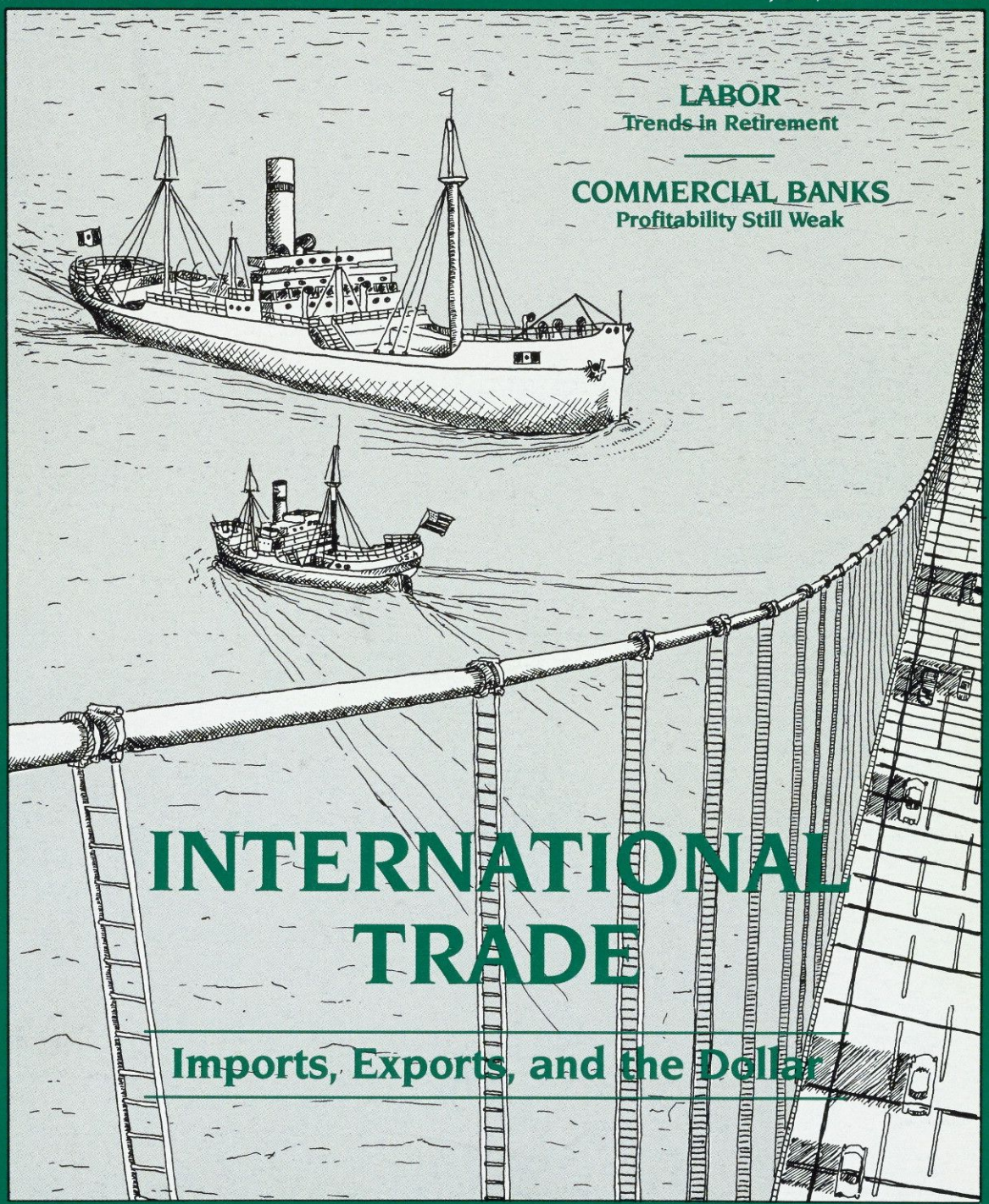
Economic Review

FEDERAL RESERVE BANK OF ATLANTA JULY/AUGUST 1988



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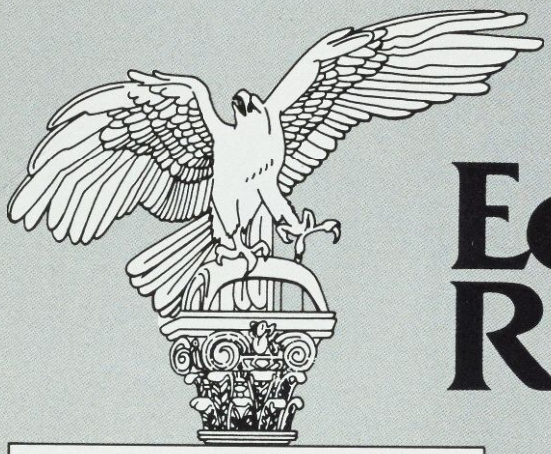

Economic Review

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FEDERAL RESERVE BANK OF ATLANTA

The U.S. Dollar and the "Delayed J-Curve"

Jeffrey A. Rosensweig and Paul D. Koch

Downward movements in the dollar affect the four basic elements of the trade balance—import prices, export prices, import volume, and export volume—but import prices and volumes respond more slowly than portrayed in standard J-curve theory. The authors analyze this departure from expectations and suggest that the United States presents a unique case of delayed trade balance response to currency depreciation.

In February 1985, after more than four years of gains, the dollar exchange rate reached a peak against major indexes of foreign currencies. The dollar's subsequent steady fall since early 1985 bred optimism that the U.S. balance of trade deficit, which to the concern of many had risen to record levels, would begin to shrink. Most analysts of the international economy anticipated that the turn would not come immediately, however. Past experience had shown that exchange rate depreciation was linked to an improved balance of trade only after a lag. Indeed, evidence from past episodes indicates that currency depreciation is typically followed immediately by *deterioration* in the trade balance; only after a time does the trade balance improve.

Though a lag between the dollar's peak and improvement in the trade deficit is generally expected, the extent of this lag in the period since 1985 has surprised most analysts. The dollar's highest level in early 1985 preceded the largest subsequent monthly (and quarterly) balance of trade deficit by more than two-and-a-half years, and the deficit has yet to retreat to its smaller levels of early 1985. As Chart 1 shows, the quarterly nominal trade balance as measured by net merchandise exports in the GNP accounts reached its most recent nadir (that is, the trade deficit peaked) in the fourth quarter of 1987. The monthly nominal merchandise trade deficit reached its highest level most recently in

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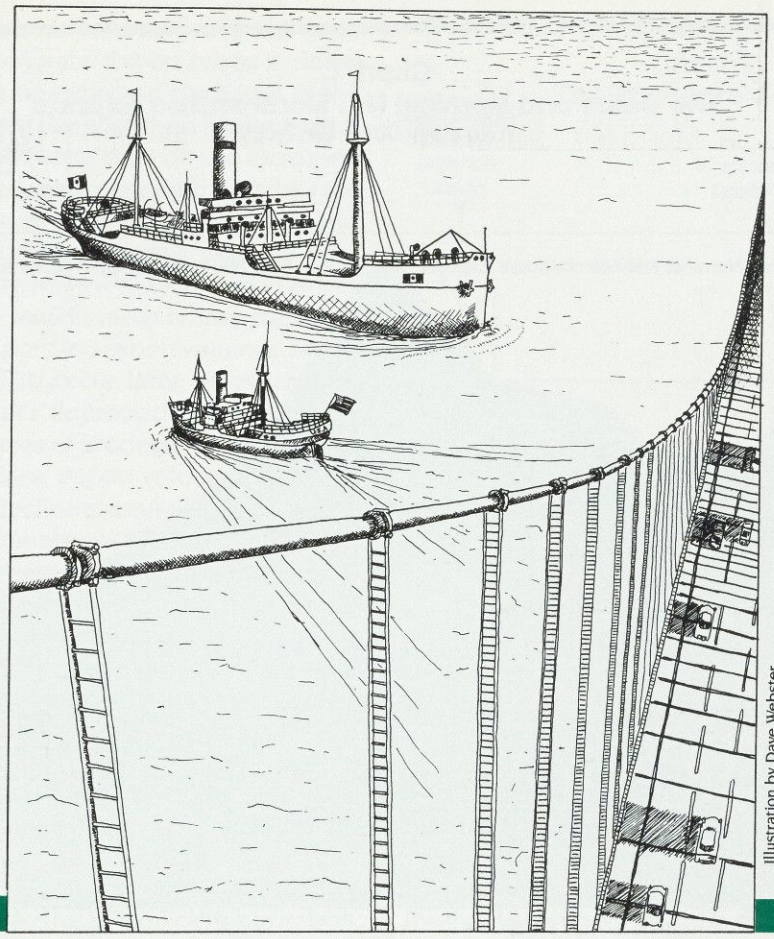


Illustration by Dave Webster

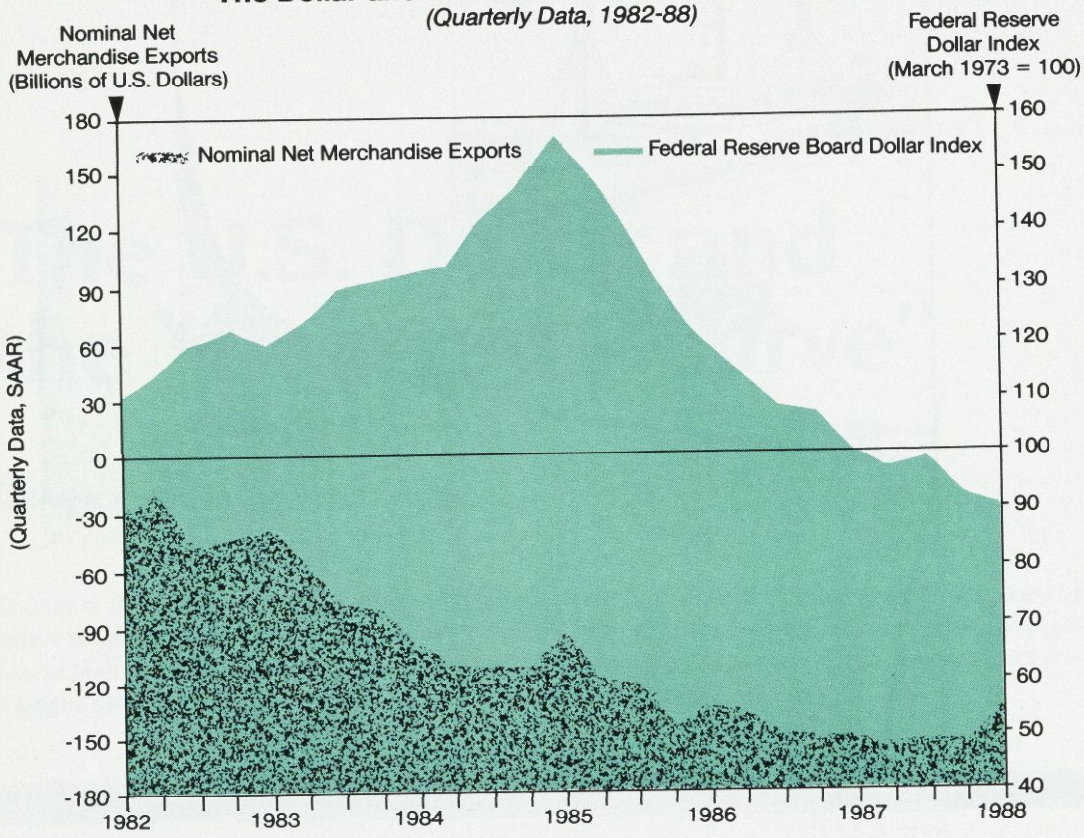
October 1987 and has since been improving sporadically.

This surprisingly belated downturn in the nominal U.S. trade deficit after the dollar's massive, persistent decline from its February 1985 peak has sparked renewed interest in the individual response to exchange rate movements of the components of the balance of trade: import and export prices and volumes. In an attempt to explain the long lag, analysts have been reviewing two related strands of economic thought. The primary line of thinking—termed here the *J-curve strand*—focuses on the overall response of nominal trade balances to the dollar.[1] The other line of thinking concentrates on the "pass-through" of exchange rate movements into import prices. This pass-through refers to the channels through which currency valuation changes progress to be reflected in import prices.

The delayed nominal trade balance response can be understood more fully by uniting these two strands of economic thought and specifying the dynamic links running from the dollar to the prices and volumes of U.S. imports and exports. In pursuit of such an understanding, this article presents a simple framework that relates the overall effect of the dollar on the U.S. trade balance to four specific exchange rate relationships and their respective time paths. This focus allows tests of how well, in the flexible exchange rate era since March 1973, U.S. experience supports a J-curve explanation. This approach also allows a pinpointing of the specific links where the J-curve pattern breaks down, if it does.

An analysis of the post-1973 experience shows a slow and weak pass-through of dollar movements into U.S. import prices. This pass-through weakness helps to explain the belated turnaround in the trade balance of the United States since 1985. Reasons for this weakness are discussed later in this article.[2] First, though, the trade balance and the J-curve should be studied.

Chart 1.
The Dollar and Nominal Net Merchandise Exports
(Quarterly Data, 1982-88)



Sources: The Board of Governors of the Federal Reserve System and the U.S. Department of Commerce.

A Framework for Analyzing How the Trade Balance Evolves

The J-curve is a stylized way of sketching the evolution of the nominal trade balance after a depreciation or devaluation of a currency. As its name implies, the J-curve represents a balance that initially falls sharply, remains temporarily low, gradually begins to improve, and ultimately rises above its previous level as time passes. To identify the time path of changes underlying the J-curve, this research divides the trade balance into four parts, which are related in the following equation:

$$NX = (Px * X) - (Pm * M)$$

where NX is net merchandise exports (that is, the balance of trade) in current prices; Px and Pm are, respectively, the average price indexes of exports and imports; and X and M are, respectively, the total volume of exports and imports. The term enclosed in the equation's first parenthesis ($Px * X$) represents *nominal exports;* the term in the second parenthesis ($Pm * M$) is *nominal imports.* When NX is negative, the balance of trade in the United States is at a deficit.

In standard J-curve theory, each of the four elements of the balance of trade responds over its own time path to exchange rate fluctuations. Together these changes produce the overall trade balance's reaction to the exchange rate. The standard J-curve explanation argues that—initially—only Pm, import prices, will change early as lower dollar exchange rates directly increase import prices; hence, in the absence of changes in import and export volumes, total

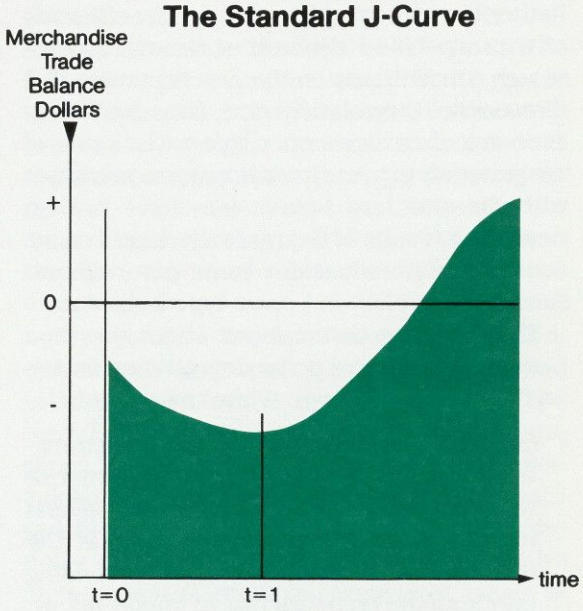
payout for imports will increase and the trade balance will deteriorate. Export prices in dollar terms would not be expected to change in the short run but might rise slightly in the longer run either as U.S. producers pass on the increased costs of imported intermediate inputs by raising their prices or as rising export demand pushes U.S. producers toward capacity constraints. Generally, however, dollar export prices are expected to remain more or less stable.

Changes in import and export volumes, *M* and *X*, are expected to occur later, as purchasers react to the dollar's depreciation by eventually finding new sources of products. In response to rising import prices, import volumes, *M*, would be expected to decline eventually. This reaction would help to counteract the early impact of import price increases and push the balance of trade toward improvement. Export volumes, *X*, would be expected to increase as foreigners face lower prices in their own currencies for dollar-priced goods from the United States. This effect, too, would tend to improve the U.S. balance of trade.

Combined, these four sets of reactions suggest the J-curve shape for the reaction over time of the balance of trade to a currency depreciation (see Chart 2). The trade balance's short-run decline is accounted for by a quick rise in import prices but with little other change. The trade balance's later improvement occurs when falling import volume and rising export volume offset higher import prices. If the responses of trade volumes are sufficient, the rising section of the J-curve will move above its level at the time of the currency depreciation. That is, the trade balance will recover and surpass its level when the currency began depreciating.

While seemingly a reasonable series of events, these reactions represent only one of many possible scenarios. Each element of the expected relationship imposes some strict assumptions about the level, pattern, and time path of balance-of-trade reactions. The failure to appear of one or more of the four basic patterns could lead to many different time patterns of trade balance response to the exchange rate. Importantly, the pricing behavior consistent with the J-curve is seemingly based on somewhat extreme assumptions. Export prices will remain flat in dollar terms only if U.S. supply is perfectly elastic or foreign demand perfectly

Chart 2.
The Standard J-Curve



t=0 time of initial currency depreciation.

t=1 time at which net export balance begins to improve.

inelastic. The J-curve volume assumptions imply that demand is ultimately not inelastic; therefore, export supply must be totally elastic.

The same elasticity assumptions implicitly underlie the import side of a J-curve theory. However, the recent literature on the market structure of traded goods industries casts doubt on any notion of perfectly elastic supply.[3] Thus, each of the expected individual elements could fail to develop for a variety of reasons, suggesting a multitude of alternative patterns of trade balance evolution, each with its own issues and problems. Only one of these patterns renders the classic J-curve.

Tests of the Basic Trade Balance Elements

The four elements of the trade balance—import prices, export prices, import volume, and export volume—provide the focus for this paper. Using a statistical technique called time series analysis, this research identifies the nature and extent of the dynamic relationships

between changes over time in the dollar's value and elements of the nominal balance of trade. Rather than studying the values of coefficients of a prespecified dynamic structure, this research concentrates on the precise timing and direction of the relationships, because recent economic developments suggest that some of the generally expected relationships consistent with the standard J-curve may have broken down. The results of the research should cause economists to reconsider some particular assumptions implicit in J-curve-type behavior.

The following assumptions about the time path of reactions to a dollar depreciation underlie the standard J-curve: When the dollar falls,

- *Import prices rise immediately.* Their strongest rise occurs early, and they continue to rise with successively less strength for several months. Standard theory argues that the relationship is strong and negative, running only from the exchange rate to import prices.
- *Export prices remain stable.* Any response that might appear will be late, weak, and perhaps negative.
- *Import volumes begin to decline* some months, perhaps a year, after the exchange rate change and continue to decline for many months thereafter. The relationship is expected to be strong and positive, and to run only from the exchange rate to import volumes.
- *Export volumes begin to increase* some months, perhaps a year, after the exchange rate decline and continue to increase for several months thereafter. The relationship is expected to be strong and negative, and to run only from the exchange rate to export volumes.

This research examines the four relationships between the dollar and the different components involved in trade balance adjustments. To acknowledge possible relationships in the opposite direction to those expected, models that link the dollar to current and past changes in each of the four components of the trade balance are also tested.

Since the tests allow focusing on the exchange rate-trade balance component relationships, this study can analyze monthly data. Quarterly data, such as GNP statistics, are not needed. The data are not seasonally-adjusted, since seasonal adjustment effectively takes place within the time series models. The use of monthly data provides a double advantage: having both a large number of observations and data drawn solely from the floating exchange rate regime.

The sample period chosen spans April 1973 through December 1986. The period was cut off after 1986 so that only revised data would be included. The April 1973 starting date coincides with the beginning of the floating rate era. Previous studies, though, have mixed quarterly data from both fixed and floating rate eras.[4]

The time series techniques employed here are discussed in the accompanying box as well as in Paul D. Koch, Jeffrey A. Rosensweig, and Joseph A. Whitt, Jr.'s (1986, 1988) studies, and are explained in detail in Koch and Rosensweig (1988). In essence, these present techniques allow analysis of two aspects of the exchange rate's relationship with the balance of trade elements: (1) whether the exchange rate and each trade balance element are independent over time and (2) the direction and nature of their temporal relationship, if any.

Empirical Results

Cross-Correlation Functions. The temporal relationships between the dollar exchange rate and the four balance-of-trade elements are depicted graphically in Charts 3 through 6. (Results of formal tests of independence [Koch-Yang tests] are found in Table 1 in the box.) Each chart shows a cross-correlation function (CCF). These CCFs summarize the timing, size, and direction of the dollar's relationship with a trade balance component. Each chart shows a time line of months running horizontally. Vertical bars measure the relationship between the exchange rate and a component of the trade balance at a time before or after an exchange rate change. The 0 month in the center of the chart shows a contemporaneous relationship. Positive months—to the right of the 0 month—show lags of the component behind the exchange rate movement. Negative months—to the left of the 0 month—show leads of the components before the dollar. The lagged relation-

ships are computed for 48 months before and after the dollar change. Dotted lines parallel to the horizontal axis show 95 percent confidence intervals. Vertical bars that extend beyond these dotted lines represent statistically significant relationships. Shaded areas suggest, in a rough manner, the relationships implied by standard J-curve theory.

Contrary to typical J-curve expectations but consistent with arguments in some earlier research, the cross-correlation graph in Chart 3 shows little relationship between the dollar and import prices. The coefficients for each month are generally quite small and display no distinct pattern, appearing to be randomly distributed about zero. No evidence is available to indicate an immediate rise in import prices after a dollar decline. A few coefficients approach the 95 percent confidence interval about zero. Coefficients representing lags of 13 and 18 months after the dollar change are the only notably large coefficients in the entire function. As expected, these coefficients are negative, perhaps suggesting that a decline in the dollar is followed by a rise in import prices that is delayed between 12 and 18 months.

The picture in Chart 4 is roughly consistent with the export price pattern of response implied by standard J-curve theory. Little evidence of a dynamic relationship between the dollar and export prices is present. A few large coefficients show export prices leading the dollar, but the lack of a distinct pattern suggests no substantive relationship. In the other direction, the coefficients are extremely small in magnitude, although a pattern is weakly suggested as they are mostly negative.

The cross-correlation results in Chart 5 display at best a very weak and delayed response of import volumes to dollar movement. Research performed by the authors could not reject the hypothesis that the dollar and import volumes move independently. The CCF shows a series of rather weak shrinking import volume effects beginning some 20 months after a dollar decline. These results are consistent with the above finding of a weak and delayed response of import prices.

The cross-correlation function picturing the relationship between the dollar and export volume appears in Chart 6 and produces strong evidence of the expected negative relationship between the dollar and export volume. At lags of 12 through 24 months after an exchange rate change, a string of several large (negative) coefficients appears, indicating that a decline in the dollar strengthens export volume from a year to up to 24 months later. Two large positive coefficients linking dollar movements to previous export volumes appear after a long delay (at lags -23 and -39 months). These may be spurious, or may reflect modest support for a weak relationship from export volume to the dollar after two or more years.

Granger Test Results. Statistical tests introduced by C.W.J. Granger (1969) were performed to investigate further the "direction" of the lead/lag relationship suggested by the time series independence tests and cross-correlation functions. These tests determine whether each variable in a bivariate relationship—such as the dollar exchange rate and import prices—can be more accurately predicted using past values of both variables rather than using only past values of each variable by itself. Granger tests are more powerful under certain conditions which are sufficiently met at times in this analysis; test results for the four elemental relationships appear in Table 2 in the box at the end of this article.

In contrast to the tests of independence associated with the CCFs, Granger tests suggest that the dollar leads to subsequent movements in import prices, but that import prices do not lead the dollar. This finding may appear inconsistent with the failure of the independence test to reject the hypothesis of no relationship between these two variables. However, while the cross-correlation function in Chart 3 comprises mostly small coefficients following no distinct pattern, the two large coefficients at lags of 13 and 18 months suggest that a decline in the dollar is followed by an increase in import prices between one to one-and-a-half years later. For dynamic relationships characterized by one or two large distributed lag coefficients, regression tests such as Granger's have been shown to be more powerful than time series tests (John Geweke, 1981; Koch and S.S. Yang, 1986), lending more credence to the relationship suggested by the Granger tests in this case. Of particular interest here, however, is the delay before import prices are substantively impacted, which is a crucial departure from the standard J-curve's assumed pattern of quick pass-through response.

Chart 3.
Cross-Correlation Function between the Dollar's Value and Import Prices

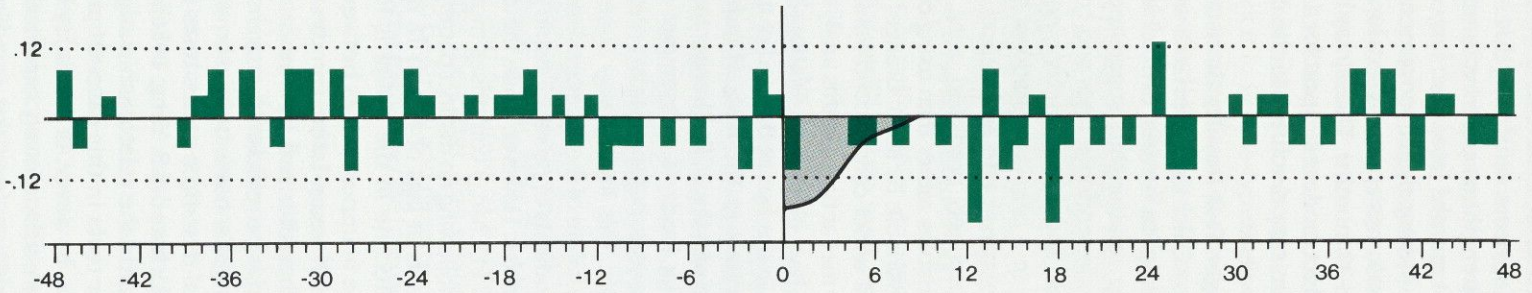


Chart 4.
Cross-Correlation Function between the Dollar's Value and Export Prices

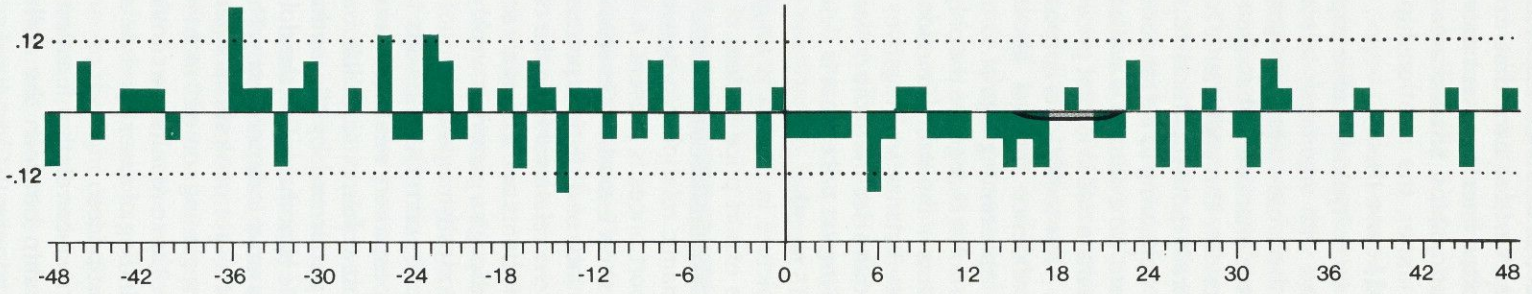


Chart 5.
Cross-Correlation Function between the Dollar's Value and Import Volume

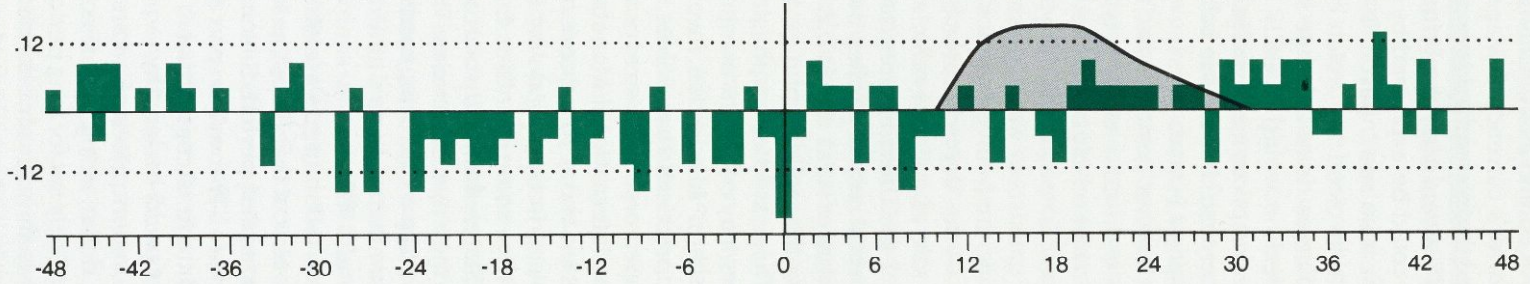
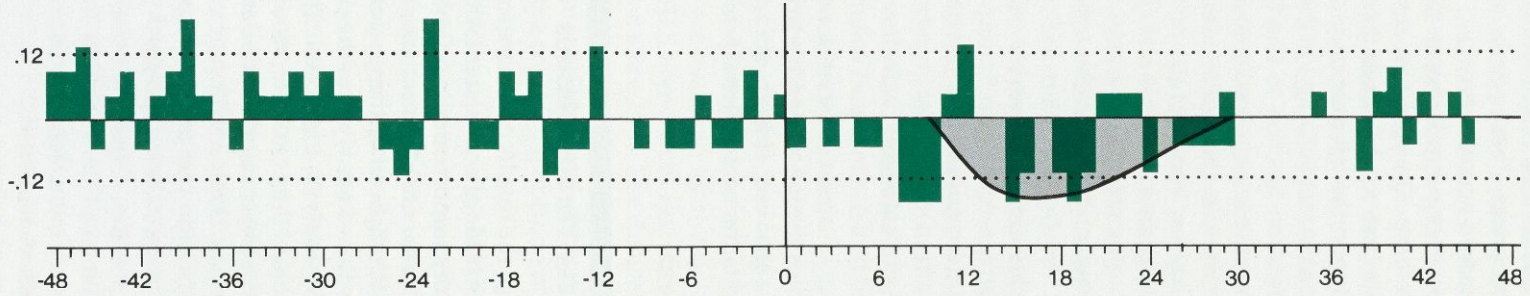


Chart 6.
Cross-Correlation Function between the Dollar's Value and Export Volume



The Granger tests, like the earlier independence tests, produce no solid evidence supporting a substantive relationship between the dollar and export prices. These results are consistent with a standard J-curve scenario.

For the relationship between the dollar and import volume, Granger test results suggest only that import volume leads the dollar. These results support the information provided by the independence test in Table 1 in the box and the cross-correlation function in Chart 5, indicating that an increase in import volume is followed by small declines in the dollar over a long distributed lag. Any impact of the dollar on import volumes appears to be weak and quite delayed, perhaps reflecting the findings of weak and delayed import price pass-through.

Finally, the Granger tests indicate that the dollar leads export volumes, but export volumes do not lead the dollar. This finding corresponds with the independence test in Table 1 in the box and the pattern in the cross-correlation function in Chart 6, indicating that a decline in the dollar is followed by a rise in export volume beginning after a lag of about 8 months and then distributed over the following 16 or so months. This powerful response, though delayed and distributed, fits the conventional J-curve pattern.

Price Pass-Through Issues

Although the results on the export side of the balance of trade are consistent with the typical J-curve story, import prices and volumes do not show patterns consistent with standard J-curve theory. Rather, both of these elements move more slowly and weakly after the dollar change than most analysts expected. The standard explanation of the J-curve depends crucially on the rapid pass-through of dollar changes to import prices, thence to import volumes. Previous discussion indicated that certain economists have questioned the quick pass-through of dollar changes. Since the results of this research point to this weakness in the J-curve explanation, a more thorough discussion of pass-through issues is indicated.

Analyses of balance of trade responses for developed countries usually rely on an empirical regularity now known as Grassman's rule (S. Grassman, 1973), which states that trade prices are likely to be invoiced, and thus initially fixed, in terms of the *exporter's* currency. S. Magee (1973) demonstrated that a standard J-curve pattern, such as that observed after the British devaluation in 1967, could be explained by such invoicing practices (also see J. Bilson, 1983). If U.S. imports are invoiced in foreign currencies and trade volumes do not change immediately, a dollar decline would initially result only in higher import prices measured in dollars, leading to the "perverse" initial trade balance deterioration defining a J-curve.

Bilson, however, points out that "trade in primary products and capital assets is typically denominated in major vehicle currencies, particularly the U.S. dollar."[5] Consequently, the type of price pass-through consistent with Grassman's rule and underlying the J-curve may not extend to the imports of the United States because of the dollar's role as a global vehicle currency.

Indeed, the United States may be a special case. Several recent studies point to the unusually slow or weak rise in U.S. import prices following the dollar's plunge from 1985 onwards. These studies emphasize that foreign exporters may cut profit margins to maintain market share.[6] In addition, invoicing and contracting practices themselves may delay an initially perverse J-curve response in the U.S. case. The International Monetary Fund (IMF) reports that about 70 percent of U.S. imports are invoiced in the U.S. dollar. If this figure is correct, then some countries exporting to the United States do not invoice all of their exports in their own currencies. For example, in 1986 fully 64 percent of Japanese exports were not denominated in yen (International Monetary Fund, 1987).

Further, U.S. imports are often purchased under contracts that fix prices in dollar terms for an extended period. Bilson (1983, p. 386) states that: "The major part of true international trade is contractual . . . ," and these contracts could be lengthy.

If U.S. import prices often are contractually fixed in dollar terms, and if contracts are at least implicitly set for long periods, then most of the pass-through of dollar declines into the import price index will be delayed. Thus, the J-curve's initial trade balance deterioration

would be delayed, as would the subsequent improvement based on the reaction of import volumes to higher import prices.

Implications: An Alternative View

Evidence on the dynamic relationships between the dollar and the four critical components of the trade balance suggests a new view of the U.S. trade balance response to dollar depreciation. The two import-side elements of dollar influence display patterns that are both weaker and more delayed than the assumed patterns implied by conventional J-curve theory. These results, combined with an analysis of import price reactions, suggest an alternative to the standard J-curve model of trade balance evolution.

Evidence that import price pass-through occurs most clearly only after a lag of at least one year and that import volume responds with an even longer lag implies a new view of U.S. trade balance evolution following dollar depreciation. In this view the nominal balance of trade traces out a "delayed J-curve" primarily because a dollar change is not significantly reflected in import prices for some months and then only weakly.

This pattern may be peculiar to the United States because, unlike any other country's, the U.S. currency is an international numeraire, that is, the international unit of exchange; other currencies are defined relative to the U.S. dollar. The dollar is also the primary reserve currency—so widely held that all other currencies can be easily exchanged for it. U.S. markets may also be large enough to induce market share competition and less than perfectly elastic supplies. Consequently, U.S. import prices would not jump in dollar terms immediately after a dollar decline. The initial deterioration of a trade balance following depreciation that marks a standard J-curve, caused by import prices rising before volumes can respond, is delayed for at least a year in the U.S. case. Further, the weak and delayed import price pass-through hinders the substitution of domestic products for imported goods, restraining the import volume contraction.

The result of the delays on the crucial import side is a delay in both the initial downturn and subsequent improvement of the trade balance, an effect that is particularly important for the United States, where the import side recently far outweighed the export side. In the implied trade pattern, the trade balance is fairly flat for about a year, then it deteriorates when import prices increase (unless the export volume response at that time is very strong). Only after a further lag do import volumes respond to this delayed price pass-through and shrink, finally generating the long-awaited trade balance improvement.

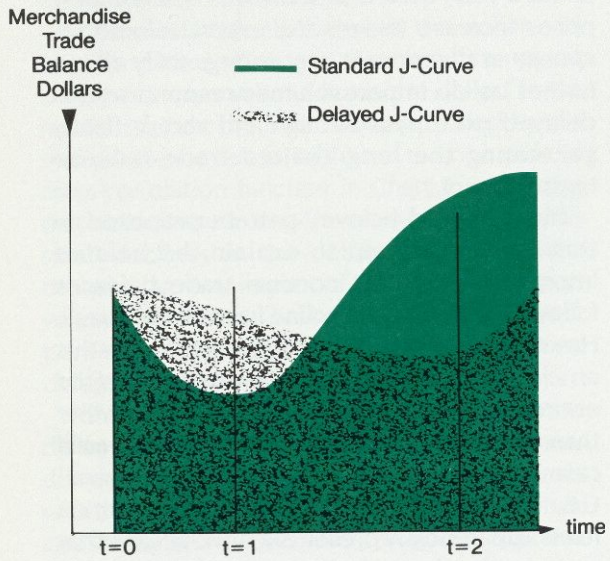
The "delayed J-curve" pattern proposed in this article can help to explain the belated improvement in U.S. nominal trade balances following the dollar's decline from its 1985 peak. However, the delay or long lags identified in this article stem from estimates computed over the entire floating rate era since March 1973. Rather than the period since early 1985 being a special case in U.S. balance of trade history, the overall U.S. trade balance response to depreciation itself apparently represents a special case that does not conform to the conventional J-curve model.

This article suggests that import prices have reacted slowly because many U.S. imports are priced in dollars and subject to long-term contracts. As noted above, however, other plausible explanations are available for the delay in the reaction of the U.S. nominal balance of trade to the dollar's decline since 1985. The delayed J-curve is generally consistent with and complementary to these explanations, and each may have relevance to the continuing episode of delayed trade balance response.

The standard J-curve was originally developed to explain responses to one-time devaluations rather than long gradual declines such as that recently experienced by the dollar. A gradual decline can be seen as a series of small depreciations generating a series of J-curves played out in an overlapping sequence that traces a balance-of-trade time path similar to a delayed J-curve (see Chart 7). The tardy declines of the exchange rates of important U.S. trading partners, seen especially in the behavior of the Asia-excluding-Japan as well as the Canadian subindex of the Atlanta Fed dollar index, may also have weakened or postponed the response of the trade balance to the dollar's decline.[7]

Several other factors subsumed under the currently popular rubric of *hysteresis* are blamed

Chart 7.
A Comparison of the Standard and Delayed J-Curves



t=0 time of initial currency depreciation.

t=1 time at which net export balance is expected to begin to improve ("standard J-curve").

t=2 time at which actual improvement begins.

(t=1) - (t=0): standard response time

(t=2) - (t=0): actual response time

(t=2) - (t=1): additional delay

for import prices' slow response.[8] The hysteresis argument is based on the occurrence of irreversible change in the face of large shocks such as the sharp and persistent rise of the dollar between 1981 and 1985. There are several strands of this argument: First, uncertainty about the permanence of the low dollar level may delay reactions by exporters and importers and result in a delayed J-curve. Second, in order to maintain U.S. market share or simply to continue to cover their variable costs of producing and marketing, foreign producers of U.S. imports may be willing to cut prices in their own currency after the dollar depreciates. Third, domestic producers, already burned by import competition, may hesitate to add capacity to produce goods that substitute for imports until exchange rate changes begin to appear permanent.

Conclusion

This study has focused attention on nominal imports in trying to explain the slow turnaround in the U.S. trade balance following the dollar's 1985 peak. This laggardly response is rooted in the slow or partial pass-through of the dollar's movement into import prices, as well as the consequently slow and weak import volume response to the dollar through import prices. Therefore, both the initial deterioration and the subsequent upturn reflected in a J-curve pattern are delayed, leading to a proposal of an alternative view—the "delayed J-curve." Further, our empirical results find that this delay in the U.S. data applies not just to the period since 1985, but to the entire floating exchange rate era.

Data and Time Series Models Used in this Research

The import and export price indexes used in this article are the unit value indexes found in the International Monetary Fund's *International Financial Statistics*.[1] Import and export volume indexes are created by deflating the nominal values reported in *International Financial Statistics* by these price indexes. The dollar's value is given by the Federal Reserve Board's multilateral trade-weighted dollar index comprising ten major foreign currencies.[2] Dollar depreciation is signified by declines in the index.

The time series models used in this research are explored in some detail by the authors in several other places. Koch and Rosensweig (1988) present a detailed explanation and set of references on the models. The models are also explained in Koch, Rosensweig, and Whitt's 1986 and 1988 research and in Ira G. Kawaller, Koch, and Timothy W. Koch (1988).

Time series models such as these can be interpreted loosely as reduced form models, except that the noise model (error term) in each replaces other "exogenous" variables that would appear in a typical multivariate theoretical structural model. This noise model is an unrestricted moving average (MA) process that incorporates information explaining inertia in the variation of the dependent variable that is not explained by the other included right-hand-side variables. As A. Zellner and F. Palm (1974) show, a simultaneous system that incorporates dynamic structural equations implies reduced form relationships that may be expressed explicitly as time series models of this nature.

Time series models are particularly useful for identifying the existence, direction, and extent of dynamic relationships between variables. Koch and Yang (1986) provide a test that encompasses both a comparison of each coefficient in the cross-correlation functions computed here to their standard errors, and a scrutiny of these functions for a possible pattern in the successive distributed lag coefficients. This statistic is used here to test for the independence of individual trade balance elements from the exchange rate. A summary of the results from the Koch-Yang tests is shown in Table 1.

Time series independence tests can indicate that a relationship exists, and can distinguish between a short distributed lag with large coefficients and a long distributed lag pattern with small coefficients. However, once the independence hypothesis is rejected, the nature of the dynamic relationships should be examined further. The research statistically examines the *direction* of Granger causality, testing whether each variable can be predicted more accurately using past values of both variables, rather than using past values of each variable alone.

In order to estimate the model and compute the standard F tests, a finite lag parameterization must first be chosen. While longer lag lengths lessen the chance of misspecification, they also result in the loss of more degrees of freedom. Hence it is desirable to choose the minimum lag length that specifies the relationships accurately. In this analysis, the lag length was set at 48 months for the dependent variable in each equation and 36 months for the right-hand-side variable.

Table 2 summarizes the results of these Granger tests of causal priority or predictive ability.

Notes

[1] Related studies invariably use unit value indexes, after pointing out their weaknesses compared to true price series, because unit values are the only data consistently available for a long sample period. Particularly given this model's ability to use monthly data, the availability of unit value data becomes the compelling factor in data choice. Further, the absence of a long monthly series on "non-oil import prices" precludes removing oil imports and their prices from this study.

[2] This choice was motivated by comparability to earlier studies, but tests show that this paper's results are fairly robust. The Atlanta Fed Dollar Index, which uses bilateral trade weights and has a broader 18-currency coverage, was also employed with results similar to those reported in this paper.

Table 1.
Time Series Independence:
Do Koch-Yang Tests Reject Independence?

Series	Significance Level	
	5 percent	10 percent
Exchange rate and Import prices	no	no
Exchange rate and Export prices	no	yes
Exchange rate and Import volumes	yes	yes
Exchange rate and Export volumes	yes	yes

Table 2.
Granger Tests of Causality:
Do Lags of Variable 1 Help Predict Variable 2?

Variable 1	Variable 2	Significance Level	
		5 percent	10 percent
Exchange rate	Import prices	yes	yes
Exchange rate	Export prices	no	no
Exchange rate	Import volumes	no	no
Exchange rate	Export volumes	no	yes
Import prices	Exchange rate	no	no
Export prices	Exchange rate	no	no
Import volumes	Exchange rate	yes	yes
Export volumes	Exchange rate	no	no

Notes

[1]See, for instance, Krugman and Baldwin (1987), Hooper and Mann (1987), and Rose and Yellen (1987).

[2]For other recent views on delayed pass-through, see Mann (1986), Giovannini (1988), and Baldwin (1988), among others.

[3]See, for example, Dornbusch (1987), Mann (1986), and Krugman (1986).

[4]See, for instance, Rose and Yellen (1987).

[5]Bilson (1983): 384.

[6]See the studies cited in footnotes 1, 2, and 3, particularly Mann (1986) and Krugman and Baldwin (1987).

[7]See Rosensweig (1986).

[8]See Baldwin (1988), Baldwin and Krugman (1986), and Foster and Baldwin (1986).

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Past and Current Trends in Retirement: American Men from 1860 to 1980

Jon R. Moen

In comparison to earlier periods in U.S. history, a much smaller percentage of men aged 65 and over is now in the work force. This study examines the reasons for the shift in labor force participation and considers its possible effects on the nation's economy.

Most men in the United States will retire by age 65. Earlier this century, though, men as a group remained active in the work force past this age. In 1985 only 16 percent of men aged 65 and older were "officially" working, or working outside the home. In contrast, 58 percent of men aged 65 and older were in the labor force in 1930, while even as late as 1950, 47 percent were in the labor force. Social Security, private pensions, a changing mix of occupations, and a large supply of younger workers from the baby boom have made it easier for older men to leave the labor force. The choice for the average male worker today is not *if* he should retire but rather *how soon* he should retire.

Concurrent with the decreased participation in the labor force among older males is the aging of the American population. The baby boom generation is just entering its years of peak productivity, but the supply of young, entry-level workers is the smallest it has been in years.[1] In 20 to 25 years, when the baby boom generation begins reaching retirement age, people over age 65 will make up a greater percentage of the population than at any time in the nation's history. The labor force participation rates of these people will have important implications for labor force size and growth, and consequently for growth in the economy's capacity to produce. The presence of older workers in the labor force thus has important macroeconomic ramifications.

The fall in the labor force participation rate of men aged 65 and older has been one of the most dramatic changes in our labor markets. The percentage decline since 1900 has been greater than the percentage increase in female labor force participation. Since our understanding of retirement and the role of older persons in our society has been influenced by the continued withdrawal of older men from the labor force, they are the focus of this research.

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Illustration by Dave Webster

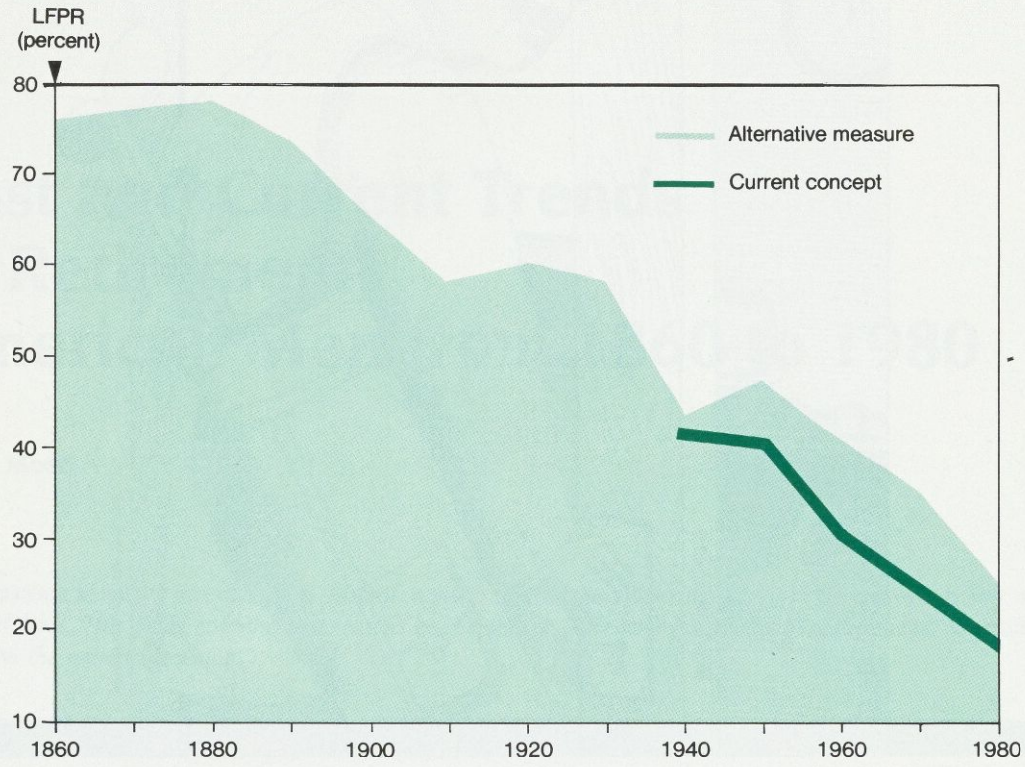
The tendency for older men to retire earlier and earlier has not been constant and is a fairly recent event. Over the long run, periods of sustained decline in participation have been followed by periods of relative stability. Furthermore, the periods of decline coincide with changes in federal policy and private attitudes towards retirement, aging, and work itself. The historical record also suggests possible solutions for some of the future problems presented by an aging population and the continued withdrawal of older men from the labor force.

Changing Patterns in Labor Force Participation, 1860 to 1980

Three changes in the labor force between 1860 and 1980 allowed—and in some cases forced—older men to leave work. First, in 1860 most people lived in rural areas and worked at jobs related to agriculture. Being self-employed and working in or near one's home was not unusual, and a worker in this situation could generally set his own pace. Since 1860 the home and workplace have become increasingly separated, and most jobs are now in or near urban areas. Farm households have always provided a wide range of jobs with varying degrees of physical difficulty. Older men had little reason to retire completely because repair and maintenance work was always needed on a farm, in addition to more strenuous work like planting or plowing. Rural employment and retirement patterns contrast greatly to retirement from factory work, in which withdrawal from the labor force is quite distinct and abrupt.

Second, in the 1860s few private pensions or government-sponsored assistance plans aided older workers; family support was the main source of help for the few who stopped working. By the late 1930s Social Security was in place, and businesses were starting to offer pensions to employees. Pensions became widespread after 1950.

Chart 1.
Labor Force Participation Rates of Men Aged 65 and Older: 1860 to 1980



Source: Jon Moen, "From Gainful Employment to Labor Force: Definitions and a New Estimate of Work Rates of American Males, 1860 to 1980," *Historical Methods*, forthcoming, fall 1988, tables 1 and 2.

A third change in the labor force was the change in methods of compensation and production, with hourly wages and factories becoming more prevalent than piece rates and working at home. Hourly wages and assembly lines placed a premium on the ability to do continuous and repetitive tasks, and employers would want to replace older workers who could not keep pace. Piece rates were suitable for more intermittent and individualized work where the worker set his own pace. With piece rates, employers would be willing to let older workers work less intensively than younger workers, thus allowing older workers to avoid retirement. The argument assumes that older workers would not impede the work of others or tie up machines that more productive workers could use.

Labor force data definitions and sources have also changed considerably since 1860. To overcome problems caused by definitional changes, this research pieces together a series of labor force participation rates that are defined consistently from 1860 through 1980 for men aged 65 and older. The series is based on an alternative measure of the labor force, which allows examination of labor force participation rates over a longer period than had been possible before. Details on the construction of the series are presented in the box on page 26.

Chart 1 contains the 1860-1980 participation rates for men aged 65 and older, estimated with both the current and alternative measures of labor force participation.[2] The figures in Chart 1 show that between 1860 and 1980 the labor force participation rate of men aged 65 and

Table 1.
Civil War Pensioners and Their Benefits: 1880 to 1930

Year	Pensioners (thousands)	Average Payment ($/veteran)	U.S. Per Capita Income
1880	250	—	—
1890	520	162	210
1900	740	142	231
1910	560	189	349
1920	240	460	755
1930	50	941	857

The Potential Effect of Civil War Pensions on Labor Force Participation: 1880 to 1920
(thousands)

Year	Labor Force	Population	Pensioners	Change in Labor Force	Change in Pensioners
1880	—	—	250	—	—
1890	888	1,200	520	—	+270
1900	975	1,500	740	+87	+220
1910	1,160	2,000	560	+185	-180
1920	1,500	2,500	240	+350	-320

White Male Labor Force Participation Rates: 1900

	North		South	
Age	Farm	Nonfarm	Farm	Nonfarm
65-69	.87	.72	.97	.84
70-74	.79	.49	.86	.71
75-79	.64	.38	.88	.56
80+	.42	.15	.62	.25
65+	.72	.54	.88	.72
N	627	1,071	89	69

Source: Jon Moen, *Essays on the Labor Force and Labor Force Participation Rates: The United States from 1860 through 1950,* unpublished Ph.D. dissertation, University of Chicago, 1987.

older fell by two-thirds. Labor force participation held steady at about 75 percent until 1890, when the first period of decline began. The causes of this decline are not certain, but two events seem likely to have contributed to it. Between 1900 and 1910 over 700,000 Civil War veterans became eligible for pensions. Although it is impossible to determine at present how many of the veterans used their pension benefit to retire, the overall number of pensioners affected was certainly more than enough to account for the decline in labor force participa-

Table 2.
Coverage of Public and Private Pensions: 1950 to 1979
(thousands of persons covered)

	Labor Force	Private	Federal	State/Local	Social Security
1950	62,208	9,800	3,118	2,600	36,500
1960	69,628	18,700	3,077	4,500	55,300
1970	82,715	26,100	3,320	7,300	69,200
1979	102,908	35,200	3,034	11,400	87,600

Source: Laurence Kotlikoff and Daniel E. Smith, *Pensions in the American Economy* (Chicago: University of Chicago Press, 1983): 28; and Social Security Administration, *Social Security Bulletin,* Annual Statistical Supplement, 1983, 61.

tion (see Table 1). The fact that the labor force participation rate of older men in 1900 was higher in the South than in the North lends further support to this view since veterans of the Confederate army were not eligible for federal pensions.

Related to the increase in coverage of Civil War pensions, the growing perception of old age itself as a distinct medical condition, regardless of one's state of health, also may have contributed to earlier retirement by older men. Old age was increasingly being viewed by employers and the federal government as a debilitating state. For example, for many years veterans were eligible for pensions only if they had been wounded or disabled during the Civil War. By 1907 "old age" was included among the conditions that would qualify a veteran for a pension, regardless of any other medical conditions or handicaps.[3] It is also true that around this time employers began to offer pensions as a means of enticing older workers to retire, thus making room for younger workers who may have been more productive in the increasingly mechanized factory. Nonetheless, the coverage of private pensions at the turn of the century was small and cannot account for much of the decline to that time in labor force participation.

Table 3.
Increase in IRS Qualified Pension Plans: 1939 to 1980
(number of plans)

1939	659
1949	12,154
1960	63,698
1970	225,899
1980	616,642

Source: Laurence Kotlikoff and Daniel E. Smith, *Pensions in the American Economy* (Chicago: University of Chicago Press, 1983): 165

Around 1910 the decline in labor force participation was interrupted. Labor force participation remained constant at about 58 percent before declining again during the 1930s. Although labor force participation did not change much, the workplace was undergoing further changes. Private pension plans were beginning to take hold in several industries. Most of these plans were intended to maintain a stable work force by reducing turnover among skilled workers.[4] At this time, though, workers had no guarantee that they would actually receive their pension upon retirement. A company could withdraw the pension benefit at any time if the employee acted in a way that the company perceived not to be in its best interest. Such behavior might entail, for example, going on strike, taking a second job, or even marrying. Furthermore, the coverage that these pensions provided was small when compared to today's, and many pensions were wiped out during the Great Depression.

Aside from the incipient growth of private pension plans, the creation of Social Security in 1935 also may have spurred changes in labor

Table 4.
Age Distributions of Men Aged 65 and Older: 1860 to 1980
(in percent)

	1860			1900	1950	1980
Age	Bateman-Foust	Older Males	Average			
65-69	42	46	43	43	43	38
70-74	28	32	29	29	26	28
75-79	17	14	16	16	18	18
80+	13	8	12	12	13	16
N	1,662	1,209	—	1.995	879	10,311

Note: The Bateman-Foust and Older Males age distributions were given weights of 85 and 15 percent, respectively.

Source: Jon Moen, *Essays on the Labor Force and Labor Force Participation Rates: The United States from 1860 through 1950*, unpublished Ph.D. dissertation, University of Chicago, 1987.

force participation, although the first payments were not made until 1942. The Social Security Act established a system that was part welfare payments based on need (Title I of the Social Security Act) and part retirement payments based on one's previous work history (Title II of the Act). The Title II provisions were created in part to draw older workers out of the labor force and allow younger workers to obtain work during the Depression.[5]

Labor force participation rates began their most recent decline after 1950. By 1980 rates had fallen from 47 to 26 percent when measured with the alternative measure and from 41 to 19 percent when measured with the Labor Department's labor force definition. The number of private pension plans expanded rapidly during this period, and by 1960 Social Security had become almost universal, covering nearly 84 percent of the work force (see Tables 2 and 3). Intuitively, it might seem that the rise in life expectancy since 1860 and the increasing share of men 65 and older in the population should account for some of the decline in participation as is the case for the participation rate of men aged 16 and older. But, the aging of the work force is only beginning to have an impact on the participation of men aged 65 and older, because the age distribution of this group has changed little since 1860 even though its members are a larger share of the population. The relative stability of the age distribution of men at older ages suggests that participation above age 65 declined because of changes in age-specific participation rates, rather than a shift in the age structure of the population towards a larger share of older workers (see Table 4); since 1950 retirement has become a standard part of one's work career.

Economic Reasons for the Decline in Labor Force Participation

The growth of private pension plans and Social Security has made retirement from the labor force a more viable option for aging male workers in the twentieth century. Rising real income, wages, and unearned income would also seem to have played some role in the decline of labor force participation among men aged 65 and older. Not until the 1950s, however, did income's effect on retirement become substantial. Leisure is thought to be an income-normal good; that is, the higher one's income, the more leisure time one demands. Economists refer to the relationship between income and the quantity of a good demanded—in this case, leisure—as the "income effect." On the other hand, higher wages increase the value of time and, hence, the price of leisure, making

individuals reluctant to forgo opportunities to earn more money. The relationship between the price of a good and the quantity demanded—in this case, the wage rate and leisure time—is called the "substitution effect." Higher unearned income—such as interest, dividend, or trust fund income that is independent of one's wage or salary—would tend to lower labor force participation if leisure is an income-normal good. Whether or not the income effect dominates the substitution effect is an empirical question, and the evidence is mixed.[6]

Economists have also recognized other factors as influential in the decision to enter or stay in the work force. These factors range from marriage and education to self-employment and rising wage levels.

In the past, marriage has tended to prolong a man's stay in the labor force. The reasoning is that since he and his spouse would have to live on his pension and Social Security income, the man would tend to work longer to increase the value of these income sources. The increasing tendency of wives to work outside the home may diminish the importance of a husband's continued participation in the labor force.

Education also extends a worker's stay in the labor force. More educated persons typically have access to higher-paying and perhaps more pleasant jobs, which increases the opportunity cost of retirement. Self-employed workers tend to stay in the labor force longer, often because they are not subject to any mandatory retirement rules. Because many self-employed workers are doctors, lawyers, or members of other professions, higher educational attainment is again a factor in their higher participation rate.

Research Findings. Though items such as an increase in pensions, a man's marital status, or the extent of a man's formal education affect the overall level of labor force participation among aging male workers, until about 1950 much of the decline in the labor force participation rate of older men was attributable to a change in the mix of occupations.[7]

In 1860, 65 percent of men aged 65 and older lived on farms, while today less than 3 percent do. Labor force participation among older men living on farms fell 25 percent between 1860 and 1980 (from 88 to 66 percent), while participation in the labor force fell 66 percent overall. Most of the decline came within nonfarm households. The increasing weight of nonfarm households in the overall average labor force participation rate also contributed to the decline. Had the share of older men living on farms remained constant between 1860 and 1980, the labor force participation rate of men 65 and older would have been 48 percent rather than 26 percent in 1980, when participation is defined using the alternative measure.

The movement out of agricultural jobs was part of the larger shift in the mix of occupations, in which manufacturing jobs became more important. In the nineteenth century older men tended to retire earlier from some jobs than from others (see Table 5). Men in farm households and in the households headed by unskilled laborers tended to stay at work longer than those in the households headed by skilled craftsmen. As the economy moved away from unskilled jobs and agricultural employment, the labor force participation rate of men aged 65 and older started to fall. Unskilled workers in 1900 worked on average at least as long as in 1860, as did farmers, skilled workers, and professionals. However, unskilled workers and farmers were becoming a smaller share of the work force. Also, the share of older men living in households where the head had no occupation went from 10 to 20 percent, which accounts for most of the decline in participation between 1860 and 1900. Retired Civil War veterans may have been a major element in this particular decline.

Around 1950 the rate of retirement from all types of jobs increased, and the shift in the mix of jobs began to have less effect on the overall labor force participation rate of older men. An increase in the share of households headed by older men who had no occupation accompanied this general tendency to retire. In 1860 about 10 percent of men aged 65 and older lived in households where the head had no occupation. Today over 55 percent live in such households and 90 percent are also the household head—even though they have no occupation. The rise of private pensions and Social Security has made this a fairly typical phenomenon in the United States.

Measuring the relative importance of the income versus the substitution effect back to 1860 is difficult because of a lack of income and

Table 5.
Labor Force Participation Rates by Household Type: 1860 to 1980
(alternative definition)

	All	Farm	Professionals	Skilled	Laborers	Service/Clerks	None
1860	.76	.88	.73	.86	.86	.71	.08
	—	(.65)	(.05)	(.08)	(.11)	(.01)	(.10)
1900	.70	.85	.86	.83	.90	.85	.08
	—	(.39)	(.13)	(.12)	(.12)	(.04)	(.20)
1950	.47	.75	.82	.67	.86	.78	.16
	—	(.11)	(.09)	(.14)	(.12)	(.06)	(.50)
1980	.26	.66	.53	.43	.53	.58	.01
	—	(.03)	(.09)	(.14)	(.04)	(.16)	(.56)

Note: Figures in parentheses are percentage of men 65 and older living in each household type.

Source: Jon Moen, "The Shifting Structure of Occupations and the Effect on the Labor Force Participation Rate of American Males, 1860 to 1980," Federal Reserve Bank of Atlanta Working Paper 88-3, May 1988.

Table 6.
Labor Force Participation Rates by Month: 1980 to 1987
(current definition)

	J	F	M	A	M	J	J	A	S	O	N	D
1980	19.6	19.9	19.2	19.1	19.0	18.9	18.7	19.2	18.6	18.5	18.6	18.5
1985	15.7	15.8	16.2	15.8	15.6	15.6	15.2	15.7	16.0	16.0	15.9	16.1
1987	15.6	15.7	15.9	16.0	16.3	16.7	16.3	16.8	16.2	16.5	16.7	17.0

Note: Labor force participation rates are seasonally adjusted.

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings,* February 1985, p. 134, and February 1988, p. 131.

wage data. Still, assuming that wealth in the form of real estate and personal property is a reasonable proxy for unearned income, wealth information from the 1860 census demonstrates that the level of one's wealth had little effect on the probability of being in the labor force.[8] In contrast, the 1950 census contains income and wage data which imply that higher unearned income, such as that available from pensions, resulted in lower labor force participation among men aged 65 and older. Preliminary results from 1980 census data are similar. While these results are not intended to be precise estimates of the labor supply's sensitivity or responsiveness to changes in income, they indicate that the elasticity of labor force participation with respect to income increased greatly between 1860 and 1980.

Recent Trends in Labor Force Participation Rates

The increasing share of household heads having no occupation and the rapid decline in labor force participation since 1950 are unique events in American economic history. Although differences in labor force participation rates across households classified by occupation have always been important, their magnitudes are small in comparison to the decline in the overall rate between 1860 and 1980. However, research suggests that the sharp overall decline will not continue and may not have been as large as was first thought.

If the current definition of the labor force is used, participation among older males fell from 41 percent in 1950 to 19 percent in 1980. Current measurements indicate that this trend has stopped and that participation in this cohort may be starting to increase (see Table 6). In mid-1985 labor force participation was close to 15 percent. Over the next two years it rose slowly until, by the end of 1987, labor force participation was at 17 percent. While not dramatic, the increase suggests that labor force participation can move up as well as down, as it did briefly during World War II. The increase of 2 percentage points also means that about 230,000 more older men are at work than would have been had the participation rate remained at 15 percent.

The alternative measure of labor force participation indicates that more older men may have been working than the current measure indicates. William G. Bowen and T. Aldrich Finegan (1969) show that withdrawal from the labor force by men between ages 64 and 67 tends to be in terms of fewer weeks of work per year rather than shorter work weeks or fewer hours per day.[9] If some men were not at work during the census reference week, they would not be counted as part of the labor force under the current definition, even though at some other point in the year they happened to be at work.

The influence of government policy seems to have been strongest during the most recent period of declining labor force participation since the drop is closely associated with the spread of Social Security. Research shows that a negative correlation existed between participation and unearned income—including Social Security and pension income—in 1950 and 1980. Furthermore, Bowen and Finegan demonstrate the extent to which Social Security provides a disincentive to continue working after age 65.[10] They show that participation in 1960 declined for men aged 65 and 71, after which it increased for several years before declining again. They attributed this reversal to the Social Security earnings test, which at that time reduced Social Security payments for persons earning more than $1,200 a year. After age 71, however, this restriction ceased to apply. Consequently, many older men returned to the labor force in spite of increasing age, and their participation rate rose by 3 to 4 percentage points.

Summary and Outlook

Starting during the New Deal, government policies toward older workers contributed to the decline in labor force participation, although they do not explain all of the decline. Official recognition of old age as a reason to retire regardless of physical ability, combined with the expanding coverage of Social Security, has made retirement an accepted, if not expected, practice. Recent revisions to the Social Security Act, however, will alter some of these perceptions. The age at which one can retire and receive full benefits is currently increasing, depending on when one was born. For individuals born after 1960 the retirement age will rise to 67. Early retirement is still possible, but individuals who retire early will be eligible for only 70 percent of benefits rather than the current 80 percent. In addition, mandatory retirement for some workers has been eliminated. In particular, the 1978 amendments to the Age Discrimination in Employment Act raised the age of mandatory retirement in private industry to 70 from 65 and eliminated it for federal workers.

Research presented here shows that the labor force participation rate of older men has stopped declining and may be starting to increase. The increase will be gradual until workers of the baby boom cohort begin reaching the traditional retirement age of 65. At that time, a potential squeeze on Social Security benefits

may also make retirement less attractive, but adequate funding for retiring baby boomers should exist if the trust fund is managed properly. Much of the response to the changing labor market, however, will have to come from individuals acting in their own financial and economic interest, regardless of government policy changes. A smaller share of individuals may choose complete retirement because the smaller supply of workers to replace them will maintain pressure on wages and salaries, decreasing the incentive to retire.[11] Furthermore, the changing mix of jobs away from manufacturing toward services will make it physically easier for older men to remain in the labor force. Like laborers who worked for piece rates, older workers in service jobs will have some flexibility to set their own pace. The widespread decline of labor force participation among older male workers during the middle of the twentieth century may eventually emerge as a unique event in our economic history.

Labor Force Participation: An Alternative Measure

As with many time series, the definition of what one is measuring changes—sometimes substantially; this is the case with labor statistics and the definition of labor force participation. Most of this article's information about the labor force comes from samples drawn from the manuscript schedules of the 1860 through 1980 decennial censuses.[1] Manuscript schedules are the forms on which the census enumerators record household information.

Between 1930 and 1940 the Census Bureau replaced its definition of "gainful employment" with the current definition of labor force activities. *Gainful employment* formerly consisted of those tasks or pursuits through which a person usually earned money or goods to support himself. To be part of the labor force under gainful employment, one simply had to report an occupation when the census enumerator came around. The enumerator did not record when the occupation was pursued or how much time was spent at it. From 1860 through 1930 the labor force participation rate for older men was thus defined as the proportion of men aged 65 and over reporting an occupation to the census enumerator. Individuals who described themselves as retired or reported nonoccupations like "student" were not included in the labor force.

Currently to be part of the labor force a person must either have a job or be looking for one during a specific week of the census year. The job activity in which one engages to support oneself is less important. Individuals not working or looking for work during the specified week would not be counted as part of the labor force even if they had been at work a few weeks earlier.[2] Gainful employment is not as restrictive a category and is more likely to cover people with seasonal or part-time jobs.

To overcome the inconsistencies between gainful employment and the current definition of the labor force, this research utilized an alternative measure to that currently used by the Census Bureau and the Bureau of Labor Statistics.[3] Under the alternative measure of labor force participation, rates are defined as the proportion of individuals in an age group reporting one or more weeks of work in the year prior to the census.[4] Unlike the current definition, the alternative measure covers any work a person may have done in the year prior to the census and is closer to the definition of gainful employment. Table 7 presents labor force participation rates estimated with the current definition and the alternative measure for 1950 and 1980.

Table 7.
A Comparison of Labor Force Participation Rates Measured by Current and Alternative Methods

Age	1950		1980	
14-19	46	(34)	—	—
16-19	—	—	65	(52)
20-24	86	(82)	91	(83)
25-34	93	(92)	94	(93)
35-54	93	(93)	93	(92)
55-64	86	(83)	76	(71)
65+	47	(41)	26	(19)
14+	80	(79)	—	—
16+	—	—	79	(75)

Note: The numbers in parentheses are the participation rates estimated with the current measure.

Source: Jon Moen, "From Gainful Employment to Labor Force: Definitions and a New Estimate of Work Rates of American Males, 1860 to 1980," *Historical Methods*, forthcoming, fall 1988.

Notes

[1] For 1860 the samples are the Bateman-Foust sample of rural, northern households and a sample of men aged 65 and older in large cities. The 1900, 1950, and 1980 figures were estimated from public use samples. All samples except the older males sample are available from the Interuniversity Consortium for Political and Social Research (ICPSR) in Ann Arbor, Michigan, or the Bureau of the Census. Contact the author of this article about the older males sample.

[2] See Avery (1986) for a discussion of two current measures of the labor force.

[3] The Bureau of Labor Statistics currently uses a definition that asks about one's activities in the labor force over the previous four weeks instead of one week. Otherwise its definition is the same as that used by the Census Bureau.

[4] Moen (1988b) explains the alternative measure in detail.

Notes

[1]The baby boom generation is usually defined as those people born between 1946 and 1964.

[2]Estimates of labor force participation for 1940 and after do not include persons in institutions like hospitals or asylums. Except for 1880, the estimates before 1940 may include some institutionalized individuals, because under the definition of *gainful employment* in use at the time, an institutionalized individual could be in the labor force if he did some work for pay. The sample used to estimate the 1880 rate was designed to cover only the non-institutional population, which may account in part for the fact that the 1880 estimate was 2.5 percent higher than the 1860 estimate.

[3]Haber (1983): 111, and Achenbaum (1978): 50.

[4]Haber (1983): 115-16.

[5]Graebner (1980), Haber (1983).

[6]See Clark and Spengler (1980) for a review of this point.

[7]Moen (1988a).

[8]Moen (1987), chapter II.

[9]Bowen and Finegan (1969): 281.

[10]Ibid., 285.

[11]Levine and Mitchell (1988).

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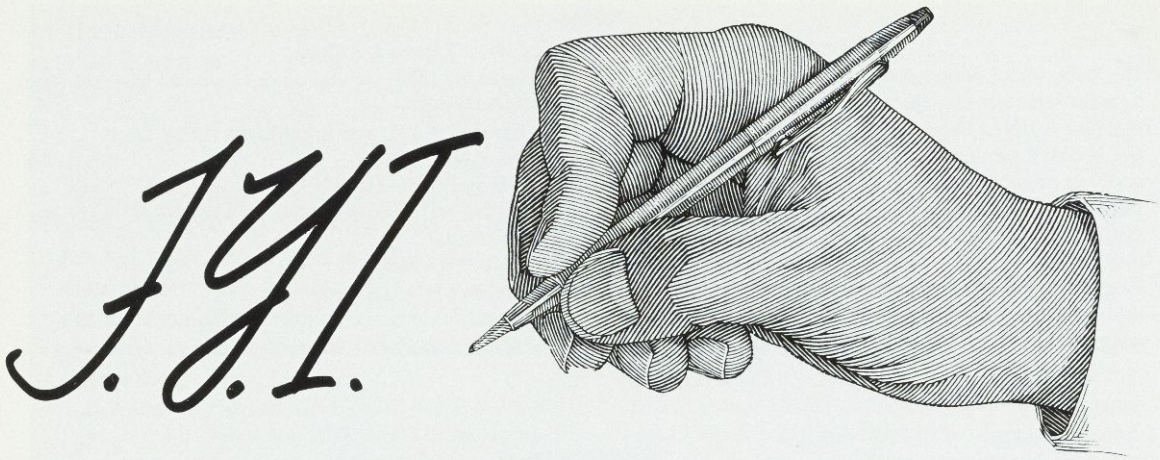

Commercial Bank Profitability: Still Weak in 1987

Larry D. Wall

Aggregate bank profit ratios in the United States were very weak in 1987. Many major banks anticipated loan losses to troubled foreign borrowers and substantially increased loan loss provisions. This reduced reported profitability. In 1987, banks' average return on assets was 0.11 percent and average return on equity was 1.87 percent. If banks with assets in excess of $1 billion are excluded, 1987 profitability ratios increased from the historically weak levels of 1986, with the return on assets (ROA) ratio rising from 0.59 percent in 1986 to 0.65 percent in 1987.

Bank profits in six southeastern states have slipped in recent years, from 0.96 percent ROA in 1983 to 0.79 percent in 1987.[1] Nevertheless, banks in the Southeast generally outperformed their peers in the rest of the country again in 1987. Southeastern banks typically had fewer loans outstanding to Latin American and other troubled borrowers than the national average, and hence did not need to make large loan loss provisions.

Georgia and Alabama banks continue to have the highest profitability ratios of the six southeastern states examined in this report. Louisiana banks showed improved performance in 1987, but in aggregate they still had negative returns in terms of two basic profitability measures.

This study examines bank profitability ratios for U.S. banks in six size categories. The profitability of southeastern banks is also examined by size category and by state. Finally, the return on assets by profitability quartiles is examined for each of the six size categories.

Profitability Measures

Three different profitability measures provide information on bank performance: adjusted net interest margins, return on assets, and return on equity.[2] Adjusted net interest margin

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measures the difference between the bank's interest income and interest expense, and is roughly similar to a business's gross profit margin. The adjusted net interest margin is calculated by subtracting a bank's interest expense from its interest revenue (net of loan loss provisions) and dividing that result by its net interest-earning assets. For this calculation, interest revenue from tax-exempt securities is adjusted upward by the bank's marginal tax rate to avoid penalizing institutions that hold substantial state and local securities portfolios, which reduce their tax burdens. Loan loss expenses are subtracted from interest revenue to place banks that make low-risk loans at low interest rates on a more equal footing with those that make high-risk loans which generate greater interest income.[3]

The ROA ratio, obtained by dividing a bank's net income by its assets, gauges how well a bank's management is using the company's assets. The return on equity (ROE) figure tells a bank's shareholders how much the institution is earning on their investments. ROE is calculated by dividing a bank's net income by its total equity. The ratio of ROA to ROE depends on the bank's equity capital-to-assets ratio, which tends to fall as bank size increases. Analysts who want to compare profitability while ignoring differences in equity capital ratios tend to focus on ROA. Analysts wishing to focus on returns to shareholders look at ROE.

The differences in these three ratios are illustrated by comparing the performance of Tennessee banks with those in Florida and Mississippi. The adjusted net interest of banks in Florida exceeded that of banks in Tennessee in 1987, yet Tennessee banks had a higher return on assets than banks in Florida (see Tables 13 and 17). The differences between the two ratios may reflect changes in the banks' non-interest revenues and non-interest expenses, and changes in their securities' gains or losses. Tennessee banks lagged slightly behind Mississippi banks in returns on assets but had higher returns on equity, suggesting that Tennessee banks had a lower equity capital-to-assets ratio than banks in Mississippi (Table 18).

Adjusted Net Interest Margins. Adjusted net interest margins fell nationwide in 1987, but the drop is attributable largely to a sharp decline among large banks (see Table 1). Adjusted net interest margins at banks with assets in excess of $1 billion fell from 3.05 percent in 1986 to 2.00 percent last year. However, adjusted margins improved at banks with assets below $500 million, and banks in the $500 million to $1 billion range experienced only a small drop in the ratio.

The key to the 1987 changes in adjusted net interest margins is a change in banks' loan loss provisions (Table 3). The large increase in provisions for Latin American debt sent loan loss expense at large banks soaring to 1.82 percent of interest-earning assets. Meanwhile, at banks

Table 1.
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	3.89	4.89	4.74	4.73	4.65	4.74	3.34
1984	3.62	4.31	4.30	4.48	4.46	4.38	3.16
1985	3.63	4.00	4.15	4.26	4.31	4.22	3.30
1986	3.32	3.56	3.75	3.97	3.86	3.99	3.05
1987	2.64	3.72	3.87	4.17	4.13	3.94	2.00

Source: Figures in all tables have been computed by the Federal Reserve Bank of Atlanta from data in "Consolidated Reports of Condition for Insured Commercial Banks," and "Consolidated Reports of Income for Insured Commercial Banks," 1982-87, filed with each bank's respective regulator.

Table 2.
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	12.75	12.84	12.66	12.55	12.47	12.66	12.86
1984	12.77	12.80	12.69	12.62	12.55	12.55	12.87
1985	11.47	12.03	11.94	11.83	11.59	11.61	11.33
1986	10.16	10.77	10.74	10.71	10.47	10.75	9.92
1987	9.83	9.84	9.89	9.96	9.95	9.99	9.78

Table 3.
Loan Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	.62	.68	.60	.58	.52	.55	.65
1984	.69	.91	.75	.59	.53	.57	.73
1985	.79	1.24	1.00	.88	.72	.80	.76
1986	.91	1.31	1.08	.91	.91	1.03	.87
1987	1.47	.93	.79	.60	.66	.83	1.82

Table 4.
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	8.24	7.27	7.32	7.23	7.30	7.37	8.87
1984	8.46	7.58	7.63	7.55	7.56	7.61	8.98
1985	7.05	6.79	6.80	6.69	6.56	6.59	7.26
1986	5.92	5.90	5.90	5.83	5.70	5.73	5.99
1987	5.72	5.19	5.22	5.18	5.16	5.22	5.96

Table 5.
Percentage Return on Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	.67	.85	.96	.96	.87	.77	.54
1984	.64	.60	.79	.92	.88	.86	.54
1985	.70	.36	.70	.81	.85	.71	.67
1986	.63	.12	.48	.68	.65	.62	.65
1987	.11	.23	.50	.77	.75	.60	-.12

Table 6.
Percentage Return on Equity
(Insured commercial banks by consolidated assets)

Year	All Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	11.25	8.77	11.17	11.86	12.05	11.46	11.11
1984	10.70	6.21	9.11	11.49	12.27	12.66	10.51
1985	11.34	3.69	8.10	9.97	11.73	10.54	12.53
1986	10.20	1.26	5.54	8.41	9.06	9.18	11.92
1987	1.87	2.48	5.85	9.29	10.01	8.91	-2.35

with assets below $1 billion, provisions in 1987 fell from high levels in 1986. The level of loan loss provisions at banks with assets below $50 million and between $500 million and $1 billion remains unusually high. The overall improvement in loan loss provisions may be caused in part by some improvements in the agricultural sector and by a bottoming out of the economies of the energy-producing states.

Both interest revenues and interest expenses as a percentage of interest-earning assets fell in 1987. Banks with assets below $1 billion showed a drop in interest expense as a percentage of interest-earning assets of over 50 basis points (0.50 percent). However, the interest expense ratio fell a mere 3 basis points at banks with assets in excess of $1 billion.

Banks' Returns on Assets and Equity. The return ratios for banks with assets in excess of $1 billion are negative, which caused the average return ratios for all banks in the nation to be extremely weak. The biggest banks experienced an ROA of -0.12 percent and an ROE of -2.35 percent. Profitability ratios at banks with more than $1 billion in assets are unlikely to be this weak in 1988 unless they are forced into another round of increasing loan loss allowances on troubled foreign debt.

Returns on assets and equity improved in each of the four size categories of assets under $500 million. The improved profitability at banks with assets below $50 million is especially significant since profitability at these banks had deteriorated to very low levels. Unfortunately, profit ratios are still weak for banks with less than $50 million in assets, especially for banks with assets below $25 million. The 2.48 percent return on equity at banks with assets below $25

Table 7.
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	5.11	4.87	4.92	4.94	5.00	5.37	5.29
1984	4.79	4.77	4.65	4.64	4.82	4.64	4.89
1985	4.53	4.81	4.67	4.52	4.68	3.91	4.56
1986	4.23	4.19	4.21	4.31	4.20	3.79	4.29
1987	4.24	4.11	4.16	4.44	4.47	3.78	4.21

Table 8.
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	13.01	12.98	12.74	12.81	12.61	13.08	13.51
1984	12.98	12.98	12.87	12.80	12.79	12.76	13.22
1985	11.85	12.37	12.32	12.18	11.90	11.90	11.62
1986	10.71	11.15	11.11	11.10	10.85	10.86	10.47
1987	10.23	10.21	10.28	10.30	10.24	10.12	10.22

Table 9.
Loan Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	.56	.88	.62	.72	.53	.55	.45
1984	.54	.75	.66	.60	.48	.69	.46
1985	.76	.90	.87	.94	.74	1.16	.60
1986	.85	1.13	1.00	.90	1.02	1.24	.70
1987	.79	.94	.87	.63	.70	1.13	.80

Table 10.
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	7.34	7.24	7.19	7.15	7.08	7.16	7.77
1984	7.65	7.45	7.56	7.55	7.49	7.43	7.87
1985	6.56	6.66	6.79	6.73	6.47	6.83	6.45
1986	5.62	5.82	5.90	5.89	5.64	5.83	5.48
1987	5.19	5.16	5.25	5.23	5.06	5.22	5.22

Table 11.
Percentage Return on Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	.96	.67	.99	.97	.96	.94	.98
1984	.94	.76	.92	.96	.98	.83	.96
1985	.91	.74	.90	.85	.96	.50	.99
1986	.81	.33	.64	.78	.70	.56	.94
1987	.79	.38	.54	.83	.78	.49	.86

million is clearly inadequate for the long-run survival of many of these banks, given the numerous alternative investment opportunities available to their shareholders.

Southeastern Banks' Performance

Southeastern banks in every size category except the $500 million to $1 billion range outperformed their peers across the nation in adjusted net interest margins, returns on assets, and returns on equity (Tables 7, 11, and 12, respectively). In direct contrast to the national figures, banks with more than $1 billion in assets posted the highest ROA and ROE ratios in the region; institutions with assets below $25 million recorded the lowest return ratios.

The largest southeastern banks outperformed the rest of the nation by a substantial margin with a regional ROA ratio of 0.86 percent and ROE of 14.01. The superior performance in the Southeast resulted largely from more limited exposure to Latin American borrowers. However, loan losses as a percentage of interest-earning assets increased for southeastern banks with more than $1 billion in assets, whereas the loan loss expense ratio fell in all other size categories in the Southeast.

While southeastern banks with assets below $50 million outperformed their peers across the nation and showed improved profitability ratios in 1987, returns on assets and equity remained weak. The ROE of 3.38 percent for banks with less than $25 million in assets is an inadequate return to investors, and even the ROE of 5.95 percent at banks in the $25 million to $50 million

Table 12.
Percentage Return on Equity
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion +
1983	13.37	6.85	11.16	12.03	13.11	13.87	16.57
1984	13.48	7.57	10.32	11.96	13.40	11.48	16.59
1985	13.11	7.18	10.01	10.29	13.05	7.64	16.74
1986	11.88	3.17	7.09	9.28	9.49	8.79	15.78
1987	11.35	3.38	5.95	9.69	10.21	7.52	14.01

category is, compared with other investment alternatives, inadequate compensation for bank stockholders. Both figures must improve if banks in these categories are to continue to operate independently.

A State-by-State Breakdown. Each of the six southeastern states except Louisiana posted ROA and ROE figures that exceed the national averages. Again, the generally superior performance is due in large part to the absence of significant Latin American and energy loan problems in five of the six states.

Georgia banks had the highest adjusted net interest margins, ROA ratios, and ROE ratios in the region. The highest adjusted margins occurred in spite of a moderately high loan loss expense ratio and resulted primarily from a very strong tax-equivalent interest revenue to interest-earning asset ratio. Georgia was the only southeastern state to have increased its interest revenue ratio.

Alabama banks turned in the second-best adjusted net interest margins, ROA ratios, and ROE ratios, though all three ratios were down from 1986. This strong performance was due partially to Alabama's having the lowest loan loss ratio among the six southeastern states. Profitability ratios fell in 1987 in part because the interest revenue to interest-earning assets ratio dropped more than the interest expense ratio.

Banks in Mississippi reduced their ratio of loan loss expense to interest-earning assets and maintained the second lowest loan loss expense ratio in the six southeastern states. Their interest expense to interest-earning assets ratio also fell faster than their interest revenue ratio, helping to boost their 1987 adjusted net interest margins. However, Mississippi banks showed lower returns on assets and returns on equity despite their higher adjusted margins.

The loan loss ratio also dropped for banks in Tennessee. However, the interest revenue ratio for the state dropped by more than the interest expense ratio, which together produced a drop in adjusted net interest margins. ROA and ROE ratios of Tennessee banks also dropped in 1987.

Florida bankers reported a higher loan loss to interest-earning assets ratio; banks in this state had the second highest loan loss expense ratio of the six southeastern states. Interest revenue as a percentage of interest-earning assets fell by more than the interest expense ratio, contributing to a fall in adjusted net interest margins. The drop in adjusted net interest margins helped to reduce Florida banks' ROA and ROE in 1987, producing the second lowest levels in the six Southeastern states.

Louisiana banks performed somewhat better than in 1986 due largely to a significant decrease in the loan loss provision to interest-earning asset ratio. However, loan losses in Louisiana remain at an extremely high level—1.57 percent of interest-earning assets. Furthermore, Louisiana banks on average continued to have negative values for their ROA and ROE ratios.

Table 13.
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1983	5.11	4.96	5.61	5.62	4.88	4.14	4.35
1984	4.79	4.65	5.04	5.30	4.33	4.12	4.60
1985	4.53	4.92	4.67	5.20	3.57	4.40	4.23
1986	4.23	4.73	4.57	4.67	2.43	4.13	4.36
1987	4.24	4.44	4.31	4.89	3.01	4.38	4.18

Table 14.
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1983	13.01	12.82	13.38	13.36	12.55	12.32	12.87
1984	12.98	12.52	13.10	13.35	12.65	12.51	13.25
1985	11.85	12.00	11.87	12.28	11.60	11.67	11.53
1986	10.71	10.82	10.79	10.89	10.32	10.47	10.69
1987	10.23	10.03	10.13	10.96	9.90	10.30	10.00

Table 15.
Loan Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1983	.56	.47	.42	.44	.73	.69	.79
1984	.54	.39	.47	.45	.83	.55	.58
1985	.76	.60	.66	.56	1.38	.62	.72
1986	.85	.44	.67	.67	2.11	.65	.66
1987	.79	.44	.76	.72	1.57	.59	.64

Table 16.
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1983	7.34	7.39	7.35	7.30	6.93	7.49	7.72
1984	7.65	7.48	7.59	7.59	7.49	7.85	8.07
1985	6.56	6.47	6.54	6.52	6.66	6.65	6.58
1986	5.62	5.65	5.55	5.55	5.77	5.68	5.67
1987	5.19	5.15	5.06	5.36	5.32	5.34	5.18

Table 17.
Percentage Return on Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1983	.96	1.12	.96	1.11	1.01	.83	.66
1984	.94	1.11	.91	1.14	.78	.90	.84
1985	.91	1.20	.87	1.20	.37	1.01	.94
1986	.81	1.22	.87	1.07	-.20	1.01	.97
1987	.79	1.08	.76	1.13	-.02	.90	.89

Distribution of Bank Profitability

Banks in the Southeast and across the United States have clearly become less profitable in the past few years, with smaller banks experiencing the greatest decline in profitability. However, these statistics do not provide information on profitability gains and losses within the size categories. For example, perhaps only the most profitable banks were unable to sustain their earnings, while the majority of banks were unaffected by the changing environment. Although slumping earnings would generally displease owners and managers of highly profitable banks, moderately reduced profitability at these banks should pose no public policy problems. On the other hand, if the least profitable banks have suffered most of the decline in profitability, the drop could spell a potential increase in the number of problem and failed banks. A growing incidence of troubled banks not only raises concern about the safety and soundness of the banking system but also places continuing stress on the Federal Deposit Insurance Corporation.

One way of analyzing the distribution of bank profitability is to study the ROA figures at various profitability percentiles. This study focuses on the profitability of banks across the nation at the 75th, 50th, and 25th percentiles in ROA. Banks in the 75th percentile were more profitable than three-fourths of the institutions analyzed. Banks in the 50th percentile had profitability higher than half the banks. Banks in the 25th percentile were least profitable, with ROAs

Table 18.
Percentage Return on Equity
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1983	13.37	13.73	14.56	16.16	12.64	11.22	9.57
1984	13.48	13.84	14.50	17.19	9.63	12.23	12.44
1985	13.11	14.97	13.93	18.45	4.60	13.92	13.71
1986	11.88	15.19	14.20	16.50	-2.66	13.59	13.67
1987	11.35	13.29	12.25	16.23	-.27	11.81	12.38

higher than only the bottom 25 percent of the banks studied. The ranking was done separately for each year, and so some banks shifted to different profitability ranges over the five-year period analyzed.

Profitability at the weakest banks (in the 25th percentile) improved from 1986 to 1987 in every size category below $500 million. However, profits at the 25th percentile remain very weak for banks with less than $50 million in assets. One-quarter of the banks with assets below $25 million earned an ROA of 0.01 percent or less. This weak performance suggests continued consolidation of the banks in this size category in the future.

ROA ratios at the 25th percentile fell for banks with assets above $500 million. The sharp drop in the 25th percentile ROA for banks with more than $1 billion in assets was not accompanied by a substantial drop in the ROA figures at the 50th or 75th percentile. This statistic further underscores the fact that only a small number of banks posted large increases in loan loss expenses associated with Latin American debt. However, the amount of loan loss additions at these banks was so large that they skewed the entire industry's average returns for 1987.

The median (50th percentile) ROA ratio showed little change last year—a maximum of three basis points—for banks in all size categories. The median profitability ratios remained at historically low levels for banks with assets below $50 million but are in a much stronger position for banks with more than $100 million in assets.

The ROA ratios for banks in the 75th percentile are generally down from 1986. However, no drop in the ROA ratio exceeds the 0.06 percent drop recorded for institutions with assets between $25 million and $50 million.

Conclusion

Bank profitability ratios, excluding those of the biggest banks, generally improved by a small margin from 1986 to 1987. However, 1987 profitability ratios remain weak for several categories of banks, especially banks with under $50 million in assets. Banks with less than $25 million in assets earned an average ROA of 0.23 percent, and the 25 percent of the banks in this size category with the lowest ROA had an ROA of 0.01 percent.

One category showing a significant drop in 1987 profitability ratios is the large banks, which substantially increased their provisions for troubled loans to certain foreign borrowers. The number of banks that increased their provisions appears to be small, but the magnitude of the increase in their loan loss allowances was so large that the return on assets of banks with assets in excess of $1 billion fell from 0.65 percent in 1986 to -0.12 percent in 1987.

Banks in the Southeast continue to outperform their peers across the nation, but Louisiana banks still experience problems, increasing profitability ratios in 1987 but still posting losses for the year.

Table 19.
Percentage Return on Assets
(Insured commercial banks with assets below $25 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1983	1.50	1.06	.55
1984	1.36	.93	.35
1985	1.29	.82	.06
1986	1.13	.66	-.25
1987	1.10	.69	.01

Table 20.
Percentage Return on Assets
(Insured commercial banks with assets of $25 million to $50 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1983	1.46	1.10	.72
1984	1.34	1.00	.60
1985	1.34	.97	.50
1986	1.24	.84	.29
1987	1.18	.85	.39

Table 21.
Percentage Return on Assets
(Insured commercial banks with assets of $50 million to $100 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1983	1.40	1.08	.74
1984	1.32	1.02	.70
1985	1.35	1.04	.63
1986	1.29	.95	.50
1987	1.26	.95	.56

Table 22.
Percentage Return on Assets
(Insured commercial banks with assets of $100 million to $500 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1983	1.27	.97	.66
1984	1.26	.99	.71
1985	1.29	1.02	.69
1986	1.27	.96	.54
1987	1.24	.96	.56

Table 23.
Percentage Return on Assets
(Insured commercial banks with assets of $500 million to $1 billion)

Year	Percentile According to Profitability		
	75%	50%	25%
1983	1.10	.88	.60
1984	1.19	.91	.62
1985	1.19	.91	.64
1986	1.19	.93	.57
1987	1.20	.94	.48

Table 24.
Percentage Return on Assets
(Insured commercial banks with assets over $1 billion)

Year	Percentile According to Profitability		
	75%	50%	25%
1983	.98	.75	.46
1984	1.05	.86	.54
1985	1.10	.88	.59
1986	1.10	.90	.60
1987	1.08	.87	.30

Accounting for Troubled Foreign Loans

The increase in loan loss provisions at major banks had a pronounced effect on reported 1987 bank profitability. Banks with more than $1 billion in assets accounted for 82 percent of the assets and 78 percent of the loan losses of the banks in the 1986 sample. These very large banks accounted for 83 percent of the assets and 92 percent of the loan losses in 1987. Another way of gauging the effect of loan loss provisions is to examine the ratio of net income before loan loss provisions, extraordinary items, and taxes to the banks' total assets in 1986 and 1987.[1] This ratio improved from 1986's 1.52 percent for the largest banks to 1.55 percent in 1987. However, loan loss expense as a percentage of total assets also more than doubled, from 0.71 percent in 1986 to 1.53 percent, in 1987. As a consequence, net income before taxes and extraordinary items fell from 0.81 percent in 1986 to 0.02 percent in 1987.

This box seeks to address two issues: why did the large banks not provide substantial increases in their loan loss allowances prior to 1987, and what is the effect of the increase in allowances? An understanding of how banks account for loan losses would be helpful before addressing these questions.

Accounting Procedures

After every period a bank examines its existing loan portfolio and estimates the expected losses on outstanding loans. The loan loss allowance (on the bank's balance sheet) is then increased to match expected losses, with the amount of the increase charged against income as a provision for possible loan losses. Losses on individual loans during the next accounting period are charged against the loan loss allowance but are not immediately reflected in the bank's income accounts. Similarly, if the bank recovers more than expected on loans that were previously charged off, the bank's accountants add the amount of the recovery back to the loan loss allowance. At the end of the period, the amount in the loan loss allowance is equal to its beginning-of-period value, less any charge-offs and plus any recoveries. The bank then begins the cycle again by determining expected losses on loans and comparing that with its loan loss allowance.

This procedure may seem needlessly complicated; a far simpler approach would be to recognize loan losses when the loan is written off.[2] One reason for following the more complicated procedure, though, is that it accords with the important accounting principal of conservatism, that when "reasonable support exists for alternative methods . . . the accountant should select the accounting option with the least favorable effect on net income and financial position in the current period."[3] Recognizing expected loan losses before they occur is more conservative than waiting until the loan is written off. The more complicated procedure is also required to meet the needs of the accrual method of accounting, which is used by all large banks. Banks following the accrual method recognize revenue in the period when the payment is earned, regardless of when it is received.[4] The accrual method also requires that after revenue associated with a period is determined, the costs associated with that income must also be recognized. For institutions in the business of making loans, one of the expenses stems from the fact that some of their loans will not be fully repaid. Therefore, accrual accounting requires that the bank anticipate suffering some losses in the loan portfolio.

The responsibility for a bank's loan loss allowances rests with its management. The managers of an organization are in the best position to evaluate its financial condition, which is typically communicated to existing and potential shareholders in its annual financial statements. A bank's auditors may suggest increases in the allowance, but they cannot force management to follow such suggestions. Bank regulators may compel managers to increase their loan loss allowances if, in the regulators' opinion, the allowance is inadequate. Thus far, federal bank regulators have encouraged banks to review carefully their allowance for losses but have not ordered large increases in loan loss allowances.

Why Are the 1987 Writeoffs So Large?

The problems that at least some Latin American countries would have in repaying their debt have been obvious since the problems with Mexican debt emerged in August 1982. Yet until 1987, most major banks did not significantly increase their loan loss allowances to account for their exposure to Latin American debt. Why did many large banks take so long to increase their loan loss allowances?

The banks' reluctance to increase their allowances could be justified on the grounds that the losses might not occur. The troubled foreign

borrowers were seeking to extend the term of their repayments but none had repudiated its outstanding debt. Thus, the banks could still receive repayment in full. The problem with this explanation for the failure to increase allowances is that it mistakes the purpose of the loan loss allowance. The loan loss allowance exists to account for losses that may be reasonably expected on a bank's existing loan portfolio; those portions of loans that have incurred actual losses should be written off.

The expected amount of losses is open to some question, but the market clearly expected banks to absorb some losses on their Latin American debt. The secondary market in Latin American debt has priced the debt of individual countries at a discount to their face values. In some cases these discounts have been substantial. The secondary market may be criticized as being too thin to provide reliable prices, but the general conclusion that some losses are expected on loans to some Latin American countries is supported by the bank equity markets. Informal examination of bank stock prices suggests that banks with substantial exposure to Latin American countries have traded at a large discount to their book values for several years. On a more formal level, Robert F. Bruner and John M. Simms, Jr. (1987) show that within six days of the 1982 announcement that Mexico would suspend principal repayments, the market was discounting bank stock prices based on each bank's loans to Mexico.

Another explanation for the delay in increasing allowances is that many banks could not afford to increase their provisions because their exposure to Latin American debt exceeded their capital. Some banks would have been left with no capital had they increased their loan loss allowances. One response to this explanation is that banks need not and should not have increased their provisions to cover *all* of their troubled Latin American debt. The financial markets have not been indicating that the troubled loans were worthless, merely that the face value of the loans overstated their economic value. Most banks could have afforded some increase in their allowances.

Perhaps the best justification for the delay is that increasing provisions may have had an adverse effect on the negotiations with troubled Latin American borrowers. An increase in loan loss allowances may have encouraged some countries to seek better terms than the banks were prepared to offer. An increase in allowances may also have discouraged certain banks from participating in the restructuring of outstanding debt. Some banks with relatively small exposure may have been unwilling to provide additional loans at a time when they were increasing their allowances on existing loans. This justification raises a troubling question: is the purpose of accounting statements to provide an unbiased "scorecard," or is it one more tool to be manipulated?

What is the Significance of the Increased Allowance?

The increase in loan loss allowances has very little direct effect on banks or borrowers. In some sense this increase was merely a set of accounting entries, but these entries potentially have significant indirect effects. The market clearly attached significance to the action. James J. Musumeci and Joseph F. Sinkey, Jr. (1988) report significant abnormal returns to a portfolio of ten money-center banks the day after Citicorp announced its increased loan loss allowance.

Loan loss allowances are sometimes referred to as *loan loss reserves.* Unfortunately the term *loan loss reserves* may create the mistaken impression that a bank sets aside funds (cash) in reserve to cover its loan losses. An increase in the loan loss account, however, does not directly cause any change in the allocation of a bank's assets. Loan loss allowances merely reduce the net value of the bank's loans on its accounting records.

An increase in the loan loss allowance may indirectly cause a bank to reduce its dividends or seek additional equity. The federal government and many state governments restrict bank dividends based on the bank's current earnings and recent retained earnings as reported on their financial statements.[5] An increase in loan loss provisions reduces a bank's income and hence its ability to pay a dividend. Large increases in allowances will also decrease a bank's equity capital as reported in its accounting records and possibly trigger regulatory demands for additional equity. However, the regulators can already demand additional equity for organizations with a substantial volume of troubled loans, regardless of the reported value of the bank's equity.

The increase in banks' loan loss allowances has no direct effect on the Latin American debtors. The banks did not waive their right to repayment on any loans, and they still hope to be repaid in full. Bank managers may be psychologically more prepared to make concessions on the loans since the losses were acknowledged in an earlier period (in part because additional concessions would have less of an impact on their bonuses). However,

the provisions could have the opposite effect if they made the banks feel less financially vulnerable to pressure from the Latin American borrowers.

Though they increased their loan loss provisions, banks were not able to deduct from taxable income an amount equivalent to the increased provision. The Tax Reform Act of 1986 changed the rules on the accounting for loan losses. Banks with assets in excess of $500 million may reduce their taxable income only by the amount of loan losses they actually incur in a year. Thus, a large bank can recognize losses on Latin American debt for tax purposes only when it either writes off part of the loans or sells some of its loans at a loss.

In summary, many U.S. banks, particularly larger banks outside the Southeast, waited until last year to increase substantially their loan loss allowances on foreign, especially Latin American, loans. Though this increase is primarily an accounting adjustment with little direct effect on banks or borrowers, indirect effects may result. The impact of these adjustments on bank profitability will likely be lessened in 1988, unless the country's larger banks continue increasing loan loss allowances on troubled foreign debt.

Notes

[1]A before-tax ratio is used to avoid potential differences in the tax treatment of loan loss provisions at different banks.

[2]The new tax law requires the simpler treatment of losses for tax purposes.

[3]See Meigs, Mosich, Johnson, and Keller (1974): 22.

[4]For example, suppose a bank makes a three-month loan on November 1, 1987, with no interest payment due until February 1, 1988. The bank would recognize two months of interest revenue (from November 1 through December 31) in its 1987 income and one month of interest revenue in its 1988 income.

[5]National banks are prohibited from making dividend payments in excess of the current year's income plus the sum of the prior two years' retained earnings. State chartered banks face limitations imposed by state law and may also be limited by the actions of their federal bank supervisor.

Appendix

The data in this article were taken from reports of condition and income filed with federal bank regulators by insured commercial banks. The sample consisted of all banks that had the same identification number at the beginning and end of each year. The number of banks in the 1987 sample was 12,390.

The three profitability measures used in this study are defined as follows:

$$\text{Adjusted Net Interest Margin} = \frac{\text{Expected Interest Revenues - Interest Expense}}{\text{Average Interest-Earning Assets}}$$

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Average Consolidated Assets}}$$

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Average Equity Capital}}$$

Average interest-earning assets and average equity capital are derived by averaging beginning-, middle-, and end-of-the-year balance sheet figures. The expected interest income component to net interest margin incorporates two significant adjustments from ordinary interest income. The lesser of revenue from state and local securities exempt from federal tax and the bank's net income is divided by 1 minus the bank's marginal federal tax rate, and loan loss expenses are subtracted from interest income.

Notes

[1]In this study the Southeast refers to the six states that are entirely or partially within the Sixth Federal Reserve District: Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee.

[2]The revenue, expense, and profitability figures presented are generally similar to those presented in prior bank profitability studies published in this *Economic Review* (see Wall [1987] for the most recent study). The figures are not identical because reporting errors by banks are continually being found and corrected. In addition, the interest revenue as a percentage of interest-earning assets ratio and adjusted net interest margins may differ from prior years owing to the correction of errors in the treatment of tax-exempt interest revenue.

[3]For example, the interest rates on credit cards have been substantially higher than the rates on prime commercial loans, but the loan losses on credit cards have also been larger. Loan losses on credit cards were 1.25 percent of the credit card volume in 1985, according to Weinstein (1985).

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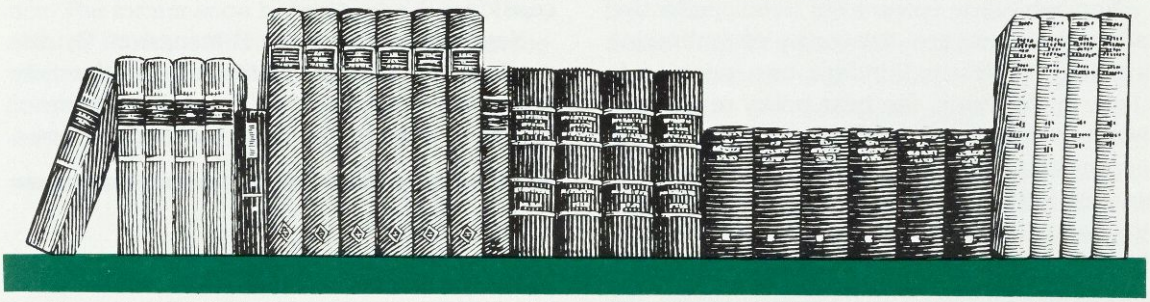
Book Review

Hard Heads, Soft Hearts

by Alan S. Blinder
Reading, MA: Addison-Wesley Publishing, 1987
236 pages. $17.95.



Alan Blinder introduces *Hard Heads, Soft Hearts,* his extensive discussion of economic policymaking, with an extremely discouraging generalization about the "remarkably systematic perversity in the way economic advice is used in policymaking." However, his "Murphy's Law of Economic Policy" appears to be well supported in a review of recent economic history. The "law" reads, "Economists have the least influence on policy where they know the most and are most agreed; they have the most influence on policy where they know the least and disagree most vehemently" (p. 1), and is accompanied by O'Connor's Corollary: "When conflicting economic advice is offered, only the worst will be taken" (p. 2). Recent events provide no shortage of examples illustrating these principles, and Professor Blinder, the Gordon S. Rentschler Memorial Professor of Economics at Princeton University, gives lively, lucid descriptions of these economic policy debacles. Still, the book is optimistic, on balance, about the prospects for improving both economic policymaking and, subsequently, economic conditions. *Hard Heads, Soft Hearts* should find wide support in the economics community.

The body of this book is a series of persuasive arguments that show how profoundly flawed policy came to be, and how it could be changed to yield greatly improved results. As Professor Blinder sees it, the greatest obstacles to better economic policy are "ignorance, ideology, and interest groups" (p. 197). Some combination of the three, he claims, is responsible for the federal budget deficit crisis, the recent increase in protectionist legislation, and the disappointing results of the environmental pollution abatement legislation of the 1970s, among other societal ills. The ravages of ignorance receive the most attention; Blinder feels that ignorance may be the one obstacle on which economists can have the greatest constructive impact, because increased public knowledge about economic policy will lessen the influence of ideology and interest groups.

Few economists or public policy analysts will disagree with Professor Blinder on these points. In fact, despair over the public's general contempt for the facts unites otherwise contentious parties. Consider that James David Barber, a Duke University political scientist typically supportive of liberal policy initiatives, and Paul Craig Roberts, a promulgator of supply-side economics, seem of one mind on this issue. Barber comments, "We've had a lot of anti-empiricism in national discourse. Political discourse has

been reduced to a balance of sentiments."[1] In the same vein, Roberts states, "Economic policymaking is hopeless if facts cannot penetrate public discourse."[2]

Blinder faults economists, among others, for this pervasive ignorance. He argues that while bad policy is based on "gross misunderstanding of elementary economics, utter disregard for the facts, or both," economists have failed to convince the public, and so the policymakers, that good policy tends to be "too complex to be emblazoned on a T-shirt," and that good policy is, in fact, "[l]ess crisply defined and full of qualifications" (p. 9).

Not only have economists been ineffective educators, they are also guilty of embracing ideology. Professor Blinder's own position is clear. In this book, the best policy rejects the extreme prescriptions of monetarism, rational expectations, and especially supply-side economics, in favor of a broadly based and proven Keynesian approach. Unfortunately, Professor Blinder trivializes and dismisses the contributions of these other models. However, the practical Keynesian view he takes has benefited in no small way from the broadening forced upon it by these competing approaches. In fact, the Keynesianism he describes does not much resemble the original animal. It is an eclectic mix, having been forced to acknowledge the critical importance of monetary policy, expectations formation, and the incentive structure built into tax rates.

The cold-blooded discussion of policy failures and limitations at the outset of the book gives way to a rigorous defense of economics as a discipline able to promote the general welfare of all U.S. citizens. That is, economics is an ivory tower discipline, but one that operates in the real world. This discipline can be most valuable when the high road of theory meets the low road of extensive practical experience.

The author's strategy in *Hard Heads, Soft Hearts* is to introduce the reader to two of the most fundamental concepts of economic analysis: efficiency and equity, both of which are generally acceptable as reasonable goals for public policy. Efficiency requires that resources (for example, labor, capital, clean air, and oil) not be wasted. Equity requires that resources be distributed fairly. Taken in turn, each principle is uncontroversial. Clearly, however, a policy that advances one of these goals often hinders the other. The obvious example is tax policy, in that the distortionary or disincentive influences of tax policies which redistribute income may discourage the most efficient use of resources.

Professor Blinder also shows why the free market system, which he rigorously supports, tends to produce inequities. He does not compare the degree of inequality in a free market economy with that of a command economy because he asserts, without argument, that the free market is superior. Although the system of rewards and incentives that produces the most efficient outcome "shows no mercy," Blinder considers this an asset.

Next comes a sly tactical maneuver. By discussing policy changes that increase *both* equity and efficiency, Professor Blinder avoids some of the uglier problems of the trade-off between

"The cold-blooded discussion of policy failures and limitations . . . gives way to a rigorous defense of economics as a discipline able to promote the general welfare of all U.S. citizens."

these two concepts that bedevil so much of the economic policy debate. Surprisingly, many important policies are not eliminated by these narrow criteria.

Professor Blinder's preferences and biases are very much on the side of weighting inequity over inefficiency as Bad Things, and he admits this forthrightly. The waste associated with unemployment is much more passionately condemned than the costs of inflation. This assessment is clearly reflected in the author's willingness to accept more inflation for less unemployment. By extension, he argues that the cost of the anti-inflation policies of the early 1980s was unconscionably (although not unnecessarily) high. This section of the book (chapters 2 and 3) is high-minded and compassionate, but gives little attention to the distinction between stable and rising inflation rates, a distinction that played a major role in

deciding upon the tough policies earlier in this decade.

In his discussion of the cost of low, stable inflation Blinder suggests that with indexation even these moderate costs could be reduced considerably. However, in the current institutional and cultural setting in the United States, inflation tends to accelerate, not remain constant, once it is widely recognized. Rising moderate inflation soon becomes decidedly immoderate, and the attendant costs and distortions are immensely destructive. The distinction between low inflation and rising inflation is at once important in theory and fleeting in practice. The former soon becomes the latter. Thus, much of Professor Blinder's argument about the minimal costs of inflation, and the attendant condemnation of the anti-inflation policies of the early 1980s, seems to rest on a narrow precedent not supported by recent history.

"The discussion of environmental policy is almost heartbreaking in its description of opportunities lost."

The discussion of the inequities and inefficiencies of recent anti-inflation policy is probably the most controversial part of the book. Surprisingly, Professor Blinder uses a clearly contentious issue to illustrate the economics profession's consensus on the equity/efficiency principle. Equally surprising is that this illustration does not materially weaken the remainder of his work, possibly because his other examples involve issues where strong professional solidarity exists. Blinder also takes on protectionism, pollution control, and tax reform. In each case he shows how the principles of efficiency and equity and the prescriptions of the overwhelming majority of the economics profession have often been ignored in policymaking to the detriment of the common good.

In the best part of the book, Blinder discusses the principles of free trade and the mindless, needless waste of protectionism. The clear exposition of the idea of comparative advantage is sophisticated enough to allow Professor Blinder to debunk a series of protectionist arguments without preaching on the costs of protectionism. But then he does so, with a flurry of statistics illustrating the colossal waste of such policies.

For example, Professor Blinder describes how the "voluntary" export restraints imposed on the Japanese automobile industry in 1981 saved a number of jobs in the U.S. auto industry and increased profits for auto industry shareholders. A reasonable estimate of the bill for this relief is $13 billion; about $8 billion went to domestic producers and roughly $5 billion went to the Japanese auto industry. This $13 billion represents the additional cost to U.S. consumers of cars purchased in the United States in 1984 and 1985 only. The cost *per job saved* is variously estimated between $105,000 and $160,000. Did any individual auto worker benefit to the tune of $160,000? The case of the voluntary export constraints is an example of the general rule that the benefits and costs of protectionism are distributed very differently: "trade protection typically imposes heavy costs on consumers in order to secure smaller benefits for producers" (p. 118).

The discussion of environmental policy is almost heartbreaking in its description of opportunities lost. Professor Blinder shows how the imposition of property rights on otherwise free resources (clean air and water) would make society recognize how valuable and scarce they are. Currently, most pollution abatement laws are one of two types: ambient air and water standards that set the minimum acceptable quality of air or water after a plant has finished using it, and effluent or emission standards that specify the amounts of a pollutant that may be discharged from a particular source. Apparently, many of the standards now on the books are not being met because companies find it cheaper to "invest in litigation than in pollution abatement equipment" (p. 144). Professor Blinder contends that if the rights to use air and water resources were licensed, or auctioned, these precious resources would be used more rationally and with fewer harmful results. Without using economist's jargon, he shows that by forcing industry to internalize the costs that are

currently externalized (all of society—not just industry—pays for and suffers from dirty air and water), much less pollution would occur. Additionally, companies would have an incentive to minimize pollution, since pollution control costs would become an element of production costs. Conservative estimates of the economic gain from a switch to a system of fees or pollution permits from the current labyrinth of regulations are huge, on the order of $23 billion per year. Have any experiments with pollution permits ever been tried? Yes, but only a few. Limited evidence indicates that the potential gains are indeed as substantial as the estimates suggest.

The disheartening rejection of economic principles seen in protectionism and environmental policy is not universal. In chapter 6 of *Hard Heads, Soft Hearts,* Professor Blinder recounts the triumph of equity and efficiency in the "improbable saga of tax reform." Readers are shown how a system that in the past served as an example of the power of the few (special interests) over the many was used to affect tax reform, enhancing both equity and efficiency. Unfortunately, economic principles prevail in only this one chapter; in many, many unwritten chapters, they do not.

The book ends with a prescription to reverse this situation. Professor Blinder calls for pragmatism to fight the ideology that harbors untruths, for the support of forces to counter the influence of special interests, and for education. Economists can realistically address only the last of these remedies. Unfortunately, they have failed to do their best to educate the electorate and the elected on the benefits of good economics as much as the public has failed to use the advice economists have offered. Economists know that economics is an extremely powerful tool that can be used in almost all areas of public policy. However, this discipline is not very accessible to the public, let alone the policymakers. As Blinder writes, "economic illiteracy is widespread."

Hard Heads, Soft Hearts stands as an example of the sort of book that will help raise the level of economic discussion among noneconomists. Blinder's work can be part of the solution; his book is gracefully written and clearly reasoned, with its mild ideology worn on its sleeve. It is cold-bloodedly realistic but also optimistic, two traits that economists will have to adopt to revoke "Murphy's Law of Economic Policy."

Mary Susan Rosenbaum

The reviewer is the Research Officer in charge of the macropolicy group of the Atlanta Fed's Research Department.

Notes

[1] Peter Kilburn, "The Sudden Wilting of Reagan's Rosy Economy," *The New York Times,* Sunday, July 27, 1986, sec. 3.

[2] Paul Craig Roberts, "Beneath the Twin Towers of Debt," *Wall Street Journal,* October 28, 1986.

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$ millions	1988 JUNp	1988 MAY	1988 APR	1987 JUN	1987 MAY	1987 APR	ANN. % CHG.(*)
UNITED STATES							
Commercial Bank Deposits	1,809,388	1,779,243	1,792,663	1,678,133	1,660,331	1,677,942	+ 8
Demand	372,660	358,816	357,752	359,026	351,237	358,994	+ 4
NOW	173,790	170,359	170,782	155,818	152,850	159,216	+12
Savings	522,868	513,614	520,361	511,724	509,119	517,511	+ 2
Time	787,504	780,451	779,940	687,310	678,900	676,670	+15
SOUTHEAST							
Commercial Bank Deposits	218,949	215,993	217,791	201,102	199,060	201,584	+ 9
Demand	42,668	41,032	41,866	40,994	40,350	41,491	+ 4
NOW	24,251	23,722	24,197	22,025	21,759	22,633	+10
Savings	58,560	57,959	58,891	57,745	57,643	58,813	+ 1
Time	98,453	97,547	97,066	84,135	83,016	82,588	+17
ALABAMA							
Commercial Bank Deposits	22,372	21,914	22,255	20,352	19,954	20,265	+10
Demand	4,245	3,999	4,193	4,102	4,025	4,092	+ 3
NOW	2,587	2,523	2,499	2,148	2,102	2,158	+20
Savings	4,895	4,813	4,906	4,623	4,579	4,658	+ 6
Time	11,228	11,057	11,154	9,885	9,700	9,738	+14
FLORIDA							
Commercial Bank Deposits	86,648	85,312	86,201	78,387	77,652	79,043	+11
Demand	16,506	16,081	16,366	16,009	15,825	16,420	+ 3
NOW	10,946	10,728	10,974	10,015	9,917	10,364	+ 9
Savings	27,413	27,137	27,612	27,061	26,908	27,476	+ 1
Time	33,581	33,055	32,867	26,900	26,523	26,552	+25
GEORGIA							
Commercial Bank Deposits	35,884	35,254	35,191	32,265	31,827	31,842	+11
Demand	9,194	8,655	8,865	8,545	8,303	8,460	+ 8
NOW	3,407	3,310	3,377	3,097	3,077	3,182	+10
Savings	9,328	9,189	9,341	8,972	8,963	9,225	+ 4
Time	15,689	15,584	15,165	13,040	12,730	12,321	+20
LOUISIANA							
Commercial Bank Deposits	28,145	28,089	28,366	27,309	27,404	27,758	+ 3
Demand	5,123	5,002	4,987	4,963	4,931	5,035	+ 3
NOW	2,403	2,392	2,434	2,250	2,221	2,299	+ 7
Savings	8,033	8,032	8,146	7,955	7,980	8,116	+ 1
Time	13,069	13,069	13,144	12,488	12,626	12,663	+ 5
MISSISSIPPI							
Commercial Bank Deposits	15,200	15,054	15,124	14,145	14,034	14,188	+ 7
Demand	2,433	2,350	2,393	2,357	2,338	2,473	+ 3
NOW	1,546	1,536	1,585	1,398	1,400	1,466	+11
Savings	2,991	2,972	2,992	3,066	3,102	3,161	- 2
Time	8,571	8,472	8,454	7,507	7,416	7,350	+14
TENNESSEE							
Commercial Bank Deposits	30,700	30,370	30,654	28,644	28,189	28,488	+ 7
Demand	5,167	4,945	5,062	5,018	4,928	5,011	+ 3
NOW	3,362	3,233	3,328	3,117	3,042	3,164	+ 8
Savings	5,900	5,816	5,894	6,068	6,039	6,177	- 3
Time	16,315	16,310	16,282	14,315	14,021	13,964	+14

NOTES:

All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Monday of the month. Most recent data, reported institutions with over $30 million in deposits and $3.2 million of reserve requirements as of December 1987, represents 95% of deposits in the six state area. The major differences between this report and the "call report" are size, the treatment of interbank deposits, and the treatment of float. The total deposit data generated from the Report of Transaction Accounts eliminates interbank deposits by reporting the net of deposits "due to" and "due from" other depository institutions. The Report of Transaction Accounts subtracts cash in process of collection from demand deposits, while the call report does not. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.

p - preliminary

* - Most recent month vs. year-ago month

EMPLOYMENT

	APR 1988	MAR 1988	APR 1987	ANN. % CHG		APR 1988	MAR 1988	APR 1987	ANN. % CHG
UNITED STATES									
Civilian Labor Force - thous.	120,264	119,957	119,335	+ 1	Nonfarm Employment - thous.	104,608	103,754	101,381	+ 3
Total Employed - thous.	113,905	112,867	111,041	+ 3	Manufacturing	19,391	19,334	18,926	+19
Total Unemployed - thous.	6,359	7,090	7,306	-13	Construction	5,078	4,812	4,843	+ 5
					Trade	24,269	24,164	23,745	+ 2
Unemployment Rate - % SA	5.4	5.6	6.3		Government	17,709	17,694	17,351	+ 2
					Services	25,069	24,865	23,950	+ 5
Mfg. Avg. Hours	41.0	40.7	40.4	+ 1	Fin., Ins. & Real Est.	6,689	6,651	6,530	+ 2
Mfg. Avg. Wkly. Earn. - $	415	413	399	+ 4	Trans., Com. & Pub. Util.	5,510	5,473	5,314	+ 4
SOUTHEAST									
Civilian Labor Force - thous.	16,374	16,400	16,119	+ 2	Nonfarm Employment - thous.	13,843	13,825	13,404	+ 3
Total Employed - thous.	15,356	15,333	14,889	+ 3	Manufacturing	2,382	2,384	2,336	+ 2
Total Unemployed - thous.	1,018	1,063	1,142	-11	Construction	784	778	754	+ 4
					Trade	3,448	3,441	3,335	+ 3
Unemployment Rate - % SA	6.4	6.3	7.2		Government	2,426	2,433	2,359	+ 3
					Services	3,124	3,114	2,970	+ 5
Mfg. Avg. Wkly. Hours	41.2	41.0	40.5	+ 2	Fin., Ins. & Real Est.	822	820	796	+ 3
Mfg. Avg. Wkly. Earn. - $	342	342	356	- 4	Trans., Com. & Pub. Util.	762	759	743	+ 3
ALABAMA									
Civilian Labor Force - thous.	1,845	1,851	1,879	- 2	Nonfarm Employment - thous.	1,519	1,514	1,498	+ 1
Total Employed - thous.	1,720	1,714	1,697	+ 1	Manufacturing	372	372	364	+ 2
Total Unemployed - thous.	125	137	143	-13	Construction	73	73	73	0
					Trade	334	332	330	+ 1
Unemployment Rate - % SA	7.2	6.9	8.0		Government	304	304	302	+ 1
					Services	282	281	274	+ 3
Mfg. Avg. Wkly. Hours	40.6	40.6	40.5	+ 0	Fin., Ins. & Real Est.	70	70	70	0
Mfg. Avg. Wkly. Earn. - $	335	336	330	+ 2	Trans., Com. & Pub. Util.	72	72	72	0
FLORIDA									
Civilian Labor Force - thous.	6,035	6,045	5,768	+ 5	Nonfarm Employment - thous.	5,099	5,108	4,826	+ 6
Total Employed - thous.	5,731	5,758	5,469	+ 5	Manufacturing	542	542	526	+ 3
Total Unemployed - thous.	304	287	299	+ 2	Construction	347	348	333	+ 4
					Trade	1,393	1,397	1,309	+ 6
Unemployment Rate - % SA	5.3	4.9	5.5		Government	779	785	738	+ 6
					Services	1,399	1,398	1,301	+ 8
Mfg. Avg. Wkly. Hours	40.6	40.6	40.8	+ 0	Fin., Ins. & Real Est.	370	370	356	+ 4
Mfg. Avg. Wkly. Earn. - $	335	336	330	+ 2	Trans., Com. & Pub. Util.	262	260	254	+ 3
GEORGIA									
Civilian Labor Force - thous.	3,085	3,074	3,024	+ 2	Nonfarm Employment - thous.	2,787	2,784	2,744	+ 2
Total Employed - thous.	2,906	2,894	2,857	+ 2	Manufacturing	570	572	567	+ 1
Total Unemployed - thous.	180	180	167	+ 8	Construction	149	148	147	+ 1
					Trade	690	688	1685	+ 1
Unemployment Rate - % SA	5.9	5.8	5.6		Government	489	490	478	+ 2
					Services	549	547	532	+ 3
Mfg. Avg. Wkly. Hours	41.2	41.4	40.3	+ 0	Fin., Ins. & Real Est.	156	155	153	+ 2
Mfg. Avg. Wkly. Earn. - $	356	356	341	+ 4	Trans., Com. & Pub. Util.	176	175	173	+ 2
LOUISIANA									
Civilian Labor Force - thous.	1,886	1,894	1,975	- 5	Nonfarm Employment - thous.	1,496	1,494	1,478	+ 1
Total Employed - thous.	1,686	1,671	1,717	- 2	Manufacturing	168	167	162	+ 4
Total Unemployed - thous.	200	223	258	-22	Construction	81	79	81	0
					Trade	361	361	358	+ 0
Unemployment Rate - % SA	10.4	11.4	12.9		Government	314	315	316	- 1
					Services	328	329	318	- 1
Mfg. Avg. Wkly. Hours	42.5	42.6	41.3	+ 3	Fin., Ins. & Real Est.	85	85	84	+ 1
Mfg. Avg. Wkly. Earn. - $	466	462	454	+ 3	Trans., Com. & Pub. Util.	104	104	104	0
MISSISSIPPI									
Civilian Labor Force - thous.	1,149	1,158	1,152	- 0	Nonfarm Employment - thous.	886	880	860	+ 3
Total Employed - thous.	1,065	1,058	1,034	+ 3	Manufacturing	233	233	226	+ 3
Total Unemployed - thous.	84	100	118	-29	Construction	33	33	33	0
					Trade	187	186	184	+ 2
Unemployment Rate - % SA	7.6	8.2	10.6		Government	200	199	194	+ 3
					Services	143	141	138	+ 4
Mfg. Avg. Wkly. Hours	39.8	40.1	39.4	+ 1	Fin., Ins. & Real Est.	39	39	38	+ 3
Mfg. Avg. Wkly. Earn. - $	311	311	297	+ 5	Trans., Com. & Pub. Util.	43	43	42	+ 2
TENNESSEE									
Civilian Labor Force - thous.	2,373	2,378	2,321	+ 2	Nonfarm Employment - thous.	2,056	2,043	1,998	+ 3
Total Employed - thous.	2,248	2,238	2,115	+ 4	Manufacturing	497	498	494	+ 1
Total Unemployed - thous.	125	136	157	-20	Construction	100	97	97	+ 3
					Trade	481	477	468	+ 3
Unemployment Rate - % SA	5.4	5.5	6.9		Government	341	340	330	+ 3
					Services	422	418	408	+ 4
Mfg. Avg. Wkly. Hours	41.8	41.8	40.6	+ 3	Fin., Ins. & Real Est.	102	101	94	+ 9
Mfg. Avg. Wkly. Earn. - $	370	369	361	+ 2	Trans., Com. & Pub. Util.	106	105	98	+ 9

NOTES: All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.
Only the unemployment rate data are seasonally adjusted.
The Southeast data represent the total of the six states.

CONSTRUCTION

(12-month cumulative rate)

	APR 1988	MAR 1988	APR 1987	ANN. % CHG.
UNITED STATES				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	50,200	50,596	47,290	+ 6
Industrial Bldgs.	7,232	7,275	8,374	-14
Offices	12,985	13,357	13,849	- 6
Stores	13,363	13,169	11,991	+11
Hospitals	2,229	2,266	2,531	-11
Schools	1,092	1,131	1,180	- 7
Residential Building Permits Value - $ Mil.	93,196	93,642	96,859	- 4
Residential Permits - Thous.				
Single-family units	1,007.2	1,010.7	1,082.6	- 7
Multifamily units	462.0	467.9	610.0	-25
Total Building Permits Value - $ Mil.	140,102	140,944	144,160	- 3
SOUTHEAST				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	7,780	7,763	7,866	- 1
Industrial Bldgs.	814	867	1,124	-28
Offices	1,911	1,852	1,883	+ 1
Stores	2,417	2,522	2,445	- 1
Hospitals	495	482	445	+11
Schools	264	263	152	+74
Residential Building Permits Value - $ Mil.	15,557	15,677	15,797	- 2
Residential Permits - Thous.				
Single-family units	202.4	205.5	206.2	- 2
Multifamily units	100.9	102.0	123.8	-18
Total Building Permits Value - $ Mil.	23,336	23,411	23,512	- 1
ALABAMA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	511	511	561	-10
Industrial Bldgs.	22	29	72	-69
Offices	161	158	164	- 2
Stores	189	186	174	+ 9
Hospitals	16	16	17	- 6
Schools	22	19	21	+ 5
Residential Building Permits Value - $ Mil.	601	619	678	-11
Residential Permits - Thous.				
Single-family units	10.0	10.0	11.2	-10
Multifamily units	3.3	3.9	6.7	-51
Total Building Permits Value - $ Mil.	1,112	1,130	1,238	-10
FLORIDA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	3,702	3,722	3,852	- 4
Industrial Bldgs.	3,690	3,872	4,073	-10
Offices	821	808	890	- 8
Stores	1,057	1,098	1,162	-10
Hospitals	182	174	314	-42
Schools	96	95	32	+200
Residential Building Permits Value - $ Mil.	8,944	9,029	8,733	+ 2
Residential Permits - Thous.				
Single-family units	115.4	110.3	108.0	+ 7
Multifamily units	70.9	71.5	80.0	-11
Total Building Permits Value - $ Mil.	12,647	12,751	12,585	+ 0
GEORGIA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	1,950	1,891	1,752	+11
Industrial Bldgs.	245	264	350	-30
Offices	580	526	411	+41
Stores	578	565	532	+ 9
Hospitals	123	124	21	+486
Schools	103	104	42	+45
Residential Building Permits Value - $ Mil.	3,610	3,599	3,682	- 2
Residential Permits - Thous.				
Single-family units	46.8	47.0	50.7	- 8
Multifamily units	18.3	17.6	20.6	-21
Total Building Permits Value - $ Mil.	5,560	5,490	5,434	+ 2
LOUISIANA				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	368	386	448	-18
Industrial Bldgs.	16	12	39	-59
Offices	62	63	91	-32
Stores	162	163	130	+25
Hospitals	106	106	36	+194
Schools	12	14	41	-71
Residential Building Permits Value - $ Mil.	396	402	493	-20
Residential Permits - Thous.				
Single-family units	6.4	6.6	7.5	-15
Multifamily units	0.5	0.5	17.9	-97
Total Building Permits Value - $ Mil.	764	787	941	-19
MISSISSIPPI				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	223	215	240	- 8
Industrial Bldgs.	28	27	21	+33
Offices	56	51	59	- 5
Stores	63	61	81	-22
Hospitals	16	16	24	-33
Schools	12	13	8	+50
Residential Building Permits Value - $ Mil.	286	288	323	-11
Residential Permits - Thous.				
Single-family units	4.8	4.9	5.4	-21
Multifamily units	1.1	0.8	1.6	-31
Total Building Permits Value - $ Mil.	510	503	563	- 9
TENNESSEE				
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	1,024	1,038	1,012	+ 1
Industrial Bldgs.	133	146	234	-43
Offices	231	246	267	-10
Stores	368	347	317	+21
Hospitals	52	47	33	+58
Schools	19	18	8	+138
Residential Building Permits Value - $ Mil.	1,719	1,740	1,889	- 9
Residential Permits - Thous.				
Single-family units	22.0	22.1	23.4	- 6
Multifamily units	6.8	7.7	13.1	-48
Total Building Permits Value - $ Mil.	2,743	2,778	2,901	- 5

NOTES: Data supplied by the U. S. Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts, C-40. Nonresidential data exclude the cost of construction for publicly owned buildings. The Southeast data represent the total of the six states.

GENERAL

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
UNITED STATES					
Personal Income ($ bil. - SAAR)	Q4	3,844.8	3,749.3	3,589.2	+ 7
Plane Pass. Arr. (thous.)		N.A.	N.A.	N.A.	
Petroleum Prod. (thous.)	APR	8,172.0	8,283.0	8,413.3	- 3
Consumer Price Index 1967=100	APR	350.8	349.0	337.7	+ 4
Kilowatt Hours - mils.	APR	214.4	225.1	198.2	+ 8
SOUTHEAST					
Personal Income ($ bil. - SAAR)	Q4	468.1	465.7	439.0	+ 7
Plane Pass. Arr. (thous.)	APR	6,083.4	6,703.6	6,438.0	- 6
Petroleum Prod. (thous.)	APR	1,319.0	1,324.0	1,423.5	- 7
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	34.0	34.0	31.0	+10
ALABAMA					
Personal Income ($ bil. - SAAR)	Q4	49.2	48.6	46.4	+ 6
Plane Pass. Arr. (thous.)	APR	158.9	181.3	170.8	- 7
Petroleum Prod. (thous.)	APR	56.0	57.0	56.0	0
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	4.6	4.9	4.2	+10
FLORIDA					
Personal Income ($ bil. - SAAR)	Q4	189.7	185.1	174.3	+ 9
Plane Pass. Arr. (thous.)	APR	3,113.7	3,669.8	3,263.5	- 5
Petroleum Prod. (thous.)	APR	22.0	22.0	21.0	+ 5
Consumer Price Index		MAY	MAR	MAY	
1977=100 MIAMI		187.2	185.5	179.1	
Kilowatt Hours - mils.	FEB	10.3	10.0	9.0	+14
GEORGIA					
Personal Income ($ bil. - SAAR)	Q4	88.6	90.4	84.1	+ 5
Plane Pass. Arr. (thous.)	APR	2,095.9	2,119.6	2,190.5	- 4
Petroleum Prod. (thous.)		N.A.	N.A.	N.A.	
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	5.6	6.0	5.1	+10
LOUISIANA					
Personal Income ($ bil. - SAAR)	Q4	51.4	50.7	49.8	+ 3
Plane Pass. Arr. (thous.)	APR	340.9	329.4	372.2	- 8
Petroleum Prod. (thous.)	APR	1,166.0	1,171.0	1,267.5	- 8
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	4.5	4.9	4.4	+ 2
MISSISSIPPI					
Personal Income ($ bil. - SAAR)	Q4	26.9	27.2	25.5	+ 5
Plane Pass. Arr. (thous.)	APR	39.1	45.3	46.1	-15
Petroleum Prod. (thous.)	APR	75.0	74.0	79.0	- 6
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	2.3	2.4	2.1	+10
TENNESSEE					
Personal Income ($ bil. - SAAR)	Q4	62.3	63.7	58.9	+ 6
Plane Pass. Arr. (thous.)	APR	334.9	358.2	394.9	-15
Petroleum Prod. (thous.)		N.A.	N.A.	N.A.	
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	FEB	6.7	6.8	6.2	+ 8

	MAY 1988	APR(R) 1988	MAY 1987	ANN. % CHG.
UNITED STATES				
Agriculture				
Prices Rec'd by Farmers Index (1977=100)	134	130	128	+ 5
Broiler Placements (thous.)	94,235	94,214	91,712	+ 3
Calf Prices ($ per cwt.)	91.90	95.20	77.60	+18
Broiler Prices (¢ per lb.)	33.50	28.00	30.00	+12
Soybean Prices ($ per bu.)	6.98	6.36	5.33	+31
Broiler Feed Cost ($ per ton)	(Q2)181	(Q1)195	(Q2)189	- 4
SOUTHEAST				
Agriculture				
Prices Rec'd by Farmers Index (1977=100)	123	121	113	+ 9
Broiler Placements (thous.)	40,132	40,041	37,944	+ 6
Calf Prices ($ per cwt.)	91.00	96.33	75.23	+21
Broiler Prices (¢ per lb.)	32.33	26.30	28.76	+12
Soybean Prices ($ per bu.)	7.20	6.61	5.37	+34
Broiler Feed Cost ($ per ton)	(Q1)163	(Q1)190	(Q2)173	- 6
ALABAMA				
Agriculture				
Farm Cash Receipts - $ mil. Dates: JAN., MAR.	564		421	+34
Broiler Placements (thous.)	14,451	14,517	13,292	+ 9
Calf Prices ($ per cwt.)	90.80	100.00	76.80	+18
Broiler Prices (¢ per lb.)	32.50	26.00	29.00	+12
Soybean Prices ($ per bu.)	7.29	6.51	5.43	+34
Broiler Feed Cost ($ per ton)	158	194	177	-11
FLORIDA				
Agriculture				
Farm Cash Receipts - $ mil. Dates: JAN., MAR	1,862		1,634	+14
Broiler Placements (thous.)	2,452	2,405	2,401	+ 2
Calf Prices ($ per cwt.	95.00	105.00	81.10	+17
Broiler Prices (¢ per lb.)	32.50	26.60	28.90	+12
Soybean Prices ($ per bu.)	7.29	6.51	5.43	+34
Broiler Feed Cost ($ per ton)	158	194	177	-11
GEORGIA				
Agriculture				
Farm Cash Receipts - $ mil. Dates: JAN., MAR.	613		581	+ 5
Broiler Placements (thous.)	15,831	15,491	15,178	+ 4
Calf Prices ($ per cwt.)	88.90	93.00	72.80	+22
Broiler Prices (¢ per lb.)	31.50	25.50	28.00	+13
Soybean Prices ($ per bu.)	7.33	6.61	5.31	+38
Broiler Feed Cost ($ per ton)	158	194	177	-11
LOUISIANA				
Agriculture				
Farm Cash Receipts - $ mil. Dates: JAN., MAR.	314		269	+16
Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Calf Prices ($ per cwt.)	91.00	93.00	73.50	+24
Broiler Prices (¢ per lb.)	N.A.	N.A.	N.A.	
Soybean Prices ($ per bu.)	7.14	6.65	5.32	+34
Broiler Feed Cost ($ per ton)	185	N.A.	159	+16
MISSISSIPPI				
Agriculture				
Farm Cash Receipts - $ mil. Dates: JAN., MAR.	482		321	+50
Broiler Placements (thous.)	7,343	7,259	7,073	+ 4
Calf Prices ($ per cwt.)	94.20	93.70	74.00	+27
Broiler Prices (¢ per lb.)	33.60	28.20	29.80	+13
Soybean Prices ($ per bu.)	7.15	6.63	5.38	+33
Broiler Feed Cost ($ per ton)	185	175	159	+16
TENNESSEE				
Agriculture				
Farm Cash Receipts - $ mil. Dates: JAN., MAR.	438		389	+13
Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Calf Prices ($ per cwt.)	87.20	90.70	71.80	+21
Broiler Prices (¢ per lb.)	N.A.	N.A.	N.A.	
Soybean Prices ($ per bu.)	7.18	6.60	5.41	+33
Broiler Feed Cost ($ per ton)	197	N.A.	205	- 4

NOTES: Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N. A. = not available. The annual percent change calculation is based on most recent data over prior year. R = revised.

Economic Review

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