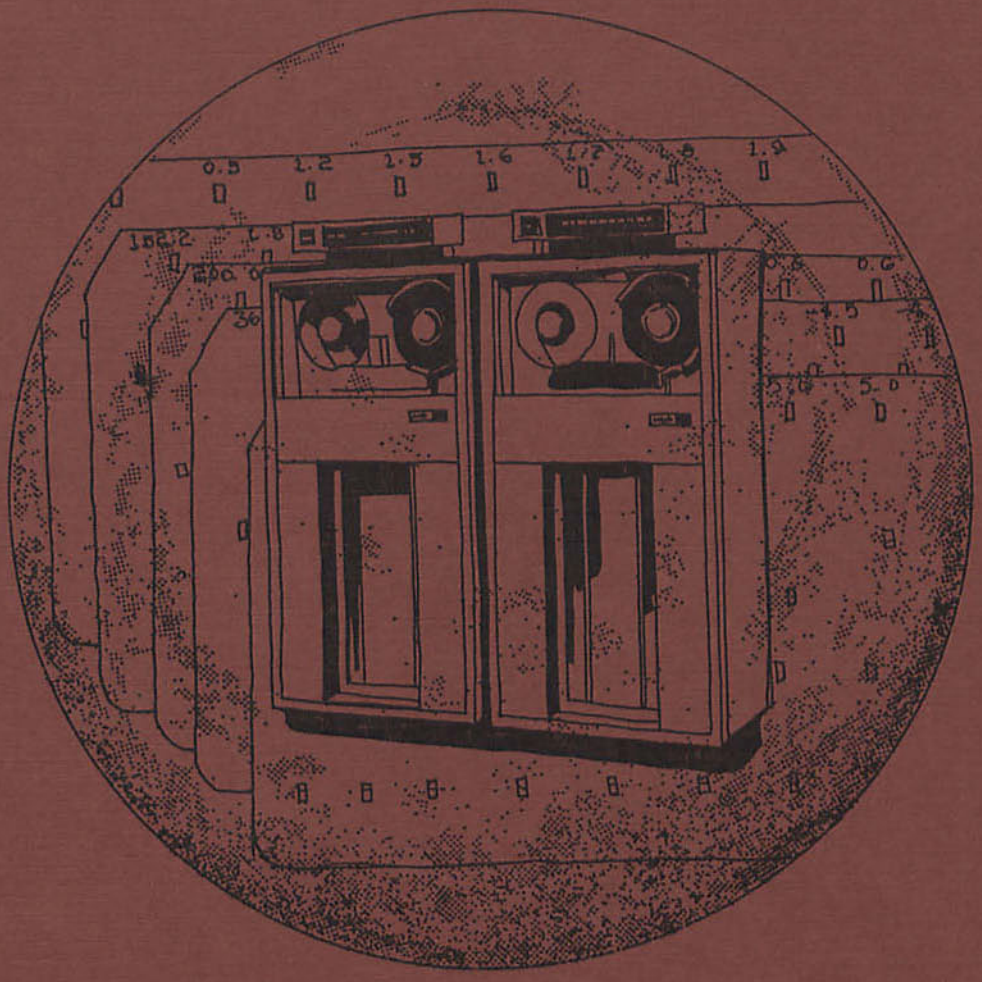
Federal Reserve Bank of Dallas

Business Review



Econometrics–
Large Models Aid GNP Forecasters

Cost of Living–
Cities in Southwest Among Least Expensive

June 1973

Econometrics–

Large Models Aid GNP Forecasters

Decision makers in government and industry have turned increasingly in recent years to econometric models for forecasts of economic change. Reflected in this shift are not only the strides made in econometrics but also the formation of firms created to market results of large-scale econometric models. By and large, these models have performed quite well in forecasting economic changes.

In forecasting growth in gross national product in 1971 and 1972, for example, several large models were more accurate than a running survey of leading economists. Where the survey of forecasters prepared by the American Statistical Association in conjunction with the National Bureau of Economic Research was closer to actual GNP nine months out of the 24, one model was closer 15 times.

Econometrics has come as a more or less natural outgrowth of fundamentals in economic theory. Governed by general principles that experience has shown to be highly dependable, economics was, nevertheless, prevented until very recent years from providing the kind of detailed information needed for rapid policy responses to changing situations.

Although its principles could be applied with reasonable confidence, economics often did not provide the data needed for timely decisions. Unlike sciences that allow the generation of data under controlled laboratory conditions, economics has always dealt with real-life situations. With many interrelated economic factors changing at the same time, isolation of the effects of any one change on any other was complicated and yielded imprecise results.

Much economic behavior has been understood for a long time, but few statistical results were meaningful until the widespread use of computers after World War II. Development of accurate data collection methods paralleled the development of high-speed computer equipment and opened the way for major breakthroughs not only in forecasting economic change but in analyzing changes. By making alternative assumptions about previous economic conditions and testing these assumptions in computer simulations, economists gained new insights into the workings of the economic system.

Recognition of the growing refinement and usefulness of economics was evidenced in 1969 by the establishment of a Nobel Prize in economics. And the first prize was awarded to two Europeans (Ragnar Frisch and Jan Tinbergen) for their pioneering contributions to the building of econometric models.

The matter of models . . .

To examine the facts of a situation, without straying from the essentials, economists construct simplified representations of economic behavior. These representations are called *models*.

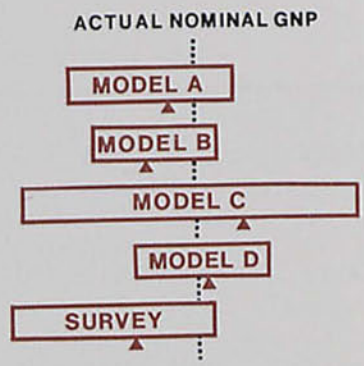
In studying consumption, for example, an economist might survey a very large number of households to find out why their spending patterns are what they are. But he would get an enormous variety of answers. If he could survey members of every household in the country, he would, undoubtedly, get thousands–even many thousands–of different answers. In addition to increases in income, he would learn that many families listed as reasons for changes in their spending patterns such developments as an illness, death, or wedding in the family.

Results of such an unstructured survey would provide little basis for generalizations about changes in consumer spending. But by applying general theories of economic behavior to his study, the economist could impose a structure on his observations. And being based on cause and effect relationships, this structure would allow him to capture the implications of the survey, making its results more comprehensible.

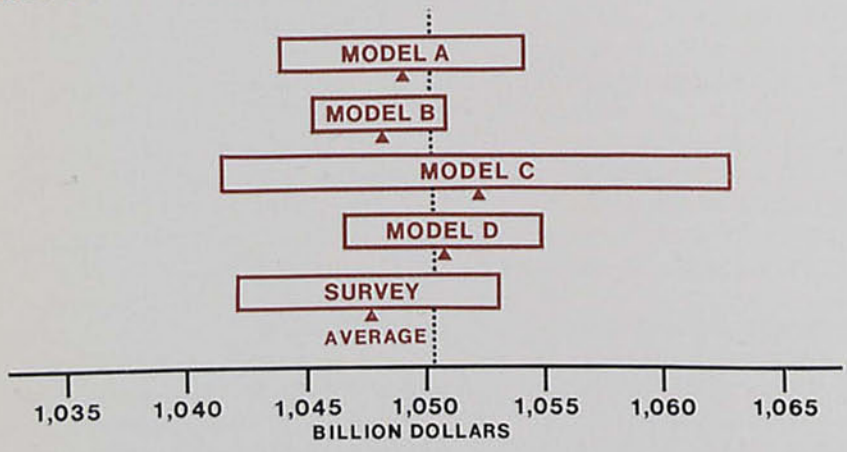
Such a procedure would allow him to determine relationships, for example, between consumer expenditures and personal income. And this link between income and outlays would be–even for a comparatively small number of households –an economic model that could be used in analyzing changes in the spending patterns of all consumers.

An economic model becomes econometric when mathematical and statistical techniques are applied to the investigator's observations to quantify relationships in the model. These relationships can then be expressed as algebraic equations. With an econometric model, annual reports of income and consumption can be related over long periods, allowing investigators to generalize, for example, that *on average* for every dollar rise in income since World War II, consumption has risen 93 cents.

Model D came remarkably close in forecasting nominal GNP in 1971 . . .



. . . but with fewer wide misses, Model B showed more consistency



SOURCE: Conference Board

The idea "on average" reflects the type of measurement being used. Unlike physical measurements, which apply to objects and their movements, econometric measurements apply to patterns of human behavior.

There is an element of error in all econometric measurements that is almost totally absent in the proper calculation of physical laws. But while there are unexplained variations in even the best calculations of economic relationships, an econometrician can still estimate the extent of variation–the size of the error.

He can determine, for example, the percentage of variation in consumption regularly associated with changes in income. In quantifying the applicable relations in economic theory, he might find that 99 times out of 100, consumption rises between 90 cents and 96 cents for every $1 rise in income. With this fairly precise identification of economic events, he is better able to predict future tendencies in consumer spending.

. . . and their sizes

Econometric models can be built to answer questions about the operations of individual companies, industries, or whole economies. Much of the interest in econometrics focuses on models of the national economy–macro models.

Basically, there are two approaches to the construction of a macro model–a small-scale and a large-scale approach. The small-scale approach consists of–

- The identification of relationships between such broad measures of economic activity as income and consumption, interest rates and the money stock, or interest rates and business investment
- The statistical estimation of these aggregate measures
- The logical combination of the estimated equations into models

Three of the relationships drawing the closest attention have been between income and consumption, interest rates and the money supply, and interest rates and investment. If government spending is added to each of these relationships, the resulting model can be used to estimate GNP–gross national product, identified as consumption plus investment plus government spending. This, then, is a simple, small-scale model of the domestic economy.

By building larger-scale models, econometricians can search for more detailed relationships in economic behavior. Instead of trying to estimate merely total consumption, for example, they can study movements in each of its three main components–spending for durables, nondurables, and services. And they can examine each of these components in detail. Consumer spending on durable goods, for example, can be assessed as relationships affecting spending on automobiles, household appliances, and other big-ticket family items. Efforts can also be made to isolate factors causing variations in the prices of these components.

When these relationships have been reduced to the form of equations and estimated by their closeness of fit to actual data, the estimated equations can be collected into a single macro model of perhaps 50 or more relationships that will allow the prediction of not only total consumption but also spending on individual components, as well as the prices of each.

Comparative advantages

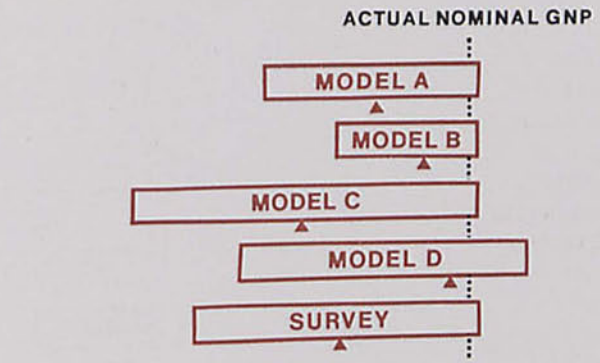
Both approaches have their advantages. One obvious advantage of a small model is its lower cost. Another is the shorter time required to build it. While some small models have taken two or three years to build, they have not taken nearly as long as the truly large-scale models. And once in operation, they can be maintained by only a few economists–and with them working part time.

Another, possibly less obvious, advantage is that when a small-scale model is complete, it can be viewed in its entirety. Being less detailed, its workings are easier to comprehend. But that fact in itself can also be a disadvantage.

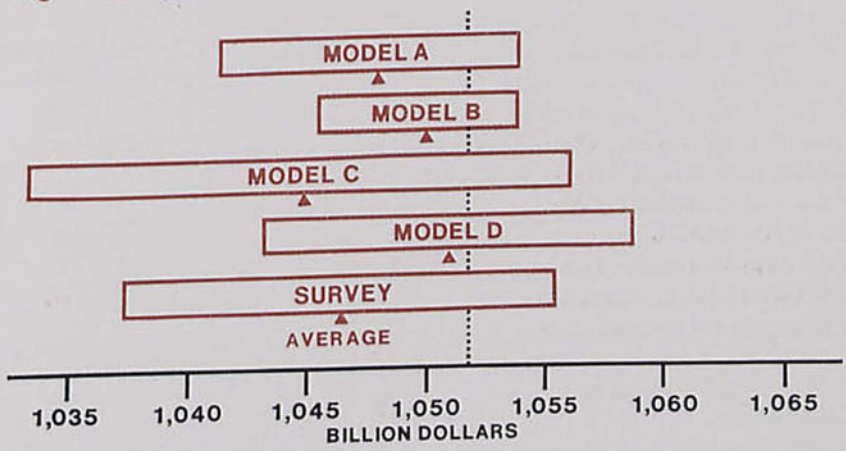
If the correct relationships have been chosen and included in the proper form, a small-scale model can predict broad movements in economic aggregates with enough accuracy to satisfy the purpose for which it was designed. But it cannot show many of the complex structural relationships operating within the national economy. And this lack of detail can have two possibly serious consequences.

First, forecasts of specific disaggregated factors, such as consumer spending on services, say, cannot be made. Second, predictions of the effects of specific policy changes, such as the recent change in federal grants-in-aid to state and local governments (revenue sharing), are difficult, if not impossible, to make.

All forecasters undershot in predicting nominal 1972 GNP . . .



. . . but Model B was, again, significantly more consistent



SOURCE: Conference Board

Large-scale models, on the other hand, offer possibilities for forecasts that are as detailed as the model builder wants them to be. As a result of the greater detail in his model, a forecaster can better advise policy makers on the likely effects of changes in policies. He can, for example, compare the various results of alternative assumptions, such as a 6-percent growth in the money supply as against an 8-percent growth.

He can also trace effects of policy decisions throughout the many sectors of the economy. And changes brought on by such non-recurring events as the recent devaluation of the dollar can be interpreted with greater precision.

Because of the complexity of the many relationships making up the nation's economy, large-scale models are often needed for detailed analysis of economic trends and fluctuations. The advantages of these large models, however, have their price.

Construction of a large model of, say, 100 equations or more usually takes many economists. Each a specialist in a particular sector of the economy, they are needed for a long time to develop a usable

model. For the results to be usable, computer programmers must be hired. And large amounts of time on high-speed, large-memory computers are needed to make the model workable. Even when development work is done, one person would have trouble viewing the model as a whole. To evaluate its complex workings properly, several economists are needed on a continuing basis.

Judgment in forecasting

Two problems with forecasting must be worked out, regardless of the size of the model. The first arises from the economist's view of the economy and the way he develops his model to reflect its workings. The second is the emergence of special situations, such as the unusually large federal individual income tax refunds this year, that are not explicitly allowed for in the model.

The first problem results from the distinction most economists make between two types of economic factors. These factors they identify as dependent and independent variables.

Some variables–such as consumer spending, investment expenditures, interest rates, and unemployment rates–are influenced by other factors. Changes in consumer spending, for example, can result from changes in income, market interest rates, and population. These factors influenced by other forces are *dependent variables.*

Other factors, however, are not determined by the model but respond to influences extraneous to it. These factors–such as population and its composition, the level of bank reserves, and the discount rate–are *independent variables.*

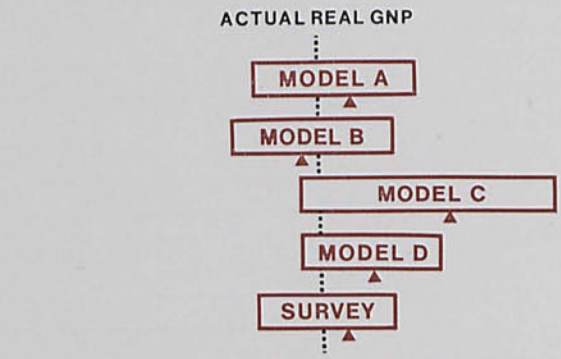
Independent variables are, in a sense, the drivers of the model. Many, in fact, are derived from fiscal and monetary policy assumptions. Once their values are known, the model can be used to compute values for the dependent variables.

But while changes in independent variables may give rise to changes in dependent variables, the assumption is that the opposite does not occur. As a result, for an economist to make use of an econometric model in forecasting, he must first predict appropriate future values for the independent variables. Only then can the model determine corresponding future values of dependent variables.

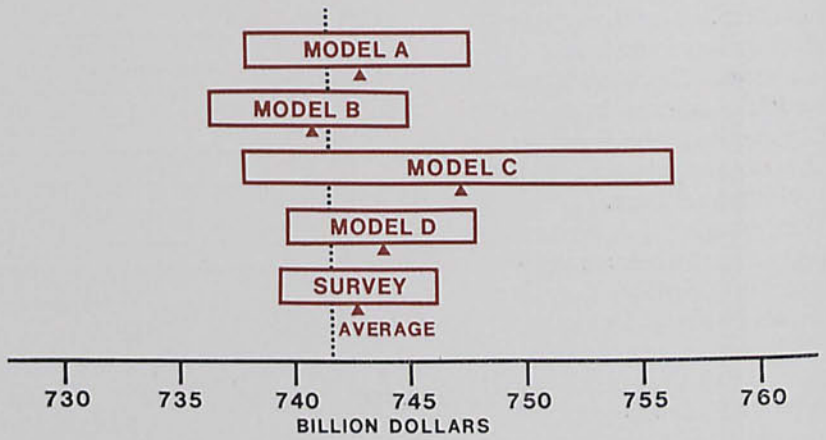
This process of making assumptions about ongoing economic conditions–the exercise of professional judgment–is essentially the same for all forecasters, whether they use econometric models or not. The difference is that with an econometric model, the forecaster can examine explicit relationships. Where he depends only on his judgment, the forecaster produces an outlook based on his "feel of the situation."

Whatever the advantages of a model over judgmental forecasting, however, good judgment remains crucial to solution of the second set of problems confronting forecasters. However much confidence he may have in the

Model C hit wide of the mark in forecasting real GNP in 1971 . . .



. . . and its confidence interval was by far the largest



SOURCE: Conference Board

model, an econometrician cannot allow his forecasting to become purely mechanical. If the situation changes, setting in motion considerations not explicitly allowed for in the model, he must exercise great caution in interpreting results of his studies.

For the conscientious econometric forecaster, knowledge of conditions the model does not allow for explicitly is one of his tools. A model builder must exercise as much judgment in interpreting his results as in selecting the assumptions used in building the model in the first place.

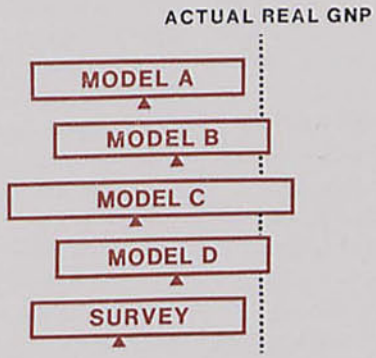
Bases of comparison

Large-scale models have been used seriously in forecasting for little more than a decade. And although many of the models that are used are still being refined, the advances made in their development over the past ten years give promise that large-scale models will eventually provide highly accurate forecasts of economic change.

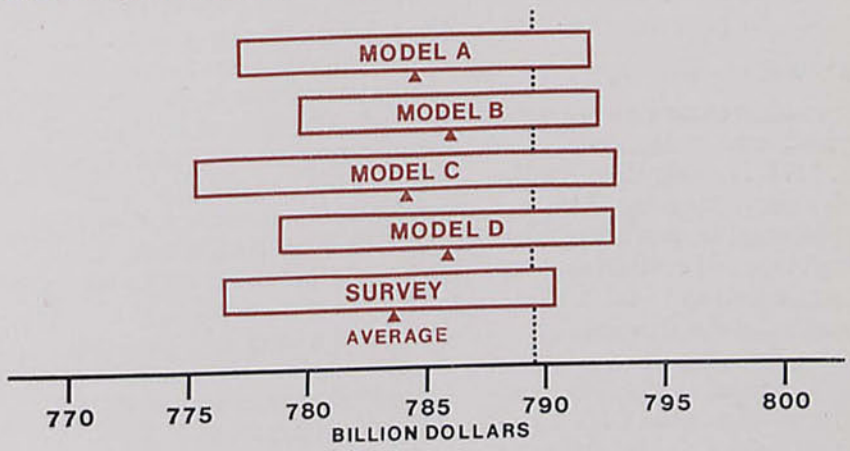
To illustrate the predictive accuracy of four representative econometric models, their 1971 and 1972 forecasts of GNP were compared with the survey of forecasters compiled regularly by the American Statistical Association and the National Bureau of Economic Research. Because many of the forecasts included in the survey are based on the use of econometric models, results of the survey are somewhat "contaminated." But enough other forecasters are included to provide a fair approximation of a prediction based on traditional judgmental techniques.

Also, because survey results represent a consensus of forecasters, they lack the precision of some of the more experienced judgmental forecasters. Some years, these individual forecasters outperform the models in estimating GNP. The consensus forecast is used, however, merely as a benchmark for reviewing the performance of representative econometric models–not for evaluating the performance of judgmental forecasts.

Forecasters of real 1972 GNP also fell short of actual output . . .



. . . and they were all about equal in consistency



SOURCE: Conference Board

The econometric models are all medium to large, ranging in size from one with 35 behavioral equations (meaning estimates of relationships between such variables as income and consumption) and eight definitional equations (meaning identifications of variables, such as consumption expressed as the sum of its components) to one with 109 behavioral equations and 133 definitional equations. Like the survey, all four econometric groups make revisions in their forecasts as the year advances.

Monthly comparisons were made, using the latest forecasts available for each month. Because forecasts of GNP for 1972 began in October 1971 and were revised through December 1972, 15 observations were available for that year. Forecasts of current-dollar (nominal) GNP and constant-dollar (real) GNP were used.

The predictive ability of these models was evaluated on the basis of the accuracy of their forecasts

and their consistency. *Accuracy* was taken to mean how close average forecasts came to the actual value of GNP later reported by the Department of Commerce. *Consistency* was taken to mean how much individual forecasts varied over the course of the year.

In choosing, for example, between two forecasting methods that were equally accurate, the preference would be for the one with forecasts that were tightly clustered around the actual value. In the unlikely situation of two methods with the same average forecast values, the less consistent would be the one with forecasts covering the wider range of values.

Accuracy and consistency

All four models came close to predicting both nominal and real GNP in 1971. Neither they nor the consensus survey produced an average forecast that differed from the actual value of current-dollar GNP by as much as $3 billion–which was remarkably close for an economy passing the nominal trillion-dollar mark. The best average forecast of nominal GNP overshot the nation's total for the year by an insignificant $300 million. The least accurate forecasts came from the survey.

Two of the models tended to overestimate real GNP in 1971. The other forecasters were fairly close, however, producing averages that missed real output by less than $1.5 billion.

The strength of the economy in 1972 caught most people by surprise. And model builders were no exception. Performance of all these forecasters, including the survey, deteriorated that year, their outlooks falling short of both the real and nominal GNP's actually reached. One underestimated nominal GNP by an average of more than $7 billion. But two came within $2 billion.

All five forecasters underestimated real GNP by remarkably similar amounts in 1972. The total spread between all five average forecasts was less than $2.5 billion.

As important as accuracy is, the lack of precision in forecasting makes the matter of consistency equally important. A forecast that consistently hit fairly close–even though it might never quite hit the mark–could be more useful than a forecast that, while sometimes very close, often missed badly.

Comparison of the performances of one model and the consensus forecast in predicting 1971 nominal GNP provides a case in point. Overall, the two forecasts were about equal in accuracy, but the model provided a more consistent outlook. The largest prediction by either group was $1,051 billion. None of the predictions by the model, however, was smaller than $1,046 billion. As a result, the spread in the model's forecasts was $5 billion. At one point, the survey predicted a GNP of $1,043 billion. And as a result, the spread in the survey's forecasts was $3 billion wider than the model's.

In the consistency of their real GNP forecasts, three models performed about equally well with the survey in 1971. None of these four groups varied its forecasts more than $7 billion.

Confidence intervals

Consideration of the range between the largest and smallest forecasts ignores other forecasts produced during the year. If the range of forecasts produced by two groups were about the same, the preference would, of course, be for the method that issued only one or two forecasts that were off the mark instead of one that issued several bad misses.

One device for taking into account how many forecasts are close to the extremes of the range employs the concept of a *confidence interval.* This interval is the range of values on either side of the average forecast and within which, with a certain probability, the actual value is expected to be.

The idea of a confidence interval has already been introduced in connection with the example of an econometric study of consumption behavior. The statement of a hypothetical situation in which "99 times out of 100, consumption rises between 90 cents and 96 cents for every $1 rise in income" alludes to a confidence interval. The interval from 90 to 96 cents constitutes an estimate of the influence that a $1 change in income is likely to exert on consumer spending.

Confidence intervals for the forecasts generated by these five groups were constructed to include actual GNP 95 times out of 100. Again, comparisons were based on 1971 and 1972 forecasts of nominal and real GNP.

While the ranges of two model forecasts of nominal 1971 GNP were about the same size, the forecasts of one were more closely bunched, leaving a smaller confidence interval. In estimating real GNP that year, both of these groups issued forecasts with larger confidence intervals than the survey. One provided forecasts of real GNP spread over a smaller range than the other. They varied more within the range, however, causing the confidence interval to be larger.

Performances in predicting 1972 nominal GNP come out about the same whether the range of forecasts or the confidence interval is used as a basis for ranking. But the rankings are quite different for real GNP.

The forecast ranges used as a criterion for consistency placed three models in tying positions with the survey for first place. With forecast ranges in about the same position, all four groups came

within $9 billion of predicting real GNP at some time during the year.

Several forecasts were in the lower reaches of the ranges generated by the survey and one of the models, however. As a result, the confidence intervals in these two outlooks were inflated. With broader confidence intervals, the survey and model were forced back to third and fourth positions.

Summing up

There was a persistent finding that one model did not perform as well as the others in predicting GNP. And as a result–despite all the accuracy that has been achieved in forecasting change with medium to large econometric models–the four models, taken as a group, did not consistently outperform the consensus of economists that base most of their predictions on the application of purely judgmental techniques. Throughout 1971 and 1972, this model ranked behind the survey in predicting both real and nominal GNP.

One explanation might be that the model was not as closely supervised as the other models. Econometric forecasting seems to be most accurate where there is a close interaction between the model and the economists using it. By closely supervising their model, forecasters can adjust both for minor variations in the model when it seems to be predicting poorly and for future events that may seem likely but have not been allowed for in construction of the model.

And, of course, GNP is not the only variable of interest to decision makers. Future paths of such variables as unemployment, prices, investment, and interest rates are also important. A model that performs well in predicting one set of variables might not be as precise in forecasting another.

–Wynn V. Bussmann
Marvin S. Margolis

New member banks

The Executive National Bank, Houston, Texas, a newly organized institution located in the territory served by the Houston Branch of the Federal Reserve Bank of Dallas, opened for business April 17, 1973, as a member of the Federal Reserve System. The new member bank has capital of $400,000, surplus of $300,000, and undivided profits of $300,000. The officers are: F. O'Neil Griffin, Chairman of the Board; Larry T. Ogg, President; and Joe M. Ainsworth, Cashier.

The City National Bank of Laredo, Laredo, Texas, a newly organized institution located in the territory served by the San Antonio Branch of the Federal Reserve Bank of Dallas, opened for business May 4, 1973, as a member of the Federal Reserve System. The new member bank has capital of $300,000, surplus of $150,000, and undivided profits of $150,000. The officers are: Ramiro Sanchez, Chairman of the Board; J. D. Underhill, President; Dan M. Sanchez, Jr., Vice President and Cashier; and James A. Mayo, Jr., Assistant Cashier.

New par banks

The Texas Bank, Lubbock, Texas, an insured nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, was added to the Par List on its opening date, April 16, 1973. The officers are: Troy Post, Chairman of the Board; B. J. McNabb, President; Don E. Johnson, Vice President and Cashier; and Conrad Schmid, Vice President.

The Wright City State Bank, Wright City, Oklahoma, an insured nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, was added to the Par List on its opening date, May 1, 1973. The officers are: L. V. Greene, President, and Edna McLaughlin, Cashier.

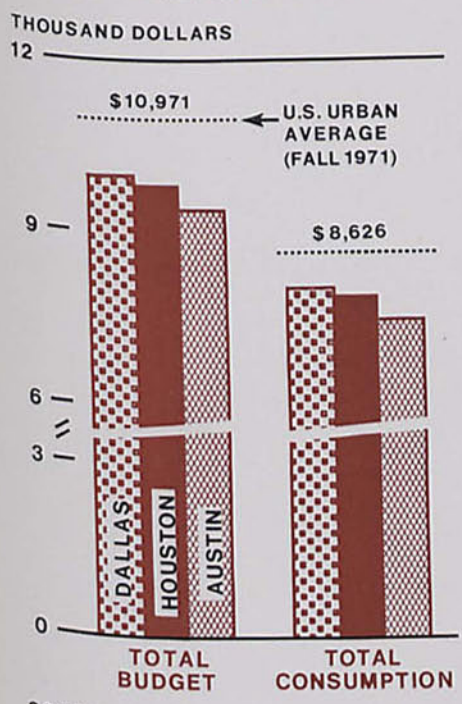
The Texas Bank of Tatum, Tatum, Texas, an insured nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, was added to the Par List on its opening date, May 5, 1973. The officers are: Robert Cargill, Chairman of the Board; Paul P. Granbery, Jr., President; and Tom Allbright, Vice President and Cashier.

Cities in Southwest Among Least Expensive

Cities in the Southwest continue among the nation's least expensive in which to live. Figures compiled by the Bureau of Labor Statistics show that in the fall of 1971, a family in Austin could typically achieve an intermediate standard of living for $1,563 a year less than the nation's average urban family. The savings in Houston and Dallas were almost as good–$1,077 and $915, respectively.

Although consumer prices have risen sharply since then, bureau figures show that they have not risen as fast in Dallas and Houston as in other metropolitan areas. And there are indications that this is part of a continuing trend in the Southwest.

Budget for family of four averages less in District cities



SOURCE: U.S. Bureau of Labor Statistics

Costs are lower . . .

Austin was the least expensive of the 40 metropolitan areas covered in the bureau's study of urban family budgets in 1971. Families in Austin typically paid only 86 percent as much for an intermediate standard of living as the average urban family paid. In Houston, the average family paid only 90 percent as much to achieve its standard of living. And in Dallas, it paid only 92 percent as much.

One factor that contributes to the lowering of living costs in these three cities is the absence of a state tax on personal income. With only federal income taxes to pay, families in Austin paid two-thirds as much in income taxes during the study period as the average urban family in the United States. In Houston, they paid 72 percent. And in Dallas, they paid 74 percent.

But costs of goods and services also totaled less in these three cities. Of the cost components making up a typical family budget, none in Austin was substantially higher than the urban average for the nation–and most were less. Housing, for example, usually takes close to a fourth of the budget of an urban family. And in Austin, where housing cost only about 75 percent as much as in the average city, this item alone went far in establishing the city as the least expensive of the nation's metropolitan areas.

Only one cost component was higher than average in Dallas and Houston. Costs of medical care averaged 6 percent higher in Houston and 16 percent higher in Dallas. These additional expenses were more than offset, however, by the lower costs of housing. In Houston, housing cost 81 percent of the urban average. And in Dallas, the cost was only 85 percent.

. . . and rising slower

Inflation in consumer prices reached a crescendo in 1969. Part of the year, prices rose at an annual rate of more than 6.5 percent. The rate of increase later slowed considerably, however. On an annual basis, the rise for a 15-month

PERCENTAGE CHANGES IN URBAN RETAIL PRICES

(Average annual rates)

Item	February 1973 from November 1971		January 1973 from October 1971	
	Dallas	United States	Houston	United States
Food	8.5%	8.2%	7.0%	6.6%
Housing	1.4	3.5	2.8	3.5
Clothing	5.0	1.1	.6	1.0
Transportation	.2	1.5	–.6	.2
Medical care	3.8	3.4	4.2	3.3
All items	3.4%	3.9%	3.0%	3.4%

SOURCES: U.S. Bureau of Labor Statistics
Federal Reserve Bank of Dallas

Only in transportation and medical costs do District cities not fare better than the nation

SOURCE: U.S. Bureau of Labor Statistics

period from the fall of 1971 to early 1973 averaged 3.4 percent.

Prices in Dallas and Houston ran below the nation's average for comparable 15-month periods. Components of family budgets contributing most to the better price situations in these two cities were housing and transportation. Prices of neither item increased as fast in Dallas and Houston as the national average in cities. Nor did the prices of clothing increase as fast in Houston.

There are also indications that the better than average performance of prices in cities of the Southwest is part of a continuing trend. For one thing, since the previous family survey taken in 1970, the rise in consumption costs in Austin, Dallas, and Houston has been substantially less than the rise in urban areas nationwide. For another, prices have been rising faster in large cities than in small ones across the nation. And the Southwest abounds in small cities.

–William R. McDonough

The BLS's budget concept

Budget estimates by the Bureau of Labor Statistics apply for a family of four–a husband and wife (the man being an experienced worker 38 years old and the woman having no outside employment), a boy 13 years old, and a girl eight. Estimates are prepared for three standards of living–high, low, and intermediate.

Although consumption varies with income, the budget at each level provides for the maintenance of health, continuation of social wellbeing, nurture of children, and participation in community activities. The intermediate life-style is probably the most typical. The lower-income budget is distinguished from the intermediate by the family performing more services for itself, using more free recreational facilities, and living in rented housing with no air conditioning. The high-income budget represents a manner of living that includes more household appliances than allowed by the intermediate budget, more use of paid services, and a higher incidence of home ownership.

Budget estimates for various locations show variations in the cost of equivalent lists of goods and services, but not necessarily the same lists. Different assumptions are made regarding food, shelter, transportation, and clothing in different areas. Because clothing needs are different in various parts of the country, for example, estimates of clothing costs in Boston and Houston, say, can reflect differences not only in the prices paid for clothing but also in the weight and variety needed. Differences in the costs of medical care, on the other hand, reflect only the differences in prices.

Federal Reserve Bank of Dallas
June 1973

Statistical Supplement to the Business Review

Total credit at weekly reporting banks in the Eleventh District rose sharply in the five weeks ended May 23. With a moderate decline in total deposits, banks were forced to reduce their investment portfolios and increase their borrowings from nondeposit sources–particularly in the Federal funds market–to finance an especially large expansion in loan demand.

All major types of borrowers used their bank credit lines more than usual. Business loan demand was particularly strong, as corporations continued to borrow to finance inventory expansion. Real estate loans rebounded sharply from their rather low growth rate of recent months, and consumer loans increased somewhat more than usual. The sizable expansion in loan demand led banks to substantially reduce their holdings of both U.S. Government securities and other securities.

Total deposits declined less than usual, as net withdrawals of demand deposits were below normal for this period. Large negotiable CD's rose moderately, and reporting banks slightly increased their borrowings in both the Eurodollar and commercial paper markets.

The seasonally adjusted Texas industrial production index rose sharply in April to a level 6.0 percent above a year before. Increased manufacturing output again provided the primary impetus as mining and utilities rose only slightly.

Manufacturers of both durable and nondurable goods posted increases in production for the month. The increase in output of durable goods was paced by significant gains in primary metals, nonelectrical machinery, fabricated metal products, and stone, clay, and glass products. Among producers of nondurable goods, substantial gains were reported for petroleum refining, printing and publishing, and apparel. All manufacturing industries exceeded year-earlier production levels.

All four categories of mining reported increases in output for April, led by metal, stone, and earth minerals. Nevertheless, production of both natural gas and natural gas liquids was below April 1972 levels, and crude petroleum output showed only a slight year-to-year increase. Utilities gained 0.2 percent in April as both electricity and natural gas distribution rose slightly.

Registrations of new passenger automobiles in Dallas, Fort Worth, Houston, and San Antonio decreased 14 percent in April from an unusually high level in March. Total registrations were 27 percent higher than in April 1972. Cumulative registrations for the first four months of 1973 were 24 percent greater than for the same period in 1972.

Department store sales in the Eleventh District were 20 percent higher in the four weeks ended May 26 than in the comparable period last year. Cumulative sales through that date were 13 percent greater than in the corresponding period of 1972.

Seasonally adjusted total employment in the five southwestern states eased slightly in April, the first decline in nine months. Employment remained 3.5 percent above a year before, however. Although the labor force also contracted slightly, the unemployment rate edged up to 3.8 percent from 3.7 percent in March. This was still well below the 4.3-percent rate for April 1972.

Cutbacks in agricultural and manufacturing employment were responsible for the overall drop as nonmanufacturing employment rose slightly. Increases were reported in finance, trade, services, and government. There were substantial employment declines in construction and mining, while transportation and public utilities had only a slight decrease. Nevertheless, employment in all industries held above year-earlier levels.

Agricultural activities in the five states of the Eleventh District gained momentum in May after a slow start due to excessive moisture in the early spring. Flooding in Louisiana continued to hamper planting, but in Texas and Oklahoma, planting was nearing average completion levels. Wheat and oat crops in the District states were reaching maturity, and early yields were above average.

Range and pasture conditions in the four western states were excellent in early May. Livestock conditions were also improving as drier weather relieved feedlot stress. Texas and Arizona had more than 2.7 million head of cattle and calves on feed on May 1. Compared with year-earlier levels, this represented gains of 17 percent in Texas and 5 percent in Arizona. Both states, however, had fewer head on feed than at the start of April as marketings exceeded placements during the month.

The outlook for farm income this year in the District states re-

(Continued on back page)

CONDITION STATISTICS OF WEEKLY REPORTING COMMERCIAL BANKS

Eleventh Federal Reserve District

(Thousand dollars)

ASSETS	May 23, 1973	Apr. 18, 1973	May 24, 1972
Federal funds sold and securities purchased under agreements to resell	902,993	1,152,310	779,872
Other loans and discounts, gross	9,608,806	9,392,873	7,725,646
Commercial and industrial loans	4,310,968	4,172,179	3,479,397
Agricultural loans, excluding CCC certificates of interest	266,843	275,467	196,667
Loans to brokers and dealers for purchasing or carrying:			
U.S. Government securities	319	42	1,160
Other securities	57,524	57,132	56,823
Other loans for purchasing or carrying:			
U.S. Government securities	5,155	4,976	2,688
Other securities	523,052	523,415	456,639
Loans to nonbank financial institutions:			
Sales finance, personal finance, factors, and other business credit companies	193,845	196,519	120,964
Other	678,780	710,321	562,237
Real estate loans	1,349,137	1,291,179	1,004,214
Loans to domestic commercial banks	28,396	40,678	21,086
Loans to foreign banks	60,919	64,805	30,996
Consumer instalment loans	1,017,755	1,004,712	859,782
Loans to foreign governments, official institutions, central banks, and international institutions	500	0	0
Other loans	1,115,613	1,051,448	932,993
Total investments	3,970,615	4,115,174	3,622,480
Total U.S. Government securities	910,944	982,507	1,003,077
Treasury bills	140,973	186,256	167,081
Treasury certificates of indebtedness	0	0	0
Treasury notes and U.S. Government bonds maturing:			
Within 1 year	135,513	132,559	159,575
1 year to 5 years	470,732	507,676	509,024
After 5 years	163,726	156,016	167,397
Obligations of states and political subdivisions:			
Tax warrants and short-term notes and bills	213,896	281,307	144,290
All other	2,601,395	2,538,877	2,229,086
Other bonds, corporate stocks, and securities:			
Certificates representing participations in federal agency loans	8,581	96,723	23,104
All other (including corporate stocks)	235,799	215,760	222,923
Cash items in process of collection	1,445,551	1,429,253	1,378,532
Reserves with Federal Reserve Bank	872,795	901,095	803,356
Currency and coin	116,686	109,451	99,834
Balances with banks in the United States	416,235	401,751	421,266
Balances with banks in foreign countries	16,804	12,361	11,895
Other assets (including investments in subsidiaries not consolidated)	774,310	750,099	568,858
TOTAL ASSETS	18,124,795	18,264,367	15,411,739

LIABILITIES	May 23, 1973	Apr. 18, 1973	May 24, 1972
Total deposits	13,424,522	13,561,605	12,011,452
Total demand deposits	6,864,101	7,024,075	6,531,479
Individuals, partnerships, and corporations	4,657,615	4,883,857	4,439,995
States and political subdivisions	739,366	551,641	525,420
U.S. Government	144,667	246,844	200,919
Banks in the United States	1,178,805	1,193,571	1,243,014
Foreign:			
Governments, official institutions, central banks, and international institutions	2,613	3,720	5,372
Commercial banks	44,444	43,872	34,900
Certified and officers' checks, etc.	96,591	100,570	81,859
Total time and savings deposits	6,560,421	6,537,530	5,479,973
Individuals, partnerships, and corporations:			
Savings deposits	1,185,088	1,183,188	1,164,179
Other time deposits	3,551,008	3,487,900	2,843,814
States and political subdivisions	1,692,612	1,722,901	1,335,659
U.S. Government (including postal savings)	28,815	28,723	23,261
Banks in the United States	90,178	91,448	91,160
Foreign:			
Governments, official institutions, central banks, and international institutions	12,600	13,250	20,800
Commercial banks	120	10,120	1,100
Federal funds purchased and securities sold under agreements to repurchase	2,581,296	2,481,318	1,658,093
Other liabilities for borrowed money	201,279	372,306	34,521
Other liabilities	556,372	500,115	443,520
Reserves on loans	160,578	160,762	138,697
Reserves on securities	13,970	13,951	17,697
Total capital accounts	1,186,778	1,174,310	1,107,759
TOTAL LIABILITIES, RESERVES, AND CAPITAL ACCOUNTS	18,124,795	18,264,367	15,411,739

CONDITION STATISTICS OF ALL MEMBER BANKS

Eleventh Federal Reserve District

(Million dollars)

Item	Apr. 25, 1973	Mar. 28, 1973	Apr. 26, 1972
ASSETS			
Loans and discounts, gross	18,357	18,065	14,987
U.S. Government obligations	2,444	2,525	2,399
Other securities	6,015	5,832	5,048
Reserves with Federal Reserve Bank	1,390	1,380	1,633
Cash in vault	334	321	303
Balances with banks in the United States	1,217	1,246	1,166
Balances with banks in foreign countries[e]	14	13	12
Cash items in process of collection	1,606	1,585	1,761
Other assets[e]	1,373	1,336	1,110
TOTAL ASSETS[e]	32,750	32,303	28,419
LIABILITIES AND CAPITAL ACCOUNTS			
Demand deposits of banks	1,548	1,645	1,692
Other demand deposits	11,466	11,431	10,591
Time deposits	13,302	13,138	10,950
Total deposits	26,316	26,214	23,233
Borrowings	3,011	2,790	1,905
Other liabilities[e]	1,174	1,066	1,342
Total capital accounts[e]	2,249	2,233	1,939
TOTAL LIABILITIES AND CAPITAL ACCOUNTS[e]	32,750	32,303	28,419

e—Estimated

DEMAND AND TIME DEPOSITS OF MEMBER BANKS

Eleventh Federal Reserve District

(Averages of daily figures. Million dollars)

Date	DEMAND DEPOSITS			TIME DEPOSITS	
	Total	Adjusted[1]	U.S. Government	Total	Savings
1971: April	11,555	7,982	227	9,575	2,361
1972: April	12,470	8,696	314	10,938	2,640
May	12,268	8,530	384	11,075	2,660
June	12,320	8,553	280	11,233	2,688
July	12,529	8,694	289	11,304	2,714
August	12,420	8,824	226	11,441	2,717
September	12,619	8,933	254	11,492	2,744
October	12,866	9,034	264	11,618	2,770
November	12,844	9,321	222	12,009	2,786
December	13,439	9,688	289	12,261	2,812
1973: January	13,636	9,802	317	12,501	2,815
February	13,270	9,516	379	12,811	2,817
March	13,203	9,454	395	13,038	2,848
April	13,237	9,550	331	13,249	2,855

1. Other than those of U.S. Government and domestic commercial banks, less cash items in process of collection

RESERVE POSITIONS OF MEMBER BANKS

Eleventh Federal Reserve District

(Averages of daily figures. Thousand dollars)

Item	4 weeks ended May 2, 1973	4 weeks ended Apr. 4, 1973	4 weeks ended May 3, 1972
Total reserves held	1,767,926	1,753,796	1,884,497
With Federal Reserve Bank	1,478,645	1,468,761	1,619,285
Currency and coin	289,281	285,035	265,212
Required reserves	1,759,252	1,747,194	1,859,170
Excess reserves	8,674	6,602	25,327
Borrowings	124,547	95,053	3,187
Free reserves	—115,873	—88,451	22,140

BANK DEBITS, END-OF-MONTH DEPOSITS, AND DEPOSIT TURNOVER

SMSA's in Eleventh Federal Reserve District

(Dollar amounts in thousands, seasonally adjusted)

Standard metropolitan statistical area	DEBITS TO DEMAND DEPOSIT ACCOUNTS[1]				DEMAND DEPOSITS[1]			
	April 1973 (Annual-rate basis)	Percent change: April 1973 from March 1973	Percent change: April 1973 from April 1972	Percent change: 4 months, 1973 from 1972	April 30, 1973	Annual rate of turnover: April 1973	Annual rate of turnover: March 1973	Annual rate of turnover: April 1972
ARIZONA: Tucson	$12,174,829	2%	35%	30%	$339,768	36.0	36.1	29.9
LOUISIANA: Monroe	4,888,555	—1	22	26	118,334	40.5	41.5	36.6
Shreveport	14,962,688	—4	10	16	331,207	46.9	51.1	47.1
NEW MEXICO: Roswell[2]	1,103,584	—4	19	7	46,941	24.0	24.8	21.8
TEXAS: Abilene	2,910,463	—7	15	17	132,047	21.8	23.1	22.6
Amarillo	9,063,782	—4	25	27	218,077	41.7	44.2	40.0
Austin	14,623,007	10	17	11	433,090	33.3	28.6	32.3
Beaumont-Port Arthur-Orange	7,769,005	—1	18	14	285,901	27.4	28.0	24.4
Brownsville-Harlingen-San Benito	3,245,854	9	33	20	121,369	27.7	26.2	25.5
Bryan-College Station	1,316,550	—2	14	11	58,511	23.0	23.7	23.3
Corpus Christi	8,907,427	15	23	12	279,650	31.9	27.5	27.6
Corsicana[2]	638,436	4	32	29	40,089	15.7	15.1	14.4
Dallas	175,726,944	4	19	15	3,007,786	59.7	58.2	56.0
El Paso	10,967,242	1	19	18	302,151	34.9	34.8	33.3
Fort Worth	31,566,424	—5	12	14	887,064	36.1	39.1	36.1
Galveston-Texas City	3,553,836	—1	25	19	130,621	27.5	28.2	23.5
Houston	159,915,822	—2	16	19	3,373,435	47.9	49.3	46.0
Killeen-Temple	2,573,678	15	35	25	115,988	22.5	19.9	18.7
Laredo	1,344,844	—3	27	21	60,188	22.8	23.9	22.5
Lubbock	7,709,460	—6	34	30	216,007	36.0	38.5	30.9
McAllen-Pharr-Edinburg	3,347,550	6	30	24	167,904	20.1	19.6	18.8
Midland	2,394,260	—6	14	15	163,481	15.1	16.3	13.8
Odessa	2,277,032	11	18	11	96,320	23.3	21.2	18.2
San Angelo	1,868,964	0	11	17	92,015	21.3	22.5	21.9
San Antonio	26,185,862	2	18	15	917,396	29.0	28.3	27.7
Sherman-Denison	1,330,190	—16	4	9	80,666	16.5	19.8	17.6
Texarkana (Texas-Arkansas)	1,965,143	0	18	13	92,976	21.6	22.6	19.6
Tyler	2,908,435	—2	11	19	129,667	22.9	24.0	23.2
Waco	4,400,737	0	27	21	156,362	28.8	28.7	24.6
Wichita Falls	3,289,072	—2	16	12	144,805	23.4	24.6	22.1
Total—30 centers	$524,929,675	1%	18%	17%	$12,539,816	42.4	42.5	40.1

1. Deposits of individuals, partnerships, and corporations and of states and political subdivisions
2. County basis

CONDITION OF THE FEDERAL RESERVE BANK OF DALLAS

(Thousand dollars)

Item	May 23, 1973	April 18, 1973	May 24, 1972
Total gold certificate reserves	350,529	236,172	240,525
Loans to member banks	48,060	213,869	0
Other loans	0	0	0
Federal agency obligations	56,911	57,214	44,566
U.S. Government securities	3,409,457	3,318,590	3,200,855
Total earning assets	3,514,428	3,589,673	3,245,421
Member bank reserve deposits	1,490,531	1,485,961	1,421,267
Federal Reserve notes in actual circulation	2,280,501	2,265,558	2,111,849

VALUE OF CONSTRUCTION CONTRACTS

(Million dollars)

Area and type	April 1973	March 1973	February 1973	January—April 1973	January—April 1972r
FIVE SOUTHWESTERN STATES[1]	954	1,110	826	3,837	3,612
Residential building	477	532	460	1,930	1,774
Nonresidential building	282	439	248	1,348	940
Nonbuilding construction	195	138	117	559	898
UNITED STATES	8,814	8,644	6,839	31,063	27,005
Residential building	4,512	4,643	3,277	15,656	12,866
Nonresidential building	2,634	2,707	2,229	9,954	7,878
Nonbuilding construction	1,668	1,294	1,333	5,452	6,261

1. Arizona, Louisiana, New Mexico, Oklahoma, and Texas
r—Revised
NOTE: Details may not add to totals because of rounding.
SOURCE: F. W. Dodge Division, McGraw-Hill Information Systems Company

BUILDING PERMITS

Area	NUMBER: April 1973	NUMBER: 4 mos. 1973	VALUATION (Dollar amounts in thousands): April 1973	VALUATION: 4 mos. 1973	Percent change: April 1973 from Mar. 1973	Percent change: April 1973 from Apr. 1972	Percent change: 4 months, 1973 from 1972
ARIZONA							
Tucson	650	2,330	$16,066	$68,663	102%	79%	—10%
LOUISIANA							
Monroe-West Monroe	73	311	2,169	8,093	—3	—64	—42
Shreveport	452	1,704	4,148	37,774	—10	—35	94
TEXAS							
Abilene	80	284	1,340	10,943	—64	—47	63
Amarillo	201	596	5,552	18,722	54	199	111
Austin	516	2,024	23,966	91,037	—31	27	11
Beaumont	239	724	2,043	9,818	7	—54	7
Brownsville	105	394	3,857	11,181	284	593	159
Corpus Christi	357	1,333	4,448	23,166	4	—1	—11
Dallas	1,631	5,805	22,778	111,920	—32	5	—27
Denison	25	85	76	1,167	—75	—83	—7
El Paso	517	2,012	18,176	54,578	39	115	—19
Fort Worth	366	1,446	11,055	48,562	—40	155	117
Galveston	49	225	1,073	4,390	—54	—56	—7
Houston	2,706	9,741	55,558	272,878	—39	13	28
Laredo	37	210	470	9,011	—94	—24	92
Lubbock	198	688	9,079	32,585	—21	173	92
Midland	95	350	1,419	5,793	118	115	—38
Odessa	135	427	1,317	5,294	—6	—89	—63
Port Arthur	122	399	237	1,900	—70	—49	26
San Angelo	88	337	869	3,789	36	150	48
San Antonio	1,722	7,080	21,053	82,621	—16	—46	—1
Sherman	37	136	942	2,409	89	—44	—34
Texarkana	57	205	522	1,610	—5	—42	—51
Waco	194	788	1,660	16,358	—75	—55	51
Wichita Falls	74	315	669	6,758	—69	—25	32
Total—26 cities	10,726	39,949	$210,542	$941,020	—25%	3%	9%

DAILY AVERAGE PRODUCTION OF CRUDE OIL

(Thousand barrels)

Area	April 1973	March 1973	April 1972r	Percent change from March 1973	Percent change from April 1972
FOUR SOUTHWESTERN STATES	6,778.8	6,751.3	6,925.5	0.4%	—2.1%
Louisiana	2,359.0	2,370.3	2,416.5	—.5	—2.4
New Mexico	275.2	276.3	310.7	—.4	—11.4
Oklahoma	546.0	553.6	576.4	—1.4	—5.3
Texas	3,598.6	3,551.2	3,621.9	1.3	—.6
Gulf Coast	727.8	711.7	748.2	2.3	—2.7
West Texas	1,814.9	1,796.1	1,750.5	1.0	3.7
East Texas (proper)	248.2	244.7	218.4	1.4	13.6
Panhandle	60.8	59.3	70.0	2.5	—13.1
Rest of state	746.9	739.4	834.8	1.0	—10.5
UNITED STATES	9,342.5	9,316.4	9,489.7	.3%	—1.6%

r—Revised
SOURCES: American Petroleum Institute
U.S. Bureau of Mines
Federal Reserve Bank of Dallas

INDUSTRIAL PRODUCTION

(Seasonally adjusted indexes, 1967 = 100)

Area and type of index	April 1973p	March 1973	February 1973	April 1972
TEXAS				
Total industrial production	137.2	135.3	134.6r	129.4
Manufacturing	142.1	139.8	139.0r	130.5
Durable	156.8	154.5	154.1	141.9
Nondurable	131.5	129.3	128.2r	122.3
Mining	119.0	117.6	117.2r	119.3
Utilities	161.2	160.9	159.1r	158.8
UNITED STATES				
Total industrial production	123.0	121.8	121.1r	112.8r
Manufacturing	122.8	121.5	120.6r	111.8r
Durable	118.6	116.9	116.2r	105.8r
Nondurable	128.8	128.2	126.9r	120.3r
Mining	107.1	107.8	109.1r	109.0r
Utilities	153.0	150.9	150.4r	140.2r

p—Preliminary
r—Revised
SOURCES: Board of Governors of the Federal Reserve System
Federal Reserve Bank of Dallas

LABOR FORCE, EMPLOYMENT, AND UNEMPLOYMENT

Five Southwestern States[1]

(Seasonally adjusted)

Item	Thousands of persons: April 1973p	March 1973	April 1972r	Percent change April 1973 from: Mar. 1973	Apr 197
Civilian labor force	8,849.3	8,854.2	8,592.5	—0.1%	3.0
Total employment	8,511.2	8,522.9	8,225.1	—.1	3.5
Total unemployment	338.1	331.3	367.4	2.1	—8.0
Unemployment rate	3.8%	3.7%	4.3%	[2].1	[2]—.6
Total nonagricultural wage and salary employment	7,018.3	7,016.9	6,726.9	.0	4.3
Manufacturing	1,223.8	1,228.4	1,171.9	—.4	4.4
Durable	679.9	680.6	639.0	—.1	6.4
Nondurable	543.9	547.7	532.9	—.7	2.1
Nonmanufacturing	5,794.5	5,788.6	5,555.0	.1	4.3
Mining	232.5	234.2	230.9	—.7	.7
Construction	486.2	490.3	450.8	—.8	7.9
Transportation and public utilities	476.6	477.3	462.3	—.1	3.1
Trade	1,679.3	1,674.6	1,607.0	.3	4.5
Finance	379.6	377.2	354.5	.6	7.1
Service	1,146.0	1,143.8	1,096.6	.2	4.5
Government	1,394.4	1,391.1	1,352.9	.2%	3.1

1. Arizona, Louisiana, New Mexico, Oklahoma, and Texas
2. Actual change
p—Preliminary
r—Revised
NOTE: Details may not add to totals because of rounding.
SOURCES: State employment agencies
Federal Reserve Bank of Dallas (seasonal adjustment)

WINTER WHEAT PRODUCTION

(Thousand bushels)

Area	1973, indicated May 1	1972	1971
Arizona	13,090	11,390	11,764
Louisiana	550	690	805r
New Mexico	8,092	4,335	3,840r
Oklahoma	141,960	89,700	72,000r
Texas	83,200	44,000	31,416
Total	246,892	150,115	119,825r

r—Revised
SOURCE: U.S. Department of Agriculture

mained good as cash receipts from farm marketings continued at record levels through the first quarter. Total receipts stood near $1.9 billion, 24 percent ahead of the same period last year. Livestock receipts totaled about $1.2 billion, a gain of 24 percent over a year before, and crop receipts totaled over $700 million, up 25 percent.