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BEA Projections for the U.S., Plains, and Nebraska

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Regional and state projections of income, employment, and population recently were released by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) for 1988 through 2000. This article reports and examines BEA's projection for Nebraska. These projections are based on BEA's top-down method of allocating national projections to generate regional and state figures.

Major differences exist between top-down projections and region- or state-based projections. Are top-down projections more or less reliable than region- or state-based projections? This exercise begins with BEA's national projections.

Overall, BEA's national projections of population, employment, and income for 1988 through 2000 are in line with comparable projections by other major forecasting groups, such as the WEFA Group and Data Resources, Inc.

For example, BEA's projection of a 0.7 percent average annual population growth rate compares favorably with a rate just under 1.0 percent reported by WEFA and Data Resources, Inc. BEA projects national employment for the period to increase, on average, 1.1 percent per year. The two forecasting groups show slightly higher rates. Finally, BEA's projected average annual growth rate for the nation's personal income of 1.96 percent is bracketed by the rates reported by the two forecasting groups.

Thus, BEA's national projections of population, employment, and personal income appear realistic.

BEA expects a general slowdown in population and economic growth for the nation (Tables 1 and 2). The projected slowdown is shared by many other forecasters, such as the two forecasting groups cited earlier. The nation's population grew at an average annual rate of 1.01 percent from 1979 through 1988 (Table 1). BEA expects that rate to drop to 0.71 percent from 1988 though 2000.

In addition, BEA expects the national growth rate for real personal income to drop 0.6 percentage points. Further, BEA predicts that the nation's growth in employment will decrease 0.80 percentage points from the 1979 through 1988 pace to a rate of 1.12 percent from 1988 though 2000 (Table 2).

BEA's projections of population and total personal income can be combined to derive a projection of per capita personal income. Per capita income is given in Table 1.

From 1979 though 1988, the nation's per capita personal income grew at an average annual rate of 1.58 percent. BEA expects the per capita personal income growth rate for the nation to drop, on average, to 1.23 percent for the remainder of this century.

State Economic Scoreboard

Change from same month one year ago.
See Review and Outlook on page 8 for more details.

	State	Metro+	Nonmetro
Motor Vehicle Sales (March) Constant $	-6.7%	-5.9%	-7.3%
Nonmotor Vehicle Sales (March) Constant $	0.3%	-0.6%	1.2%
Building Activity (March) Constant $	74.4%	17.2%	159.1%
Employment (May)	5.5%	4.0%	6.9%
Unemployment Rate* (May)	2.0%	2.0%	2.0%

+Omaha and Lincoln. *Unemployment is this month's rate, not a percent change from year ago.

Table 1
Income and Population in the U.S. and Plains States

Area	Total Real Personal Income $ Millions (1982 $) 1988	2000	Annual Growth Rate (%) 1979-1988	1988-2000	Population Thousands 1988	2000	Annual Growth Rate (%) 1979-1988	1988-2000	Real Per Capita Personal Income (1982 $) 1988	2000	Annual Growth Rate (%) 1979-1988	1988-2000	% of U.S. 1988	2000
U.S.	3,255,648	4,108,386	2.56	1.96	245,807	267,741	1.01	0.71	13,245	15,345	1.53	1.23	100	100
Plains	219,538	274,131	1.32	1.87	17,759	18,825	0.42	0.49	12,362	14,562	0.89	1.37	93	95
Nebraska	19,037	24,149	0.80	2.00	1,602	1,686	0.27	0.43	11,882	14,322	0.54	1.57	90	93
Iowa	33,374	41,283	-0.18	1.79	2,834	2,981	-0.32	0.42	11,777	13,849	0.14	1.36	89	90
Kansas	31,550	39,256	1.39	1.84	2,495	2,620	0.68	0.41	12,645	14,986	0.70	1.43	95	98
Minnesota	57,611	72,217	2.13	1.90	4,307	4,657	0.72	0.65	13,378	15,508	1.41	1.24	101	101
Missouri	63,822	79,287	1.90	1.82	5,141	5,434	0.56	0.46	12,414	14,592	1.33	1.36	94	95
North Dakota	6,840	8,703	-0.24	2.03	667	698	0.25	0.38	10,254	12,461	-0.49	1.64	77	81
South Dakota	7,304	9,237	0.31	1.97	713	749	0.38	0.41	10,244	12,330	-0.07	1.56	77	80

A convergence pattern is reflected in BEA's regional projections. The convergence is apparent in its per capita personal income projections. The New England region experienced an impressive 3.4 percent average annual growth rate in per capita personal income from 1979 through 1988. BEA projects that New England's per capita personal income will drop to an average annual rate slightly under 1.0 percent from 1988 through 2000.

For the Mideast, BEA projects a similar reduction from just under 2.5 percent per year to 1.15 percent per year. BEA's projections for the Southeast show a 0.5 percent reduction in that region's per capita personal income growth rate.

Gains from convergence are in the middle parts of the country. BEA expects the Great Lakes to experience an increase in per capita personal income from an average just under 1.0 percent per year from 1979 through 1988 to an average of 1.23 percent per year from 1988 through 2000. BEA projects a similar performance for the Plains, an increase from 0.89 percent per year to 1.77 percent per year.

BEA has the Southwest and Rocky Mountain regions both experiencing a healthy recovery from the energy-based slump of the 1980s. BEA expects these two regions will experience growth rates nearly triple their miserly 0.5 percent per year growth rate from 1979 though 1988.

Finally, BEA expects virtually no change in the average annual per capita income growth rate for the West. That rate is predicted to be 1.1 percent per year for the duration of the century.

In short, regional per capital personal income growth rates from 1979 though 1988 ranged from New England's high of 3.4 percent to a low of 0.5 percent for the Southwest and Rocky Mountain regions, a spread of 2.9 percentage points. In contrast, BEA's regional projections from 1988 through 2000 indicate that the spread will be cut to 0.55 percentage points. Regional convergence clearly is a part of BEA's top-down projections, at least for per capita personal income growth rates.

The regional convergence pattern also is evident in projections for Nebraska. BEA's projection of per capita personal income for Nebraska shows nearly a quadrupling of the state's per capita personal income growth rate of 0.4 percent from 1979 through 1988 to 1.57 percent from 1988 through 2000.

Per capita personal income is total personal income divided by total population. According to BEA's projections, Nebraska's real personal income will grow 26.9 percent between 1988 and 2000. While that growth rate matches the nation's growth rate, Nebraska's per capita real personal income is expected to increase 20.5 percent, 4.6 percentage points above the expected national rate.

What implicit explanation or assumption lies behind BEA's projections to produce such an impressive projected growth rate for Nebraska's per capita personal income? To answer this query, we need to track the projection of the components of personal income.

National growth in employment is projected to decrease 0.80 percentage points to 1.12 percent for the years 1988 to 2000 (Table 2). (Nebraska's growth follows Plains' growth so closely that the Plains figures were omitted from Table 2.) Nebraska's growth in employment is expected to increase slightly from 0.8 percent to 0.88 percent. That low rate of increase is not causing the differences in personal income growth.

Earnings are a major part of personal income. Earnings include wages, salaries, benefits, and proprietors income. Earnings and employment data for the U.S. are displayed in Table 3. It is in these data where we see dramatic increases in the Nebraska outlook.

Little change in total earnings is expected at the U.S. level. The growth rate is expected to be 1.94 percent from 1988 through 2000. That earnings growth rate versus the employment growth rate of 1.12 percent implies an earnings-employment differential of 0.8 percent per year. That differential can arise from changes in hours worked, benefits, and(or) proprietors income as well as from changes in wage rates.

The earnings-employment differential for Nebraska is shown in Table 3. The change from -0.51 percent to +0.85 percent is a total change of 1.36 percent per year—a sharp contrast to the 0.7 percent increase for the U.S.

That reversal of the differential for Nebraska may be unrealistic, especially in light of the tendency for much of Nebraska's job growth to be concentrated in service employment. Many of these jobs are part time.

For example, in 1988 Nebraska's average hours worked in manufacturing were 40.5. In the main services category, it was 31.7 hours per week, on average. Within the main services category, amusement and recreation were 25.8 hours per week and membership services were 24.5 hours per week, on average.

Table 3
Earnings, Employment, and the Earnings-Employment Differential

	U.S. 1979/1988	U.S. 1988/2000	Nebraska 1979/1988	Nebraska 1988/2000
(1) Earnings Annual Growth (%)	2.02	1.94	0.29	1.73
(2) Employment Annual Growth (%)	1.92	1.12	0.80	0.88
(3) Earnings-Employment Differential (%) [(3) = (1) - (2)]	0.10	0.80	-0.51	0.85
Gain in the Differential	0.70		1.36	

Mixing part-time jobs with full-time jobs reduces total wages paid per job. That is reflected as a reduction in the earnings-employment differential. In addition, wages in the main services category are well below the manufacturing counterpart. In 1988, for example, Nebraska's average hourly earnings rate in manufacturing was $9.49. That average wage rate contrasts to an average hourly earnings in services of $6.85.

Thus, the Nebraska economy's shift toward more service-oriented jobs has a double effect on the earnings-employment differential: a lowering of the average work week and a lowering of the average hourly earnings.

The total gain in Nebraska's earnings of 1.73 percent over the next decade is still less than the gain of total personal income of 2.0 percent per year. The Nebraska figures for earnings and personal income contrast with the U.S. figures. U.S. earnings and personal income growth rates are nearly identical.

This suggests that nonearnings items in the Nebraska personal income figures are increasing more rapidly than their national counterparts. Nonearnings items include interest income and transfer payments. Transfer payments reflect social payments, such as Social Security income.

Given the data available at the time of this writing, we are unable to explain the gap between earnings and personal income in BEA's top-down projections for Nebraska.

The top-down approach forces state and regional projections to add to a national total. There are substantial differences of opinion on how to handle any residual differences that may arise between the total of the initial distribution process and the requirement that final forecasts for states and regions add to the U.S. total.

Region- and state-based projections do not impose the requirement that state data add to national totals. The latter method allows forecasters to state their perceptions of the most likely outcome for the states or regions analyzed without regard to whether they fit into a national forecasting system. The issue at hand is whether the constraint of being forced to U.S. totals improves or damages regional forecasts.

Table 2
Employment by Industry--Nebraska and the United States

	Nebraska Thousands of Jobs 1988	Nebraska Thousands of Jobs 2000	Nebraska Annual Growth Rate (%) 1979-1988	Nebraska Annual Growth Rate (%) 1988-2000	United States Annual Growth Rate (%) 1979-1988	United States Annual Growth Rate (%) 1988-2000
Total Employment	933	1,036	0.80	0.88	1.92	1.12
Farm	74	69	-2.13	-0.55	-1.78	-0.63
Nonfarm	859	967	1.10	1.00	2.04	1.16
Private	703	806	1.24	1.15	2.23	1.29
Ag Service	9	12	3.55	2.54	5.21	2.74
Mining	3	3	1.16	0.03	-1.24	-0.25
Construction	41	44	-1.31	0.55	2.06	0.76
Manufacturing	100	107	-0.22	0.60	-.83	0.27
Durable	48	50	-1.34	0.40	-1.14	0.20
Nondurable	52	57	0.93	0.78	-.35	0.38
TCU*	52	56	-0.34	0.58	1.34	1.04
Wholesale Trade	52	56	0.39	0.61	1.47	0.95
Retail Trade	154	173	0.74	0.97	2.40	1.24
FIRE**	70	78	2.23	0.92	3.56	1.13
Services	222	277	3.27	1.88	4.41	2.08
Government	156	161	0.46	0.25	1.04	0.43
Federal Civilian	18	18	0.77	0.08	0.80	0.12
Federal Military	21	21	0.34	0	1.49	-0.04
State & Local	118	122	0.44	0.32	1.01	0.59

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business* (May 1990), pp. 33-54

* TCU-Transportation, communication, and utilities

** FIRE - Finance, insurance, and real estate

Price Indexes

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Rapid increases in inflation earlier this year have called attention to price indexes and their use in measuring inflation. Such attention is warranted because of the potential misuse of price indexes.

Price indexes appear deceptively simple. Care must be taken in selecting the right index for the right problem. This article discusses three major price indexes and reviews some of the basic issues in the construction of these indexes.

The Consumer Price Index

The most commonly reported price index is the Consumer Price Index (CPI). The CPI measures the change in price of a fixed market basket of goods and services at the retail level.

The CPI reflects prices for about 400 items. Prices are collected from more than 19,000 retail establishments and 57,000 housing units in 85 urban areas across the country. The price of bread, lettuce, beer, soap, gasoline, haircuts, mortgage interest rates, physicians' fees, etc. fill the price sheet for the typical consumer's market basket used in constructing the CPI.

The CPI originated in 1913 and has been published regularly since 1921. Prices are stated in relation to base period values. The current base period is 1982-1984. The March 1990 CPI of 128.7 states that consumer prices are 28.7 percent higher than they were during 1982-1984.

In January 1978, the Bureau of Labor Statistics began publishing CPIs for two groups of population. One index, for all-urban consumers (CPI-U), covers about 80 percent of the total population. The other index is for urban wage earners and clerical workers (CPI-W) and covers about 32 percent of the population. Both indexes exclude rural areas of the country.

The CPI serves two major functions. It is used to measure purchasing power. In this respect, it provides a yardstick for revising wages, pensions, and other income payments to keep pace with price changes. It also is used as an economic indicator of the rate of inflation in the U.S. The CPI measures only consumer prices in the economy, not all prices.

An example shows how the CPI is used to measure inflation. The all-urban CPI index stood at 118.3 (with a 1982-1984 base) for 1988. The same index averaged 124.0 for 1989. Computing the percent change in the indexes for the two years measures the rate of inflation ({124.0 - 118.3}/118.3 x 100 = 4.8%).

The result means that average consumer prices were 4.8 percent higher in 1989 than they were in 1988. It is the percentage of change in the index that reflects inflation, rather than the absolute level of the index.

The importance of components of the CPI is determined by a survey of consumer expenditures. Major components and their importance are given in Table 1.

Table 1
Relative Importance of Expenditures
December 1989

Food and Beverages	17.9%
Housing	42.0%
Apparel	6.1%
Transportation	17.1%
Medical Care	6.2%
Entertainment	4.4%
Other Goods and Services	6.3%
All Items	100.0%

Note: Energy totals 7.4 percent of the CPI. Energy expenses are a subcomponent of both the housing and transportation categories

Source: Bureau of Labor Statistics

A major criticism of the CPI is the amount of weight given to the price of housing in the construction of the index. While total consumer expenditures on housing may be on the order of 42 percent of their total expenditures, critics emphasize that consumers do not buy a new house every month. Instead, house purchases are relatively infrequent.

Thus, changes in house prices from month to month will affect only consumers in the specific month in which they buy their new house. Those who choose to stay in their houses for a long term are sheltered from increases in house prices. Some economists believe that an increase in consumer wealth, through increased equity in their home brought by inflation, may spur consumers to spend more.

In addition, the way mortgage rates are handled in the housing sector has come under a great deal of criticism. When mortgage rates increase, those increases translate into increases in the CPI.

Yet at the same time, consumers who have no mortgage on their homes or those with fixed rate mortgages suffer no direct effects from increases in mortgage rates. Only those with variable rate mortgages are affected by changes in the mortgage rate. Usually those changes occur only once per year. It is important to point out that rent and utilities are also parts of the housing component.

The need to modify the CPI for these problems is widely known among economists, but long has been resisted. There appears to be no notable pressure to cure this basic problem.

The same type of criticism will apply to automobiles and other long-term durables that are purchased on occasion. While purchase patterns for automobiles are generally more frequent than those of houses, the same problem exists as in the housing sector. Because auto purchases are a much smaller part of the CPI (about 6.4 percent), little criticism has been leveled at the way they are handled in the CPI.

Recent volatility in the CPI is concentrated in two major components: food and energy. The January rise in the CPI was related to an inventory shortage of fuel on the East Coast. When extraordinary cold weather hit that part of the country, there was a rapid jump in oil prices. Similarly, once the cold weather faded, there was a fall in oil prices. That drop was augmented by some members of OPEC scrambling to increase their market share.

Similarly, the cold weather in the winter months resulted in a fruit and vegetable freeze in Florida. Thus, there was the great tomato inflation of 74.4 percent in a single month from December to January. Those skyrocketing tomato prices reversed once fruits and vegetables were purchased from Mexico rather than Florida. For the longer term, perhaps such crops as orange juice may have a carryover price problem from the freeze in the winter months. It will take a while to sort these effects.

Occasionally, there is a call for special indexes based on the CPI. For example, there is an infrequent call to create an index for senior citizens. If available, that index could be used to inflate Social Security pensions or private pensions.

In order to create such an index, we would need to know two things: the buying patterns of senior citizens and price movements of the items purchased by that group. Price movements of items purchased are readily available in the details of the CPI. All that remains is the expenditure patterns for persons age 65 and over. An indication of the buying patterns is given in Table 2.

Table 2
Relative Importance of Expenditures For Persons Age 65 and Over
First Quarter 1989

Food and Beverages	18.6%
Housing	32.7%
Apparel	3.1%
Transportation	15.1%
Medical Care	11.4%
Entertainment	3.4%
Other Goods and Services	15.6%

Source: Bureau of Labor Statistics, Report 784, April 1990

In general, we would expect to find less housing expense in the index for senior citizens, as most senior citizens already own their own houses. Similarly, senior citizens tend to have a fairly good stock of consumer durables. Many seniors are able to lengthen the replacement cycles on some durables such as their automobiles. Furthermore, their collection of blankets, sheets, towels etc. accumulated during a period of child-rearing may prove to be in excess during retirement years.

On the other hand, while food expenditures are only slightly higher, there is a high proportion of expenditures for medical expenses and energy. We have a rough indication of energy expenses in both the 65 and over group and the CPI basis. The total of utilities, fuels, public service, and gasoline is 14.4 percent for 65 and over versus 10.7 percent for the CPI group.

Of the major components of senior citizen expenses, food and energy are likely to be volatile. Their volatility depends upon such things as weather patterns and supply shortages. The medical component tends to be one with a high rate of inflation. In January 1990, the total CPI was 27.4 percent above its base value in the 1982-1984 period. The rate of increase in the medical expense portion of the CPI was double the rate of the overall index in the same period.

Thus, there is an issue that those who would pay on the basis of a senior citizen CPI would not care for the volatility or the probable high rates of increase that would characterize that index. Similarly, many of the elderly might not be willing to accept the occasional downward adjustments that may filter through their index due to a downswing in the energy and food components. I suspect that this issue will be raised again from time to time depending upon the politics of the day.

There are also CPIs available for four major regions in the United States and for 29 metropolitan areas. None of the latter are in Nebraska. These indexes often are misused to make comparisons between cities (regions).

All that the indexes tell us is how prices have changed within the specific city. They do not tell whether one city has a higher cost of living than another. To make that comparison, we would need to price one basket of goods in the different cities. Such surveys are available. City price indexes could be applied to the surveys to update price comparisons.

The American Chamber of Commerce Research Association, that issues cost-of-living comparisons for a large number of cities. The major source of difference in cost of living between cities is in the cost of housing. It is difficult to compare housing costs, because housing types and neighborhoods will vary between cities.

Producer Price Index

The Producer Price Index (PPI) is another index commonly available. Less attention appears to be focused on this index, as it has a more limited audience. In general, it is thought that the future direction of the CPI may be related to changes in the PPI. Unfortunately, the changes are not on a one-to-one basis. Because different elements are used in each of the indexes, we should not be surprised that there is not a perfect lag relationship between the two price indexes.

The PPI in former years was called the Wholesale Price Index. While the name has been changed, it still measures changes in wholesale prices. This index is important to industrial buyers and sellers and can be viewed as a measure of business prices.

The list of elements used in the PPI is broad, covering 3,100 prices. The index is based upon a survey of prices received by commodity producers. The individual prices are weighted based on the value of shipments.

The PPI is reported in stages: finished goods, intermediate goods, and crude (raw) materials. There is some thought that inflation will go through the various ranks of the PPI, starting at the bottom with crude materials and working its way to the top layer of finished goods.

The linkages aren't that smooth, however, and changes in the crude materials index may not be translated ultimately to changes in finished materials. Similar to the CPI, the PPI is vulnerable to changes in energy prices. Energy prices account for 9.2 percent of finished goods, 12.3 percent of intermediate goods, and 40.5 percent of crude materials.

For finished goods, producer prices soared in January, plateaued in February, and decreased in March. Food prices are also a major part of the PPI. Food and energy prices account for 83.5 percent of the crude materials index. Thus, the PPI is a volatile index, as was evidenced recently by the impact of the winter cold snap.

It is rare that the PPI is used on its own. The use of the index is an indicator of business inflation. But its use as a rough indicator of the general direction of the future consumer prices is somewhat questionable. The usefulness of the PPI may be more in the subcomponents themselves. Contract escalator clauses can be tied to particular prices from the index. Or a set of weighted specific prices from the PPI could be used. That set of prices could be tailored to the specific product or products that were the subject of the contract.

Implicit Price Deflator

The other major price index reported is the Implicit Price Deflator (IPD) for Gross National Product (GNP). Because it covers the entire GNP, the IPD is the broadest price index concept available. The IPD is used less than either the CPI or the PPI. In part, the lesser usage is due to a substantial lag between the period the IPD covers and its publication.

The IPD is reported with the GNP release at the end of the first month after a quarter ends. The IPD is a quarterly index and not a monthly index—a further limitation on its use. As is characteristic of the GNP accounts themselves, the IPD is subject to frequent revisions, often a problem for anyone who tries to do analysis based upon that index.

Last, the general public is simply less familiar with the IPD. Although the IPD is the broadest measure available, it probably best is used to give some historical description of directions in total inflation.

The three indexes described above are all useful, and each index has its own specific use, but misuses are a concern. Use of an inappropriate index or inappropriate use of an index are common.

Because price indexes are generally outside the area of expertise of their users, it should not surprise us that they are misused. Users should give more thought to appropriate price indexes especially when they may have a large dollar impact through, for example, an escalator clause.

Inflation and Monetary Policy

Let us now turn to the issue of inflation and government policy. Persons are concerned about inflation because of the possible reaction by the monetary authority, the Federal Reserve.

The Federal Reserve controls the money supply and, in turn, influences interest rates. Money supply and interest rates are critical to overall economic expansion.

There is no question that the Federal Reserve watches inflation closely. Historically, the Fed has been willing to intervene and make corrections in runaway inflation, sometimes even when they have to act on their own.

For example, in the Volcker era, the Fed severely constrained the money supply in order to halt inflation. Many analysts blame both the timing and the depth of the 1981-1982 recession directly on the Federal Reserve.

That recession was painful, but inflation was reduced sharply. Whether the cure was worth the cost is a political judgment beyond my province.

The Federal Reserve closely monitors movements in the CPI and the PPI to determine if changes in monetary policy are needed. The historical criticism of the Federal Reserve is that they respond too late and too severely in trying to correct inflation, and their actions ultimately contribute to economic downturns.

So far, the current Federal Reserve has been patient and has followed a gradual approach. This approach allows businesses and individuals to adjust to the Fed's policy changes.

The question we must ask is how the Fed will react to a severe increase in a sustained inflation—one that is not due simply to special factors. That set of circumstances will be a true test of the Fed's ability to control inflation without strangling the economy.

Average U.S. Household Energy Consumption and Expenditures

According to a recent U.S. Department of Energy report, the average energy consumption decreased from 137.9 million BTU per household in 1978 to 100.8 million BTU in 1987, a reduction of about 27 percent. Several factors can influence this decrease, including weather conditions, personal comfort, etc. Although consumption was lower, the average energy expenditure per household increased from $724 in 1978 to $1,080 in 1987.

In 1987, most of the energy consumption (54 percent) was directed toward space heating. About 23 percent was used by appliances and about 18 percent for water heating. The remaining amount was used primarily for air conditioning.

U.S. Household Energy Consumption and Expenditures 1978, 1981, 1984, and 1987

Item	1978	1981	1984	1987
Average Energy Consumption per Household (million BTU)	137.9	114.4	104.7	100.8
Average Energy Expenditures per Household ($)	724	1,022	1,123	1,080
Prices Paid for Energy ($ per million BTU)				
All Fuels	5.26	8.93	10.73	10.71
Natural Gas	2.69	4.55	5.97	5.41
Electricity	11.85	18.51	21.94	22.34
Fuel Oil/Kerosene	3.93	8.89	7.64	5.89
Liquefied Petroleum Gas	5.05	8.74	9.91	8.91

Source: U.S. Department of Energy, Energy Information Administration, Office of Energy Markets and End Use, Res*idential Energy Consumption Survey*, 1978, 1981, 1984, and 1987

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Buy or Rent: A Decision Framework

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The question of whether to rent or buy a residence is a universal decision. In addition to our own personal situation, many of us have been asked to advise others on the same issue.

The following general framework is offered as a practical guide for those who presently are facing the rent-or-buy question. Before proceeding, several points need to be noted. It is important to realize that the rent-or-buy decision should not be based entirely on cost factors. Intangible factors, such as a sense of security from ownership, need to be considered. Equally important, the rent-or-buy analysis needs to be based on a comparison between equivalent living units. An analysis between renting an apartment and buying a home would produce meaningless results.

The general framework for cost comparison involves three parts: net monthly cost as an owner; net monthly cost as a renter; and net savings. Each of these parts will be developed and reported separately.

The hypothetical case explored in this article involves a comparison between purchasing a house (with a purchase price of $45,000) and renting an equivalent house (with a monthly rent of $425).

Net Monthly Cost As An Owner

Several factors determine the net monthly cost. These factors include the down payment, the mortgage payment, property taxes and insurance, and income tax savings.

Down Payment

The initial investment in the purchase of any real property, such as a house, includes two components: the down payment and closing costs. A 10 percent rate will be used for the down payment, with closing costs of 2 percent. In an actual case, the down payment and closing costs are determined by the individual characteristics of each purchasing contract, attributes of the buyer, and current mortgage market conditions. A local lending institution should be consulted to determine the appropriate rates to consider.

Subtracting the down payment from the purchase price determines the amount of the loan. For this hypothetical case, the amount of the loan would be $40,500.

Purchase price	$45,000
Down payment (10% x $45,000 = $4,500)	$4,500
Amount of loan	$40,500

Mortgage Payments

To borrow the capital to purchase the home will require a monthly payment that includes an interest charge as well as some payment on principal. It is advisable to contact a representative of a local lending institution or real estate office to determine the monthly loan payment.

For this hypothetical case, a monthly payment of $355.59 will be used. That figure includes both interest and principal payments. Total payments for the first year of the loan would be $4,267 ($355.59 x 12 = $4,267.08).

Property Taxes and Insurance Cost

Property taxes depend on the assessed valuation of the property and the local mill levy. A local appraiser of property can assist in estimating the property taxes. A figure of $1,000 will be used for this case.

The approximate annual cost of property insurance for a dwelling with a market value of $45,000 is $193. Check with your local insurance agent to determine insurance cost for your specific situation.

The total cost of ownership during the first year is $5,460.08. The $5,460.08 cost figure includes total loan payments, property taxes, and insurance cost. That figure will be referred to as total gross cost.

Loan payments for first year	$4,267.08
Estimated property taxes	1,000.00
Insurance cost	193.00
Total gross cost	$5,460.08

The total gross cost of $5,460.08 needs to be adjusted to determine the total net cost for the first year.

Two factors are considered in the determination of total net cost. These factors include tax savings and equity gains. Tax savings stem from the deduction of interest charges and property taxes in computing the amount of income tax owed. The following calculations show how to figure the amount of tax savings, starting with interest charges.

Interest charges on the loan are included in the monthly loan payment. The monthly payment of $355.59 includes an interest charge of $344.50 per month. Total interest charges for the first year would be $4,134 ($344.50 x 12 = $4,134).

Interest charges and property taxes for the first year total $5,134 ($4,134 + $1,000 = $5,134). Using a conservative 15 percent tax bracket, the total of $5,134 in property taxes and interest charges would yield an income tax savings of $770.10 ($5,134 x 15% = $770.10).

Equity is the second factor used in calculating total net cost. Equity accumulation involves appreciation value plus the amount of principal paid as part of the monthly payment to the lending institution. Using a conservative estimate of 2 percent produces $900 in appreciation for the first year ($45,000 x 2% = $900).

In addition to the $900 of accumulated equity due to appreciation, there is the principal build-up through the monthly payment to the lending institution. The monthly payment of $355.59 to the lending institution includes $11.09 for principal. Total principal for the first year would be $133.08 ($11.09 x 12 = $133.08).

The total for equity accumulation and principal for the first year is $1,033.08 ($900 + $133.08 = $1,033.08).

Subtracting the equity and principal total of $1,033.08 and the tax savings of $770.10 from total gross cost of $5,460.08 gives the total net cost for the first year. Total net cost for the first year equals $3,656.90 ($5,460.08 - $1,803.18 = $3,656.90).

On a monthly basis, total net cost would equal $304.74 ($3,656.90/12 = $304.74). The monthly net cost figure of $304.74 can be compared directly with an adjusted monthly rent figure to answer the rent-or-buy question.

Net Monthly Cost As A Renter

For purposes of this hypothetical example, a monthly rate of $425 will be used to represent the current rent for a comparable house. Total rent for the first year would equal $5,100 ($425 x 12 = $5,100).

Annual rent needs to be adjusted for imputed interest income from a savings account that represents money not used to purchase a comparable house.

At a 7 percent rate of interest, interest income for the first year from a savings account of $5,400 would equal $378 ($5,400 x 7% = $378). ($5,400 represents the sum of the closing cost and down payment used earlier in this hypothetical example, i.e., $900 + $4,500 = $5,400.) Deducting the $378 in imputed interest income from the first year's rent yields a net rent of $4,722 ($5,100 - $378 = $4,722).

On a monthly basis, net rent would equal $393.50 ($4,722/12 = $393.50).

Net Savings

For the particular figures and assumptions used in this hypothetical case, it would be financially beneficial to purchase rather than rent a comparable house. Net rent is $393.50 per month. That figure compares with a net cost of ownership of $304.74 per month, for a savings of $88.76 per month or $1,065.12 for the first year.

Different figures and different assumptions can yield different results.

The purpose for this article is to offer a practical framework to those who are facing the rent-or-buy decision. The framework allows adjustments in any of the relevant factors, such as equity accumulation, interest charges, etc. Current and site-specific rates need to be used to derive meaningful and useful results.

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Review and Outlook

John S. Austin, Research Associate
UNL Bureau of Business Research

National Outlook

One of the most important recent economic stories was the President's announcement of tax concessions to help resolve the deficit issue. The savings and loan crisis likely was the precipitating cause for the President's move, as that crisis emphasized the deficit problem. The press used the announcement as a way to draw battle lines within Congress.

Cooperation rather than positioning, however, is required to make progress on this issue. An election year is a bad time to confront the deficit issue. Some political leaders are arguing that they should try to finish their work by mid-July.

We may see politicians delay significant progress until after the election, however, or even as late as the beginning of the new Congress. But at least serious discussion on taxes has started.

A likely outcome of the deficit compromise will be a repair of the tax bubble problem in the income tax system. Presently, tax rates peak at 33 percent of taxable income for persons on the low end of the upper income structure. That rate, however, drops to 28 percent for the wealthiest taxpayers. I suspect that the tax bubble will be eliminated, perhaps with a compromise that will lower the overall maximum rate.

Other likely targets are added taxes on alcohol, tobacco, and gasoline. It is argued that these taxes impact low income persons more severely than high income earners. Thus, the tax compromise could alienate both ends of the income distribution. Any speculation that the deficit compromise will result in an overcorrection is unfounded. In an election year, it's more likely that correction will be too small rather than too large.

Overall government spending is still a problem. There is some question about what will be done with the peace dividend. Although an obvious solution would be to dedicate large parts of that peace dividend to deficit reduction, there are likely to be those in Congress who will push their favorite underfunded programs.

A maximum spending ceiling for each fiscal year is needed desperately. That ceiling should be established in light of current economic conditions and the size of the deficit. Congress then can spend its time allocating total spending to various programs within these limits.

Mixed reports of activity characterize the plateau economy, as described in last month's issue of *Business In Nebraska*. The gloom and doomers are blowing the dust off their recession forecasts. Most of those forecasts are based upon a collapse of confidence, especially among consumers and businessmen.

The concept has some backing—retail sales dropped 0.7 percent in May. Retail sales have fallen for three months in a row, with a peak in retail sales in January of this year. In April retail sales fell 0.9 percent, following a 0.4 percent drop in March.

Furthermore, the Conference Board's Index of Consumer Confidence is down somewhat from last year. The index remains above 100, however. Consumers

Table I
National Indicators

	Annual		Quarterly (SAAR)			
	1988	1989	1989:II	1989:III	1989:IV	1990:I
Real GNP (% change)	4.4	3.0	2.5	3.0	1.1	1.9
Real Consumption (% change)	3.4	2.7	1.9	5.6	0.5	1.6
Housing Starts (millions)	1.5	1.3	1.4	1.3	1.3	1.4
Auto Sales (millions)	10.6	9.9	10.3	10.8	8.7	9.7
Interest Rate (90 day T-bill)	6.7	8.1	8.4	7.8	7.6	7.8
Unemployment Rate (%)	5.5	5.3	5.3	5.3	5.3	5.3
Money Supply, M2 (% change)	5.1	4.0	1.6	6.9	7.0	6.2
Industrial Production Index) (1987=100	105.4	108.1	108.4	108.1	108.1	108.3

NOTE: SAAR—Seasonally Adjusted at Annual Rates
Source: Bureau of Economic Analysis

are feeling good about the future, but perhaps are a bit less jubilant than they were last year at this time. Despite the drop in retail sales and somewhat softened consumer confidence, the probability of a recession in the near horizon is small.

In spite of a small rise in the latest Industrial Production Index, the real goods-producing sector is virtually flat. It is not unusual to see this flatness. Figure A shows the history of the Industrial Production Index. That history is one of short growth spurts followed by relatively long plateaus.

Furthermore, once a downturn occurs, it takes a long time for the Industrial Production Index to return to prerecession levels. In 1984 to 1986 we had a prolonged plateau, with only a slight gain over the two year period. Even so, a recession did not ensue from that period of flatness. Instead, growth began in 1987, swiftly rising until the beginning of 1989. In early 1989, the index hit another plateau.

With industrial production flat, it is no surprise that investment plans have been reduced. Businesses still plan to increase their investment for 1990 over 1989 levels. Especially noticeable are large increases in plans for air transport investment on the order of nearly 40 percent and for commercial development investment on the order of 9.4 percent. All other major components of the nonresidential investment block are showing anticipated gains of 5 percent or less.

The key to a recession remains the interest and inflation area. Recent discussion has turned to distribution problems. Some argue that small businesses are suffering from a rationing of credit. Furthermore, the housing industry is in a major slump due to rationing of mortgage credit. On an overall basis, the Fed argues that funds are ample and that inflation has cooled. Most sectors of the economy are in good shape.

The major exception is housing. That sector has taken a beating, with the May figure for housing starts showing the lowest figure since October 1982. A large part of the downturn has been in the multiple family area. As a general rule, the Midwest residential construction has been an exception. Should mortgage rates fall in the near term, the housing sector could turn around on a national basis.

Auto sales rebounded in late June, gaining 11.9 percent from year ago figures. This was the only period in the second quarter when auto sales exceeded their year ago levels. U.S. domestic manufacturers have taken most of the downturns. Japanese transplant vehicles are doing well. The U.S. plants of both Honda and Toyota are showing 60 percent increases in sales over last year. The Japanese share, including imports and transplants, grew to 28 percent of the U.S. market in the first half of this year.

Figure A
Monthly Industrial Production Index
1967 to Present
(1987 = 100)

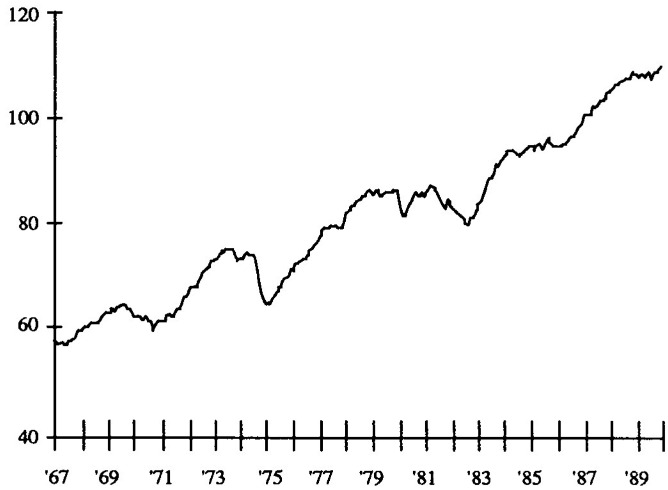


Table II
Employment in Nebraska

	Revised April 1990	Preliminary May 1990	May % Change vs. Year Ago
Place of Work			
Nonfarm	722,725	729,776	2.7
Manufacturing	95,716	95,791	1.6
Durables	46,924	46,802	0.8
Nondurables	48,792	48,989	2.4
Mining	1,562	1,628	3.5
Construction	25,223	25,480	2.2
TCU*	46,511	46,764	2.5
Trade	185,186	186,272	0.8
Wholesale	55,150	55,462	2.6
Retail	130,036	130,810	0.1
FIRE**	48,325	48,332	0.7
Services	173,501	174,681	4.0
Government	146,701	150,828	5.5
Place of Residence			
Civilian Labor Force	837,778	846,085	4.56
Unemployment Rate	2.4%	2.0%	

*Transportation, Communication, and Utilities
**Finance, Insurance, and Real Estate

Source: Nebraska Department of Labor

Table III
Price Indices

	May 1990	% Change vs. Year Ago	YTD % Change vs. Year Ago
Consumer Price Index - U* (1982-84 = 100)			
All Items	129.2	4.4	5.0
Commodities	121.4	3.3	4.6
Services	137.6	5.2	5.2
Producer Price Index (1982 = 100)			
Finished Goods	117.7	3.1	4.4
Intermediate Materials	112.9	0.2	1.1
Crude Materials	104.2	-2.0	2.0
Ag Prices Received (1977 = 100)			
Nebraska	169	6.3	2.8
Crops	135	-5.6	-8.3
Livestock	190	11.8	7.9
United States	154	3.4	2.6
Crops	135	-4.3	-4.6
Livestock	172	10.3	8.5

U* = All urban consumers
Source: U.S. Bureau of Labor Statistics

The GNP revision process continues its amusing display. Additional exports were discovered for the first quarter in the latest data. Starting with an advanced (first) report of real GNP increasing in the first quarter of this year 2.1 percent, the preliminary (second report) showed that GNP increased only 1.3 percent. In the final report (third) on GNP, real GNP shows an increase of 1.9 percent.

The inventory problem we reported in last month's issue of *Business In Nebraska* is the major retarding force on the first quarter numbers. The final report will be revised in late July. That revision will accompany an annual revision of all the GNP figures. We also will receive our first guess at second quarter GNP at that time. It surely will be revised in ensuing months.

Inflation in May gained moderately. The Producer Price Index advanced 0.3 percent from the previous month. That reversed a three month fall in producer prices.

The downturn helped correct an energy price run during the winter. West Texas crude oil remains below $18 a barrel. Crude oil stocks are ample. Thus, we see little pressure on wholesale energy prices at this time.

The Consumer Price Index (CPI) advanced only 0.2 percent in May, but was still 4.4 percent ahead of year ago levels. Medical care showed an increase of 9.0 percent versus a year ago. This particular component of the CPI has gained steadily at rates well above the overall rate for the CPI for several years now.

Nebraska Outlook

Despite violent weather during the spring, Nebraska farmers continued to do well. Subsoil moisture is 25 percent short, whereas a year ago it was 93 percent short.

Spring weather has brought some hail damage. Replanting already has started on some damaged crops. In addition, flooding has destroyed some corn and wheat.

Weather patterns are highly variable across the state. For the period April 1 through June 29, the northwest area of the state had only 70 percent of normal accumulation. The high was 116 percent of normal accumulation in the flooded northeast part of the state. Record high temperatures were reported in some parts of the state.

Table IV
City Business Indicators
March 1990 Percent Change from Year Ago

The State and Its Trading Centers	Employment (1)	Building Activity (2)
NEBRASKA	4.9	83.3
Alliance	2.3	-51.9
Beatrice	3.8	151.9
Bellevue	2.9	43.8
Blair	2.9	-81.6
Broken Bow	2.6	42,338.2
Chadron	6.9	-24.7
Columbus	6.8	-3.0
Fairbury	2.7	61.0
Falls City	8.1	-2.3
Fremont	8.7	35.2
Grand Island	4.4	-1.2
Hastings	5.7	56.7
Holdrege	2.6	164.6
Kearney	5.3	128.7
Lexington	7.5	29.5
Lincoln	4.2	12.6
McCook	2.7	147.7
Nebraska City	-0.5	161.9
Norfolk	10.9	49.8
North Platte	9.4	33.6
Ogallala	7.8	69.4
Omaha	2.9	28.5
Scottsbluff/Gering	3.4	54.3
Seward	5.7	118.2
Sidney	4.6	-62.1
South Sioux City	3.0	-63.3
York	10.4	-14.6

(1)As a proxy for city employment, total employment (labor force basis) for the county in which a city is located is used

(2)Building activity is the value of building permits issued as a spread over an appropriate time period of construction. The U.S. Department of Commerce Composite Cost Index is used to adjust construction activity for price changes

Sources: Nebraska Department of Labor and reports from private and public agencies

Figure I
City Business Index
March 1990 Percent Change from Year Ago

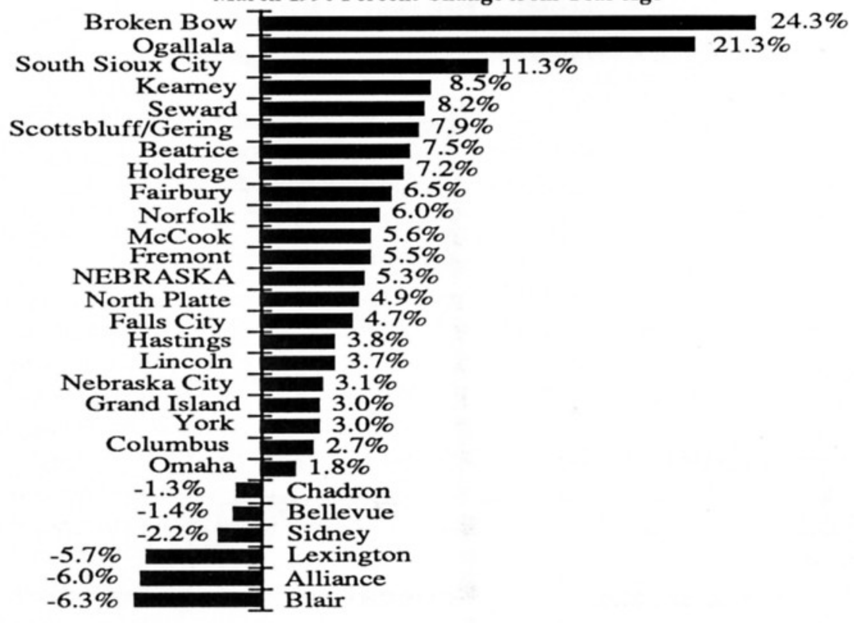
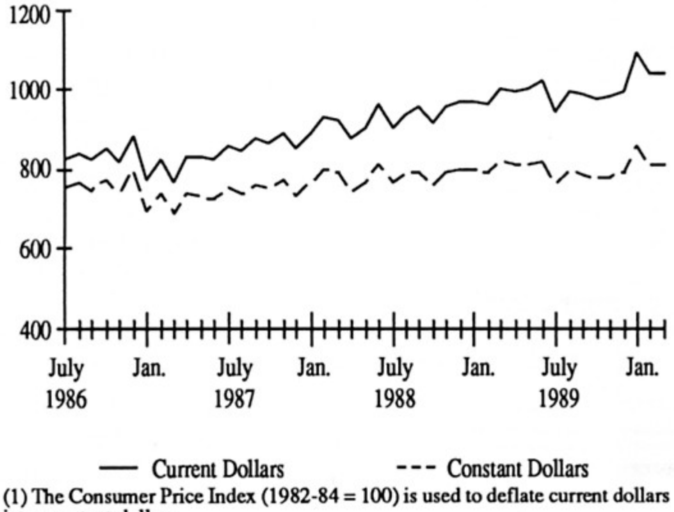


Table V
Net Taxable Retail Sales of Nebraska Regions and Cities

Region Number and City (1)	City Sales (2) March 1990 (000s)	City Sales (2) % Change vs. Year Ago	Region Sales (2) March 1990 (000s)	Region Sales (2) % Change vs. Year Ago	YTD % Change vs. Year Ago
NEBRASKA	$925,012	5.5	$1,055,284	4.5	8.0
1 Omaha	313,339	3.5	386,658	2.7	8.4
Bellevue	12,526	-5.4	*	*	*
Blair	4,862	6.5	*	*	*
2 Lincoln	121,300	8.1	140,934	7.4	7.1
3 South Sioux City	6,270	40.0	8,474	28.9	30.2
4 Nebraska City	3,703	2.0	19,145	9.7	9.0
6 Fremont	16,421	5.4	30,709	4.6	9.3
West Point	3,039	7.5	*	*	*
7 Falls City	2,355	7.9	9,798	-0.4	4.0
8 Seward	5,031	9.5	16,085	4.2	8.0
9 York	6,747	3.0	15,935	-0.5	-0.1
10 Columbus	15,840	4.8	29,345	2.4	6.6
11 Norfolk	19,425	3.3	35,959	5.5	4.7
Wayne	2,781	-0.9	*	*	*
12 Grand Island	35,798	7.6	51,181	6.8	7.4
13 Hastings	15,824	2.9	27,249	6.8	1.5
14 Beatrice	8,539	8.3	19,752	6.8	9.5
Fairbury	2,775	12.3	*	*	*
15 Kearney	20,055	10.3	28,576	6.8	1.7
16 Lexington	5,760	-19.2	17,161	-5.7	-0.8
17 Holdrege	4,764	8.3	9,031	3.2	4.8
18 North Platte	15,014	3.5	19,491	4.7	9.4
19 Ogallala	5,731	41.4	11,813	21.8	5.9
20 McCook	8,191	5.2	11,817	2.1	0.3
21 Sidney	3,722	6.1	7,882	2.5	2.0
Kimball	1,779	7.4	*	*	*
22 Scottsbluff/Gering	18,814	15.2	26,566	4.8	4.3
23 Alliance	5,124	-3.1	13,222	-4.9	0.0
Chadron	2,632	-1.9	*	*	*
24 O'Neill	4,113	1.7	14,745	9.8	5.9
Valentine	2,356	10.4	*	*	*
25 Hartington	1,785	28.1	8,807	2.9	2.4
26 Broken Bow	3,236	-9.2	11,712	-4.2	1.4

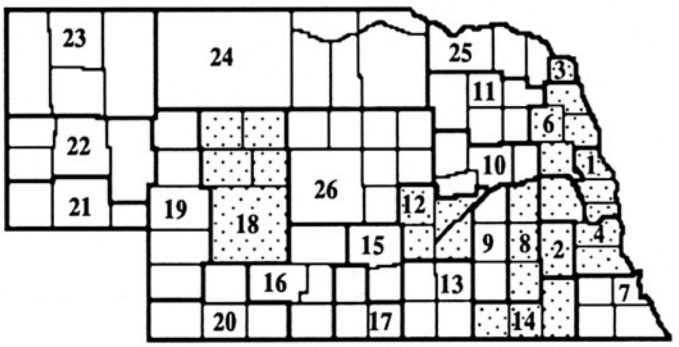
(1) See region map
(2) Sales on which sales taxes are collected by retailers located in the state. Region totals include motor vehicle sales
* Within an already designated region
Compiled from data provided by the Nebraska Department of Revenue

Figure II
Nebraska Net Taxable Retail Sales
(Seasonally Adjusted, $ Millions)



(1) The Consumer Price Index (1982-84 = 100) is used to deflate current dollars into constant dollars

Figure III
Region Sales Pattern
YTD as Percent Change from Year Ago



Shaded areas are those with sales gains above the state average. See Table V for corresponding regions and cities

Retail sales in Nebraska advanced 4.5 percent in March, 8.0 percent on a year-to-date basis through March. These gains are shared across the state, with only two regions showing sales below year ago levels on a cumulative basis.

As in the case of the U.S., January was a peak for retail sales in our state. Nevertheless, March levels of retail sales were at healthy levels.

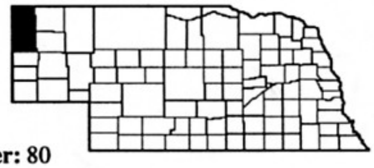
Nebraska's construction sector continues to do well. The building permits number in the scoreboard on page 1 shows a dramatic increase. While things are in good shape in the construction area, I do not expect that permit number to be repeated in the future.

According to F.W. Dodge, on a five month accumulated basis through the end of May, the value of total construction activity showed a 40 percent gain over year ago levels. The nonbuilding and building construction areas both share in that gain. This year's accumulated activity through May shows a doubling of values over last year's figures for both commercial and manufacturing building. Total nonresidential building activity has increased 88 percent.

Unemployment in the state remains low at 2.0 percent in May. Lincoln's unemployment was 1.6 percent, the lowest since November 1973 when it was 1.5 percent. Job advances in the area of 2.5 percent to 3.0 percent for the last year and a half help explain the low unemployment rate in our state.

County of the Month

Sioux



Harrison--County Seat

License plate prefix number: 80

Size of county: 2,063 square miles, ranks 6th in the state

Population: 1,600 (estimated) in 1988, a change of -12.1 percent from 1980

Median age: 33.8 years in Sioux County, 29.7 years in Nebraska in 1980

Per capita personal income: $17,567 in 1989, ranks 8th in the state

Net taxable retail sales ($000): $3,420 in 1989, a change of +0.7 percent from 1988; $759 during January-March 1990, a change of +3.4 percent from the same period one year ago

Number of business and service establishments: 34 in 1987; 76 percent had less than five employees

Unemployment rate: 1.5 percent in Sioux County, 3.1 percent in Nebraska for 1989

Nonfarm employment (1989):

	State	Sioux County
Wage & salary workers	705,672	176
	(percent of total)	
Manufacturing	13.4%	*
Construction and Mining	3.6	*
TCU	6.5	*
Retail Trade	18.5	9.7%
Wholesale Trade	7.6	6.3
FIRE	6.8	*
Services	23.7	6.8
Government	19.9	53.4
Total	100.0%	100.0%

Agriculture:

Number of farms: 353 in 1987, 365 in 1982

Average farm size: 3,180 acres in 1987

Market value of farm products sold: $39.6 million in 1987 ($112,318 average per farm)

Sources: U.S. Bureau of the Census, U.S. Bureau of Economic Analysis, Nebraska Department of Labor, Nebraska Department of Revenue

*Data not available because of disclosure suppression

Merlin W. Erickson

Business in Nebraska

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