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THE CRUDE OIL WINDFALL PROFIT TAX

On April 2, President Carter signed into law the Crude Oil Windfall Profit Tax Act of 1980 (Act, hereafter). The purpose of the Act is to collect from producers of domestic crude oil and royalty holders of oil-producing properties a portion of the so-called "unearned profits" which are received due to price increases of oil on world markets. These increases have mainly been due to actions of the Organization of Petroleum Exporting Countries (OPEC). Although Nebraska accounts for a very small proportion of domestic oil production, there are several reasons for presenting a discussion of the tax here. First, oil production is an important income source for a number of counties in Nebraska, all of which, with the exception of Richardson County, are in the western part of the state. Second, the geographical distribution of royalty interest ownership in Nebraska oil includes numerous counties and other states. Third, the tax is a major component of national energy policy and will therefore affect every citizen of the United States in some way. Before summary judgments about the tax can be made, it is only logical that the mechanics of the tax be understood. As is the case with most revenue legislation, the Act contains a maze of deductions, exclusions, special treatments, and unique provisions, too numerous to present all of them here. However, there are common themes in the Act which form the basis for administering the tax. These will be discussed.

The Act, as signed by the President, imposes a set of tax rates on various classifications of oil production and types of producers *at the barrel level,* and is designed to collect a net total of $227.3 billion before a 33-month phaseout of the tax begins. The Secretary of the Treasury is responsible for initiating the phaseout period, once it is determined that the $227.3 billion total (net of tax refunds and Federal income tax reductions for producers due to the windfall tax) has been collected. The Act stipulates that the beginning of the phaseout period will be the month following the *later* of December 1987 or the month in which the Secretary of the Treasury declares that the $227.3 billion goal has been reached. Should tax receipts attain the goal more quickly than anticipated, total taxes collected until complete phaseout will exceed the target by a substantial amount. The funds have been earmarked for three uses: income tax reductions, low-income assistance, and energy and transportation programs. For any given year, the basic net revenues will be allocated as follows: 60 percent for income tax reductions, 25 percent for low-income assistance, and 15 percent for energy and transportation. If the total taxes collected in any given year exceed projections, one-third of any additional amounts will be allocated to low-income assistance and the remaining two-thirds to income tax reductions.

In the broadest terms, the tax to be collected on a given barrel of oil is determined by applying a tax rate only to that fraction of the barrel's price that is considered to be a windfall profit. This windfall profit (*WP*) amount is calculated as:

(1) *WP* = (Removal price – Adjusted Base Price) (1 – State Severance Tax Rate),

while the actual windfall profit tax (*WPT*) collected is:

(2) *WPT* = tax rate x *WP*.

The removal price of oil is the amount for which the barrel is sold to the first purchaser. The other components will be discussed in each formula below. The tax applies to all domestic crude oil, with the exception of certain types of oil that have been exempted.

PRODUCTION CLASSES, PRODUCER CLASSES, AND TAX RATES

Oil which is not exempt is classified by the Act into three "tiers." Tier Three includes newly discovered oil (oil taken from a property where production began after January 1, 1979), heavy oil (16 degrees API or less at 60°F), and incremental tertiary oil (oil which is recovered in a qualified project using tertiary recovery methods, such as carbon dioxide injection). Tier Two contains "stripper" oil and oil from an interest in a National Petroleum Reserve, and excludes all Tier Three oil. Under the Act, a stripper well is one which has not produced more than an average of 10 barrels of oil per day during any twelve-month period after December 31, 1972. Finally, Tier One oil is taxable oil which is not categorized as Tier Three or Tier Two, and might be termed "old" oil.

Six basic tax rates are specified in the Act, the result of two classifications or types of producers and the three classifications or types of production previously noted. The Act classifies producers into two groups, independent producers and nonindependent producers. Nonindependent producers are those firms who not only remove crude oil from the ground but are also involved in the further processing of the oil for sale, and who own either refineries or retail outlets in addition to working interests in the wells themselves. Independent producers, on the other hand, are involved only with the initial production of crude oil. However, should an independent produce more than 1,000 barrels of oil daily, the tax rates of the nonindependent producers are applicable to any amounts of oil which exceed the 1,000 barrels per day limit.

Given the above producer and tier classifications, the six tax rates to be applied to windfall profits are as follows:

(Continued on page 2)

(Continued from page 1)

	Tier 1	Tier 2	Tier 3
		(in percent)	
Independent Producers	50	30	30
Nonindependent Producers	70	60	30

Royalty interests are taxed at the same rates as the nonindependent producers (the highest set of rates), even though the property may be operated by an independent producer. It is important at this point to recall that the above rates are *not* directly applied to the removal price of oil, but rather to the windfall profit portion of a barrel's price which was shown in Formula (1).

ILLUSTRATION OF THE TAX COMPONENTS

Although many details are involved in computing the actual tax and net price per barrel (after-tax price), two merit special note here. First, the tax per barrel cannot exceed 90 percent of the net income attributable to that barrel, where

$$\frac{\text{Net Income Attributable}}{\text{Barrel}} = \frac{\text{Taxable income of property in taxable year attributable to taxable crude oil}}{\text{No. of barrels of taxable crude oil produced from the property during the taxable year.}}$$

Next is the term *base price,* possibly the most important concept in the Act. There are base prices for each tier, and they are designed to give an approximation of the price which would be carried by crude oil produced in the United States had there been no OPEC affecting the world market price. Thus, the concept is essentially a creation of U.S. energy policy. The base price for each tier is adjusted upward in each taxable period to reflect the overall inflation in the economy. It is this adjusted base price which appears in Formula (1) for the windfall profit of a given barrel.

Table 1 will aid in the description of the calculations involved in the Act. The columns are each labeled by a letter which will be used in the calculation of the tax in the examples to be given later. Column A is the removal price per barrel of oil produced. These future prices were obtained from the High Plains-Ogallala Aquifer Study in which the authors are currently participating. The removal price as shown in the table is an "average" of expected prices, taking into account current pricing schemes, current oil classification schemes, and the ongoing deregulation of domestic oil prices. Column B shows the Windfall Profit Tax (*WPT*) rates according to the type of producer and production. Column C indicates the percentage of the tax rate to be applied in a given year. For those years in which the tax is in full force, this figure is 100 percent. In 1980, the tax is to be applied beginning March 1, so the tax is in force only for the final ten months of 1980. The percentage of the tax applicable in 1980 is, thus, 83 1/3 percent. The percentages of the applicable tax rates for the years 1988-1990 are reduced due to the phaseout of the tax. It is assumed that revenues will attain the $227.3 billion goal during or before December, 1987. To incorporate the effects of the phaseout period, the tax rate will be multiplied by the phaseout percentage, which will drop at a rate of 3 percent per month. Over the first year of the phaseout (1988), the effective annual percentage rate would be about 80.5 percent, the next year would carry an effective rate of about 44.5 percent, and the final phaseout year would carry an effective rate of about 9.6 percent.

Column D contains the base prices which result from the specified calculations in the Act. For Tier One oil, the Act specifies that the base price be the ceiling price for "Upper Tier" oil (an oil type defined under current pricing schemes that are being gradually dismantled) sold in May 1979 less 21 cents. Since the "Upper Tier" ceiling price was $13.02 per barrel at that time, the base price for Tier One oil is therefore $12.81 per barrel. The base prices for Tiers Two and Three oil are to be set by the Secretary of the Treasury, who, at the time of this writing, has not yet issued the price. The Act does specify, however, that the eventual base prices should approximate, with respect to oil of any grade, quality, and field, the December 1979 prices for oil in those categories, under the assumption that all domestic crude was uncontrolled and that the average removal price for all domestic crude oil was $15.20 per barrel for Tier Two and $16.55 for Tier Three.

Until the Secretary arrives at the base prices for Tiers Two and Three oil, an "Interim Rule" is in effect. The rule states that the Tier Two base price for a particular property will be found by multiplying the highest posted price for uncontrolled crude oil of the same grade, quality, and field on December 31, 1979 by the

Table 1
COMPONENTS OF THE WINDFALL PROFIT TAX CALCULATION

	A	B		C	D		E		F
Year	Removal Price/BBL	Windfall Profit Tax Rate (%)		% of WPT Applied	Base Price		Inflation Adjustment Tiers 1 & 2	Inflation Adjustment Tier 3	Severance Tax Rate (%)
			Ind.	Nonind.					
1980	$24.80			83.33			1.05	1.06	2.12
		Tier 1	50	70	Tier 1	$12.81			
		Tier 2	30	60	Tier 2	15.20			
		Tier 3	30	30	Tier 3	16.55			
1981	27.74			100.0			1.14	1.18	2.10
1982	31.02			100.0			1.22	1.29	2.10
1983	34.70			100.0			1.31	1.41	2.10
1984	38.80			100.0			1.40	1.54	2.10
1985	43.40			100.0			1.50	1.68	2.10
1986	46.62			100.0			1.60	1.83	2.10
1987	50.09			100.0			1.72	2.00	2.10
1988	53.81			80.46			1.84	2.19	2.10
1989	57.81			44.46			1.96	2.38	2.10
1990	62.10			9.64			2.10	2.60	2.10
1991	66.71			0.0			2.25	2.84	2.10

fraction $\frac{\$15.20}{\$35.00}$. If the highest posted price was $35.00 per barrel at that time, the base price without adjustments would be $15.20, since the $35.00 figures would cancel. For Tier Three oil, the highest posted price is to be multiplied by $\frac{\$16.55}{\$35.00}$. In the event that no oil in the field was uncontrolled, the posted price is taken from the nearest field in which there was uncontrolled oil of a similar grade and quality. The calculations which follow below are made under the assumption that the highest posted price was, indeed, $35.00 per barrel on December 31, 1979.

It should be emphasized that the base prices shown in Table 1 are only averages, and are thus applicable only to an "average" grade, quality, and field where the oil is removed from the ground. Only in this way could any type of aggregate analysis be performed. In addition, the removal prices shown are forecasted average prices for Nebraska oil and the actual removal price on any particular property may vary from the price shown. Producers will, of course, use the actual removal price of their oil in the calculation of their taxes.

Column E in Table 1 shows the inflation adjustment factors used to inflate the base price and arrive at the adjusted base price. For Tiers One and Two, the inflation adjustment factor in any quarter is the ratio of the Gross National Product (GNP) deflator two quarters ago to the GNP deflator in the second quarter of 1979. For Tier Three, the factor is the deflator ratio multiplied by $(1.005)^n$ where n is the number of calendar quarters beginning after September 1979 and before the calendar quarter in which the oil is removed. An annual increase of 7 percent in the deflator was assumed throughout the duration of the tax. Since the deflator may be revised a number of times, the Act specifies that the first revision of the deflator is to be used. Note that an adjusted base price will, in practice, be calculated every quarter, since tax liabilities are determined on a quarterly basis. In the present analysis, however, the removal prices are available only on an annual basis and may be viewed as pertaining to midyear. Thus, the inflation adjustment factors (quarterly concepts) were modified appropriately to be on an annual basis.

Column F is the severance tax adjustment. The Act allows state severance taxes collected on the difference between the removal price and the adjusted base price to be deleted from that difference before the relevant windfall tax rate is applied. Alternatively, this adjustment may be viewed as decreasing from 100 percent the percentage of the difference between the removal and adjusted base price that is subject to the windfall tax. (See Formula (1) for windfall profits.) State severance taxes are therefore not a dollar-for-dollar credit. In Nebraska, the severance tax rate applied to the value of oil produced is 2 percent. However, the Act defines a severance tax as a tax imposed by a state on the extraction of oil and determined on the basis of the gross value of the extracted oil. Nebraska also imposes an oil conservation tax which fits the Act's description of a severance tax. The conservation tax was reduced from .15 percent to .1 percent on July 1, 1980. Thus, for the years after 1980, the severance and conservation tax rate will be 2.1 percent. For 1980, the old rate of 2.15 percent applies for the months March-June, and the new rate of 2.1 percent will apply for July-December. For this reason, the 1980 weighted average severance and conservation tax rate to be used in the present calculations is 2.12 percent.

TAX CALCULATION EXAMPLES AND NEBRASKA EFFECTS

Using the Conference Report on the Crude Oil Windfall Profit Tax Act of 1980,[1] the formula for calculating the windfall tax on a particular barrel can be developed. Employing the letters on the columns in Table 1 as variables, the formula can be written as follows:

$$WPT_{ijt} = (B_{ijt} \cdot C_t) \cdot [(A_t - (D_i \cdot E_{it})) (1 - F_t)]$$

where WPT_{ijt} = Windfall Profit Tax for production tier i (i = 1, 2, 3) and producer class j (j = independent, nonindependent) in time period t.

Table 2 shows the resulting tax per barrel of crude oil for each type of producer and classification of oil, using the formula above. To seek the tax on, say, a barrel of Tier One oil removed by an independent producer in 1980, the following figures from Table 1 would be used: A = $24.80, B = 50 percent, C = 83.33 percent, D = $12.81, E = 1.05, and F = 2.12 percent, and would be placed in the formula above as follows:

$$WPT = (.5 \cdot .8333) \cdot [(24.80 - (12.81 \cdot 1.05)) (1 - .0212)]$$
$$= \$4.63 \text{ per barrel.}$$

Suppose the per barrel tax on new oil in 1980 was sought. As can be seen in Column B of Table 1, oil in this category is taxed at the rate of 30 percent, regardless of the classification of the producer removing it. To calculate the tax, the following formula would be used:

$$WPT = (.3 \cdot .8333) \cdot [(24.80 - (16.55 \cdot 1.06)) (1 - .0212)]$$
$$= \$1.78 \text{ per barrel.}$$

Using these figures, the after-tax price per barrel, that is, the net amount a producer can expect to be paid for each barrel of oil sold, can be calculated by subtracting the tax for a given oil and producer classification from the removal price. For example, the price obtained for Tier Two oil by an independent producer in 1986 is expected to be $40.07 ($46.62 - 6.55).

Table 3 (p. 6) presents the effective tax percentages (actual tax as a percentage of removal price) for each producer and tier classification. It is apparent from the table (Continued on page 6)

[1] "Crude Oil Windfall Profit Tax Act of 1980," Conference Report No. 96-817, 96th Congress, Second Session, March 7, 1980.

Table 2
WINDFALL PROFIT TAX PER BARREL*

Year	Removal Price	Independent Tier 1	Independent Tier 2	Nonindependent Tier 1	Nonindependent Tier 2	New Oil Tier 3
1980	$24.80	$ 4.63	$2.16	$ 6.48	$ 4.33	$1.78
1981	27.74	6.43	3.06	9.00	6.12	2.41
1982	31.02	7.53	3.66	10.55	7.33	2.84
1983	34.70	8.77	4.34	12.28	8.69	3.34
1984	38.80	10.21	5.14	14.30	10.29	3.91
1985	43.40	11.84	6.05	16.57	12.10	4.58
1986	46.62	12.79	6.55	17.90	13.10	4.80
1987	50.09	13.73	7.03	19.23	14.07	4.99
1988	53.81	11.91	6.10	16.67	12.21	4.15
1989	57.81	7.12	3.66	9.96	7.32	2.41
1990	62.10	1.66	.85	2.33	1.71	.54
1991	66.71	.00	.00	.00	.00	.00

*The GNP deflator is assumed to increase 7 percent annually over the duration of the Windfall Tax. Removal prices are taken from High Plains-Ogallala Aquifer Study and are intended to be representative prices of Nebraska oil.

Review and Outlook

The condition of the Nebraska economy weakened considerably in March, with decreases in most of the major economic indicators for the state. The physical volume index for the state fell 1.8 percent from its February level and was 1.7 percent below its value of March 1979. Nationally, the index fell 1.0 percent from February and was down 2.0 percent from last year.

The February-to-March decrease for Nebraska was concentrated in the nonagricultural sectors, where output fell 2.3 percent. Construction was the weakest sector and recorded a loss of 5.6 percent. The month-to-month losses for the remaining nonagricultural sectors were distributive, -2.8 percent; manufacturing, -1.8 percent; and government, -0.1 percent.

In March, the index for the agricultural sector rose 1.6 percent. Although this was the third consecutive monthly increase in this index (as measured by price adjusted and seasonally adjusted cash farm marketings), the farm income situation has not improved, as prices received have fallen steadily. Led by sizable reductions in livestock prices, seasonally adjusted prices received by Nebraska farmers fell 1.6 percent from their February levels and were down 4.7 percent from March 1979. In sharp contrast, prices paid were 11.5 percent above those of last year.

During the first quarter 1979, economic activity in Nebraska was sluggish. The state physical volume index was 0.6 percent above the fourth quarter of last year and was 0.6 percent lower than the first quarter of last year. (Continued on page 5)

Notes for Tables 1 and 2: (1) The "distributive" indicator represents a composite of wholesale and retail trade; transportation, communication and utilities; finance, insurance, and real estate; and selected services. (2) The "physical volume" indicator and its components represent the dollar volume indicator and its components adjusted for price changes using appropriate price indexes—see Table 5, page 5.

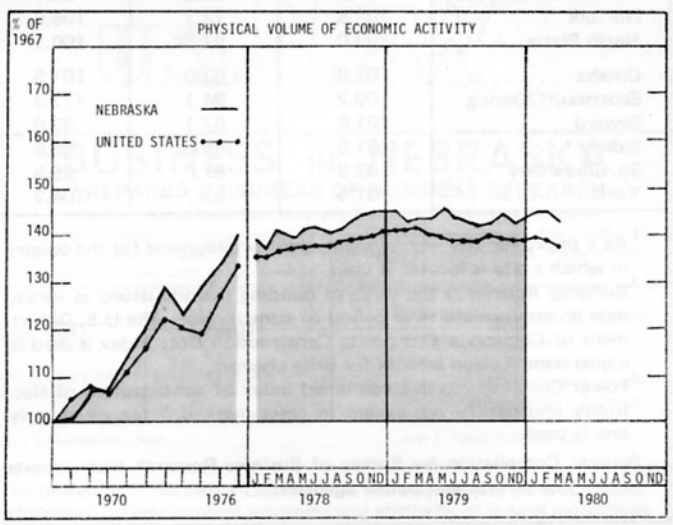
ECONOMIC INDICATORS: NEBRASKA AND UNITED STATES

1. CHANGE FROM PREVIOUS YEAR

March 1980	Current Month as Percent of Same Month Previous Year		1980 Year to Date as Percent of 1979 Year to Date	
Indicator	Nebraska	U.S.	Nebraska	U.S.
Dollar Volume	108.6	110.4	110.4	111.5
Agricultural	116.5	100.1	112.8	104.2
Nonagricultural	107.5	110.8	110.0	111.7
Construction	77.8	105.7	83.2	112.8
Manufacturing	117.9	115.6	119.4	115.8
Distributive	108.2	109.9	111.2	110.8
Government	101.0	106.8	101.5	106.8
Physical Volume	98.3	98.0	99.5	98.9
Agricultural	122.3	105.3	112.2	105.8
Nonagricultural	95.6	97.8	98.0	98.7
Construction	71.2	96.7	75.6	102.6
Manufacturing	103.7	99.7	104.7	99.9
Distributive	94.3	95.8	97.4	97.0
Government	96.4	102.2	97.0	101.8

2. CHANGE FROM 1967

	Percent of 1967 Average	
Indicator	Nebraska	U.S.
Dollar Volume	332.3	315.6
Agricultural	322.8	297.5
Nonagricultural	333.5	316.2
Construction	236.7	304.9
Manufacturing	364.0	293.1
Distributive	343.4	334.1
Government	301.6	299.7
Physical Volume	142.9	137.9
Agricultural	134.5	128.8
Nonagricultural	144.1	138.2
Construction	83.9	108.1
Manufacturing	173.0	137.2
Distributive	143.2	139.3
Government	138.0	147.5

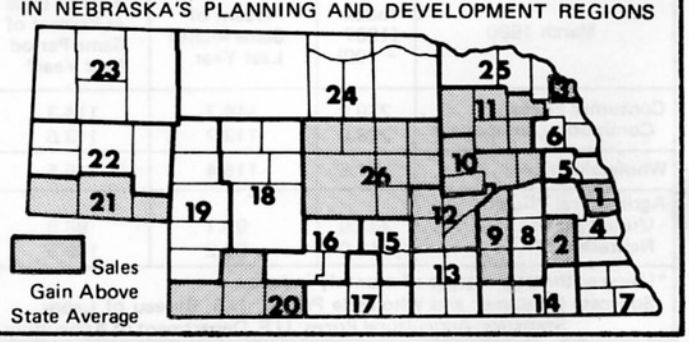


3. NET TAXABLE RETAIL SALES OF NEBRASKA REGIONS AND CITIES (Adjusted for Price Changes)

Region Number and City	City Sales*	Sales in Region*	
	March 1980 as percent of March 1979	March 1980 as percent of March 1979	Year to date'80 as percent of Year to date'79
The State	89.4	87.6	93.0
1 Omaha	94.8	93.6	92.6
Bellevue	111.6		
2 Lincoln	90.5	89.6	92.3
3 So. Sioux City	89.5	88.3	92.6
4 Nebraska City	90.3	79.0	85.0
5 Fremont	92.8	90.8	88.1
Blair	99.7		
6 West Point	81.5	80.8	88.1
7 Falls City	93.7	84.8	90.1
8 Seward	95.3	89.0	90.6
9 York	92.6	89.0	92.6
10 Columbus	89.4	86.7	98.1
11 Norfolk	92.2	89.8	93.6
Wayne	119.8		
12 Grand Island	88.9	87.8	92.7
13 Hastings	89.7	86.7	91.5
14 Beatrice	92.9	87.7	91.7
Fairbury	84.4		
15 Kearney	86.6	87.1	90.9
16 Lexington	89.9	85.1	89.9
17 Holdrege	94.0	88.5	90.8
18 North Platte	87.9	85.1	87.6
19 Ogallala	66.3	86.6	90.0
20 McCook	90.7	92.3	92.8
21 Sidney	93.1	97.9	93.4
Kimball	113.2		
22 Scottsbluff/Gering	87.4	85.9	90.9
23 Alliance	93.3	86.4	88.7
Chadron	79.8		
24 O'Neill	94.4	82.7	87.8
25 Hartington	94.0	84.9	90.1
26 Broken Bow	95.5	89.7	96.7

*State totals include sales not allocated to cities or regions. The year-to-year ratios for city and region sales may be misleading because of changes in the portion of unallocated sales. Region totals include, and city totals exclude, motor vehicle sales. Sales are those on which sales taxes are collected by retailers located in the state. Compiled from data provided by Nebraska Department of Revenue.

1980 YEAR TO DATE AS PERCENT OF 1979 YEAR TO DATE IN NEBRASKA'S PLANNING AND DEVELOPMENT REGIONS



(Continued from page 4) This softness was shared by all sectors of the economy, with only the manufacturing and agricultural sectors registering growth. The weakness in the Nebraska economy has been concentrated in the construction industry and retail sales, especially motor vehicle sales.

Nationally, first-quarter Gross National Product data indicate that there was some growth in the economy, but most economists expect the national economy to enter a recession in the second quarter of 1980. It is expected that the recession will last until mid-1981.

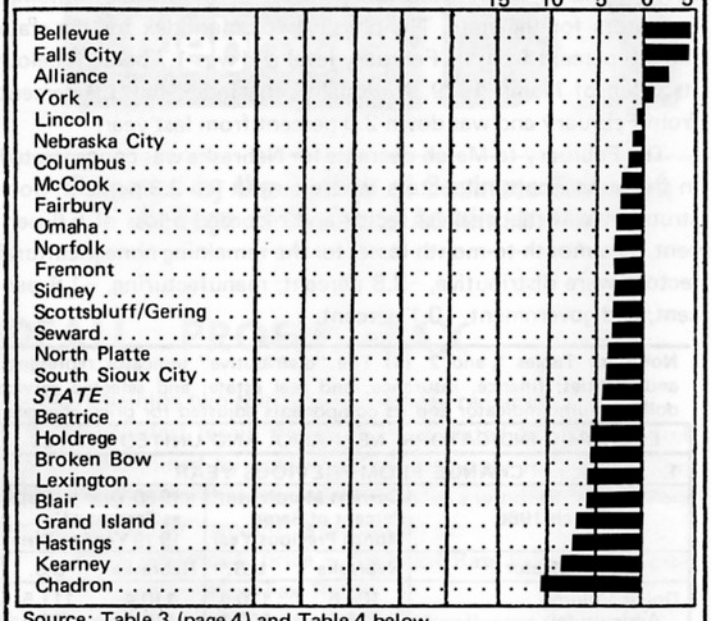
One of the few bright spots in the Nebraska economy was the 1.0 percent growth in employment in March 1980, compared to March 1979. Even though employment continued to grow on a year-to-year basis, the rate of growth has been slowing recently and may reflect the weakening position of the Nebraska economy. The March gain in employment represented nearly 7,500 persons, but was insufficient to offset the growth of the labor force and resulted in an increase in the number of unemployed. March's unemployment rate of 3.5 percent, however, was among the lowest in the nation and compares favorably to the national rate of 6.6 percent. Twenty-one of the twenty-six reporting cities registered gains in employment in March. All regions of the state shared in the employment growth.

March was a particularly poor month for retail sales in Nebraska. After adjustment for price changes, net taxable sales were 12.4 percent below those of last March. Nationally, retail sales also exhibited considerable softness and were down 6.9 percent from last year. Compared to March 1979, all of the state's twenty-six planning regions recorded decreases in total sales. Nonmotor vehicle sales recorded a somewhat smaller loss (10.6 percent), as all but three of the thirty-two principal trading centers had sales lower than those of last March. Wayne, Kimball, and Bellevue were the only cities with increases.

The weakness in the state's economy in March was reflected in the city business indexes, as twenty-two of the twenty-six reporting cities registered losses relative to March 1979. On the average, the indexes fell 4.4 percent and represented the third consecutive decline. Declines in building activity and retail sales were responsible for this loss and completely overshadowed the moderate gains in employment. Bellevue posted the largest gain in economic activity, with an increase of 4.5 percent. Other communities with March-to-March increases were Falls City, Alliance, and York.

J. A. D.

CITY BUSINESS INDEXES
Percent Change March 1979 to March 1980



Source: Table 3 (page 4) and Table 4 below.

4. MARCH CITY BUSINESS INDICATORS

The State and Its Trading Centers	Percent of Same Month a Year Ago		
	Employment[1]	Building Activity[2]	Power Consumption[3]
The State	102.2	76.8	100.6
Alliance	112.0	72.7	117.1
Beatrice	100.1	70.5	97.8
Bellevue	102.8	83.9	94.6*
Blair	102.2	50.0	67.5
Broken Bow	99.8	55.6	90.3
Chadron	98.8	59.0	106.5
Columbus	103.6	144.6	96.6
Fairbury	99.6	131.4	127.5
Falls City	102.1	336.1	108.3
Fremont	99.9	89.2	101.1*
Grand Island	101.4	51.0	98.4
Hastings	98.9	56.7	98.2
Holdrege	105.4	43.5	85.2
Kearney	102.0	38.1	102.2
Lexington	100.2	79.3	94.9
Lincoln	103.0	136.1	108.9
McCook	103.9	91.4	101.7
Nebraska City	107.9	99.5	98.1
Norfolk	101.5	73.7	106.6
North Platte	103.0	91.8	100.1
Omaha	102.8	63.0	101.5
Scottsbluff/Gering	100.2	94.1	117.3
Seward	101.8	67.1	92.0
Sidney	101.5	84.5	95.6
So. Sioux City	102.9	87.0	95.5
York	101.4	193.7	104.2

[1] As a proxy for city employment, total employment for the county in which a city is located is used.
[2] Building Activity is the value of building permits issued as spread over an appropriate time period of construction. The U.S. Department of Commerce Composite Construction Cost Index is used to adjust construction activity for price changes.
[3] Power Consumption is a combined index of consumption of electricity and natural gas except in cases marked * for which only one is used.

Source: Compilation by Bureau of Business Research from reports of private and public agencies.

5. PRICE INDEXES

March 1980	Index (1967 = 100)	Percent of Same Month Last Year	Year to Date as Percent of Same Period Last Year*
Consumer Prices	239.8	114.7	114.3
Commodity component	228.0	113.7	113.6
Wholesale Prices	261.5	115.4	115.5
Agricultural Prices			
United States	231.0	95.1	98.5
Nebraska	240.0	95.2	100.5

*Using arithmetic average of monthly indexes.
Sources: Consumer and Wholesale Prices: U.S. Bureau of Labor Statistics; Agricultural Prices: U.S. Department of Agriculture.

(Continued from page 3) that effective tax rates per barrel are significantly lower than the rates stated in the Act, an effect due to the adjusted base price concept and the state severance tax adjustment. Also note the progressive nature of the tax until phaseout begins, that is, the effective tax percentage grows over time as the removal price increases. This progressive feature will be present if the removal price of oil increases faster than the GNP deflator, a relationship which is one of the authors' assumptions.

Table 3
EFFECTIVE TAX PERCENTAGES PER BARREL*

Year	Removal Price	Independent Tier 1	Independent Tier 2	Nonindependent Tier 1	Nonindependent Tier 2	New Oil Tier 3
1980	$24.80	18.7%	8.7%	26.1%	17.5%	7.2%
1981	27.74	23.2	11.0	32.4	22.1	8.7
1982	31.02	24.3	11.8	34.0	23.6	9.2
1983	34.70	25.3	12.5	35.4	25.0	9.6
1984	38.80	26.3	13.2	36.9	26.5	10.1
1985	43.40	27.3	13.9	38.2	27.9	10.6
1986	46.62	27.4	14.0	38.4	28.1	10.3
1987	50.09	27.4	14.0	38.4	28.1	10.0
1988	53.81	22.1	11.3	31.0	22.7	7.7
1989	57.81	12.3	6.3	17.2	12.7	4.2
1990	62.10	2.7	1.3	3.8	2.8	0.9
1991	66.71	0.0	0.0	0.0	0.0	0.0

*See note for Table 2.

Table 4
WEIGHTED AFTER-TAX PRICES AND EFFECTIVE TAX PERCENTAGES PER BARREL FOR NEBRASKA OIL*

Year	Removal Price	After-tax Producers' Price	Effective Tax Percentage	After-tax Royalty Holders' Price	Effective Tax Percentage
1980	$24.80	$20.17	18.7%	$19.08	23.1%
1981	27.74	21.30	23.2	19.77	28.7
1982	31.02	23.45	24.4	21.64	30.2
1983	34.70	25.86	25.5	23.75	31.6
1984	38.80	28.48	26.6	26.01	33.0
1985	43.40	31.41	27.6	28.53	34.3
1986	46.62	33.68	27.8	30.56	34.4
1987	50.09	36.20	27.7	32.85	34.4
1988	53.81	41.77	22.4	38.87	27.8
1989	57.81	50.62	12.4	48.88	15.4
1990	62.10	60.42	2.7	60.01	3.4
1991	66.71	66.71	0.0	66.71	0.0

*See note for Table 2.

Table 2 can also be used to obtain an aggregate after-tax price for all oil by applying a set of production weights to the after-tax prices of each oil type in the table. Table 4 shows the weighted after-tax prices per barrel and effective tax percentages, using Nebraska's 1979 production in each production category as weights and assuming no change in these weights during the period of the tax's application. The weights may indeed shift over time but no attempt is made to forecast such shifts.

The weights used are:

Independent		Nonindependent		New
Tier 1	Tier 2	Tier 1	Tier 2	Tier 3
.3853	.1746	.3305	.0519	.0577

For example, the weighted after-tax price obtained by producers in 1980 for Nebraska oil can be found using the following formula:

Producer Price = .3853 ($24.80 - 4.63) + .1746 ($24.80 - 2.16)
+ . . . + .0577 ($24.80 - 1.78)
= $20.17 per barrel

Thus, on average, a producer who sells oil directly from the well will stand to lose $4.63 per barrel via the tax in 1980 ($24.80 - 20.17) and the effective tax percentage is 18.7 percent (4.63/24.80).

A weighted after-tax price for royalty holders can also be calculated. The Act stipulates that royalty holders will be taxed at the same rate as the nonindependent producers. Thus, the production weights presented above under Tier One oil for independent and nonindependent producers must be combined, as are those under Tier Two. The royalty holders' weighted after-tax price per barrel for 1980 is found via the formula:

Royalty Price = .7158 ($24.80 - 6.48) + .2265 ($24.80 - 4.33)
+.0577 ($24.80 - 1.78)
= $19.08 per barrel.

On average, the holders of royalty interests in Nebraska oil can expect to lose $5.72 per barrel in 1980, and the effective tax percentage is 23.1 percent.

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