2003 Nebraska
Tax Burden Study

April 5, 2007

Letter of Introduction to the *2003 Nebraska Tax Burden Study*

As mandated in Section 77-3116, the Nebraska Department of Revenue has prepared the fifth tax burden study. This report deals with tax data from the 2003 tax year, and expands on the previous burden studies.

The Department has gained additional insight into the production of tax burden information using federal and state tax data through our efforts on this report. Beginning with the 1999 study, the burden study made use of the TRAIN model, a Computable General Equilibrium (CGE) model. The current study expands on use of this model to identify actual tax incidence.

We believe that this project has given the Department an opportunity to develop and refine informational data sets that will aid in the development of a better and more complete view of what the Nebraska tax liability is, and who pays the taxes. If you have any questions regarding this report, please contact David Dearmont in Research Services at 471-5700.

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State Tax Commissioner

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Introduction

Pursuant to the Nebraska Revised Statutes sections 77-3-115 and 77-3-116, the Department of Revenue has completed the *2003 Nebraska Tax Burden Study*. The study was mandated in the second session of the Ninety-second Legislature through legislative bill 719A. The Legislature directed the Department of Revenue to gather, prepare, and study material that shall be used as a basis for developing tax policy changes. It was the intention of the Legislature to use such information in analyzing the impact of taxes on different economic sectors and the impact on those sectors on the Nebraska economy.

This is the fifth Nebraska tax burden study produced by the Department of Revenue in an effort to comply with the Legislature's mandate. The 2003 study departs from previous studies, in that it makes full use of a computable general equilibrium (CGE) model in tax burden analysis in an attempt to discover the true economic incidence of taxes in Nebraska. The genesis of this model was LB1373, passed by the Nebraska Legislature in 1996. The resulting model is referred to as the TRAIN model (Tax and Revenue Analysis in Nebraska), and is currently used by the Nebraska Department of Revenue for analysis of tax policy issues. The original TRAIN model was based on the California DRAM model, and has been through several subsequent revisions, including an improvement on the dynamic elements of the model. The model will be discussed in more detail later.

Previous versions of the Nebraska tax burden study focused primarily on the individual income tax, attempting to follow income tax payments from employees to employers, and thus the employer's industry sector, by tracking their withholding and income tax payments. In order to do this, it was necessary to match federal and state income tax information that resulted in a significant loss of data from some industries. The final merged data allowed us to say something about the allocation of the income tax burden across sectors and geographical regions, based upon employment and wages in each sector. Unfortunately, there is no similar data that can be used to track sales and use taxes through the economy. However, even in the case of the individual income tax, this approach does not get at the question of tax incidence. Economic theory suggests that the tax burden on businesses is shifted to households, either in the form of lower wages to workers, higher prices to consumers, or lower profits or dividends to business owners. The previous approach assumed that the income tax burden is at least proportional to

employment and wages in each sector, which may or may not be true in any given sector of the Nebraska economy. The tax burden shifts because the imposition of a tax affects prices, both the price of what is taxed and the prices of related goods and services. "Thus, people bear the burden of a tax not only when they remit taxes, but also when there is a change in the prices of the goods and services they buy and sell" (Slemrod and Bakija, 1998, p. 64). It is hoped that changing the approach of this study will provide policymakers with a better understanding of who bears the final tax burdens in Nebraska.

History

The *1990 Nebraska Tax Burden Study* was published December 1, 1993. This pilot study dealt specifically with actual and imputed taxes paid by the wage and salary employees of Nebraska businesses. The 1990 tax year data were analyzed to determine the legal incidence of each tax type on Nebraska's ten major industry sectors as defined by the Nebraska Business Classification Code. The 1990 study examined jobs, wages, imputed employee sales tax, and imputed employee income tax for each of the ten sectors. Each sector was examined individually by grouping the above information by each employer's Nebraska taxable income.

The *1991 Nebraska Tax Burden Study*, published December 1, 1994, expanded on the 1990 study by including detailed information on adjusted gross income (AGI), deferred compensation, and dependent care. In addition, tax information was detailed by size of employer (based on the number of employees) and by area of the state.

The *1995 Nebraska Tax Burden Study*, published December 1, 1998, expanded on the previous studies by including detailed information on household groups by AGI, deferred compensation, and dependent care. In addition, tax information was detailed by size of employer (based on the number of employees) and by area of the state. An analysis of the relative individual income tax burden by AGI group. A decile analysis was included to provide some indication of the progressivity of the Nebraska Individual Income tax.

The *1999 Nebraska Tax Burden Study*, published December 2, 2002, included a historical decile analysis that was used to track changes in the Nebraska individual income tax code through time. The 1999 study also made preliminary use of an early version of the TRAIN model.

Scope and Purpose

Section 77-3-115 states that the tax burden study "shall include, but not be restricted to, the following types of information:

> (1) Compiling an accurate and dependable set of indicators that show the role each economic sector plays in Nebraska's economy and each sector's legal tax incidence tax types. The purpose is to develop an appropriate share for each economic sector's responsibility for state and local taxes; (2) The amount of

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taxes, fees, and other governmental costs imposed on each economic sector which amount shall include those taxes, fees, and other governmental costs imposed on individuals employed in industries in such sector; and (3) If possible, an estimate of those state and local taxes, fees, and other governmental costs which are exported outside the state or offset by provisions of state and federal tax laws."

The *2003 Nebraska Tax Burden Study* is presented in four major sections: (1) tax incidence and general equilibrium analysis, (2) experiments, (3) the 2003 experience and resulting economic impact, and (4) recommendations for the future of this report. The first section develops the concepts of tax incidence and general equilibrium analysis and introduces the TRAIN model in more detail. The second section explores the impact on tax incidence from two separate hypothetical reductions of $10 million from the individual income tax and the sales and use tax. The third section presents an impact analysis of the tax increases passed in 2002 and 2003. Finally, the last section presents recommendations for further studies.

The Department of Revenue acknowledges the Legislative Fiscal Office for their assistance in providing state-expenditure data necessary for this analysis.

Tax Incidence and General Equilibrium Analysis

Tax incidence analysis is the study of who ultimately bears the economic burden of taxes. The economic tax incidence is different from the statutory incidence, which refers to who files tax returns and sends money to the tax agency. Economic incidence is concerned with how the tax burden is distributed among economic sectors as determined by market forces, not by statute. For example, when the government introduces a new tax that business firms are required to remit, the firms may pass the tax along to its customers in the form of higher prices, or to its employees in the form of lower wages or reduced hours, or to its suppliers in the form of reduced purchases, or to its shareholders through reduced dividends and profits. A true analysis of tax incidence must measure the final share of costs imposed on the economy beyond the legal liability. Slemrod and Bakija provide a rule of thumb for determining the extent to which taxes are shifted through an economy from those who bear the legal incidence (those required to complete the tax return and send money to the tax agency) to those who bear the economic burden in terms of lower wages, higher prices, and/or lower profits. The rule that determines who bears the burden says that "the better one's alternatives to what is taxed, the less likely one is to bear a burden"[1]

Unfortunately, all the various alternatives open to each business and household in an economy cannot be observed directly. Therefore, to determine the economic incidence of taxes, we must use a detailed model of the economy to track the impact of a tax from one market to another, by accounting for price and quantity changes throughout the economy. This is where economic theory and the TRAIN model come into the analysis. The starting point in economic theory is equilibrium analysis. Briefly put, this is the notion that under certain conditions, combinations of prices and quantities exist that result in all available goods being sold. A general equilibrium

model is one where all sectors of the economy are assumed to be in equilibrium at one point in time. From an equilibrium position, a "shock" is administered to the model and a new equilibrium position is found. The shock occurs outside the model, and may be in the form of a new tax or monetary policy, a change in technology, or an increase or decrease in quantities of some good due to some outside influence such as a natural disaster.

General Equilibrium Analysis

A general equilibrium analysis, using a CGE (Computable General Equilibrium) model, seeks to comprehensively describe the economic interactions among different markets. Unlike partial equilibrium analysis or fixed price analysis, the CGE analysis is able to account for structural changes in the economy and is sensitive to a wide range and scale of policies and projects. Using a numerical solution algorithm, the CGE model solves for new equilibrium prices and quantities, which is a specific solution for the economic issues involved.

In a real economy there is a complex relationship among innumerable agents and sectors (see Figure 1). A CGE model attempts to capture those relationships in the form of mathematical equations and data matrices. The TRAIN model uses over 1,300 equations to describe the economic behavior of the sectors represented in the Nebraska economy. Those mathematical equations are the body of the model. The other important unit of the model is a set of data matrices that contain several thousand data points, representing the initial economic conditions of the state. Using the sets of equations that describe economic behavior and the data matrices that represent initial conditions, the model describes the economy at an initial point. In the case of the *2003 Nebraska Tax Burden Study*, the model describes the Nebraska economy as it was in 2003 and analyzes the tax burdens and the impact of tax policy changes that occurred in that year.

A CGE model reflects the economic interrelationships illustrated in Figure 1. It describes the flow of money and resources between sectors of the economy through a representative economy. The CGE model enables us to calculate internal economic interactions among economic agents and sectors, and to determine the magnitude of policy impacts on the economy as well as size of the impacts upon tax receipts.

TRAIN Model

The *2003 Nebraska Tax Burden Study* relies on the TRAIN[2] model, a custom-built CGE model programmed in the General Algebraic Modeling System (GAMS) language. TRAIN divides the Nebraska economy into 26 distinct sectors in order to explicitly trace economic flows. TRAIN details state government sectors in order to capture the sensitivity of state government revenue and expenditure flows. The model calculates most tax impacts endogenously—inside the model—without requiring additional calculations outside the model to obtain final results. This approach allows the researcher to avoid rigid assumptions that may deliver vague results.

The construction of the TRAIN model is based on Walrasian general equilibrium theory, which assumes all markets adjust through the price mechanism and reach equilibrium conditions in the long run. The TRAIN model works well for analyzing structural changes and their consequences in the long run—after sufficient time has passed for all prices and quantities to achieve a new equilibrium—rather than analyzing short-run fluctuations. The current version of the TRAIN model assumes that after a shock it will take the economy five or six years to reach a new equilibrium position.

This section briefly explains the structure of TRAIN. As mentioned above, in the TRAIN model, the behavior and initial conditions of the Nebraska economy are expressed mathematically with over 1,300 equations and a Social Accounting Matrix (SAM) database. Much of the Nebraska-specific data were obtained from IMPLAN, a commercial Input/Output model. State spending data were obtained from the Legislature's Fiscal Office. The economy is broken down into 26 industrial sectors, two factor sectors (labor and capital) that are supplied by households, nine household sectors, 33 government sectors, and a rest-of-world sector (see Table 1). Table 2 presents the industrial sectors including the NAICS (North American Industrial Classification System) codes, and baseline Nebraska industrial output and employment for each sector in the model. Table 3 presents summary information about the nine household sectors in TRAIN.

The nine household groups in Table 3 represent 748,813 Nebraska households. The first group, with household income between $0 and $10,000, contains 62,128 households, representing 8.3% of the total households. Total personal income for 2003 is $52,435,750,912. The first group has an average household income of $7,002, which represents 0.8% of the total household income and 8.3% of the total number of households. The largest group is number 6, defined as households with income between $50,000 and $75,000, of which there are 152,841, or 20.4% of the total. These households earn 28.6% of total household income. The data for this grouping is provided by IMPLAN using data from the Regional Economic Information System (REIS) of the Bureau of Economic Analysis (BEA), US Department of Commerce. The data are the most inclusive available, with data for agriculture, construction, railroads, and the self-employed, which are not directly available through the Department of Labor's ES-202 unemployment insurance data. The numbers of households in each group are obtained from the US Census. Household spending in TRAIN is developed from personal consumption expenditures that are based on the Consumer Expenditure Survey (CES) of the Bureau of Labor Statistics. This program consists of two surveys that provide information on the buying habits of American consumers, including data on their expenditures, income, and family characteristics.

Table 3 highlights one shortcoming of the data. For many household groups, average household income is greater than the high end of the household income range. This is because CES data do not correct personal consumption expenditures or income to other government data sources such as the National Income and Product Accounts (NIPA) or IRS data. In order to account for underreporting of household income, IMPLAN data is adjusted for income, but continues to use

Census household definitions; therefore, average income can exceed the income range for some groups. According to IMPLAN, the underreporting of income to the CES is "significant."[3]

TRAIN makes a number of assumptions about the economic behavior of agents. Consumers maximize their utilities subject to a budget constraint. The model is largely nonlinear, using Cobb-Douglas technology to describe consumer's behavior. Household savings and investment are treated as a residual of after-tax income less consumption. Firms are assumed to maximize profits by producing outputs from the most economical combination of labor and capital inputs. The functional form adopted by TRAIN for production is constant elasticity of substitution (CES) function for primary factors of production and fixed-shares for intermediate inputs. In TRAIN, foreign trade is modeled using Armington's CES formulation. Implicit in this assumption is the notion that products of different places competing in the same market are imperfect substitutes. Armington's CES function is adopted as a realistic function describing buyers' behavior. Finally, the population of each household group is a function of existing population in Nebraska. Changes in population are limited to the natural rate of population growth and net migration. The working population in TRAIN is a function of after-tax return to labor—the higher the after-tax income, the greater the workforce.

The critical assumption in constructing a general equilibrium model is that the economy is initially in equilibrium. This means that at prevailing prices and economic output, all markets are clear, that is, all output and production factors brought to the market are sold. Therefore, the model is constructed so that its equilibrium replicates observed data in the base year. The data for TRAIN are the most current available for 2003 and are contained in the Social Accounting Matrix and in the model's parameters. Using these data sets, the model uses calendar year 2003 as the base year and is completely calibrated before any analysis is done. Previous Nebraska tax burden studies required a comparison of the final data set against BEA data in order to determine if and where the loss of data was significant. The TRAIN model approach does not require this step, because household and business sector economic data used in the model are derived entirely from federal sources.

Since its development in 1998, the TRAIN model has been modified and updated to meet the demand of various tax analyses and to reflect the changes in state economic structure and conditions. For the *2003 Nebraska Tax Burden Study*, the model adopted a new sectoring scheme for industries and households, and the database and model parameters were updated according to the new scheme. Three new TRAIN sectors were created to reflect the importance of the information, professional and educational service, and accommodation and food service industries. "INFOR" represents information industries, including publishing, motion picture, and sound recoding, software publishing, broadcasting, internet, telecommunications, and news syndicates. "PROED" represents professional and educational services and "AFSER" represents the new accommodation and food service sectors. Also, in the current version, the miscellaneous financial services sector (OFIRE) is consolidated into the banking industry sector (BANKS).

2003 Tax Burden Case Studies: Income and Sales Tax Reductions

This section of the *2003 Nebraska Tax Burden Study* analyzes the impact of a hypothetical reduction in the sales and use tax, and a second hypothetical reduction in the individual income tax. These two taxes represent the major sources of state revenue in Nebraska. The case study is based on a hypothetical reduction of $10 million, or approximately 1%, in each of these taxes. Net sales and use tax receipts in calendar year 2003 were $1.076 billion. Net Nebraska individual income tax paid by Nebraska resident taxpayers for tax year 2003 was $1.093 billion. It is assumed that the hypothetical tax reductions were achieved by means of across-the-board reductions in tax rates, so that the policy change does not affect the relationships between taxed goods in the case of the sales tax, or between households in the case of the income tax. The analyses were run separately, with the results summarized in Tables 4 through 7.

Imposing or reducing taxes alters the relationship between prices of alternative goods and services throughout the economy. A tax reduction has the effect of cutting prices and costs, resulting in increased economic activity that offsets the tax reduction by creating additional income and taxable sales. In the case of a reduction in the sales and use tax rate, the tax cut reduces the price of taxable goods and services and allows households and businesses to purchase more of these goods and services. This in turn results in additional tax collections on those additional goods and services sold. In the case of the individual income tax, the cut allows businesses to sell more goods, pay employees or other suppliers more, pay larger dividends, or some combination of all these options, which results in more income taxes paid by employees, owners, or suppliers.

Table 4 presents the TRAIN model results of the final changes in state revenues due to the hypothetical tax reduction. In each case, the model is shocked by a $10 million reduction in the appropriate tax. First, consider the impact of a hypothetical $10 million reduction in sales and use tax in calendar year 2003. Table 4 indicates that the final net reduction in state revenue is $8.091 million, with $1.909 million of the cut offset through increased revenue due to increased economic activity.

Analysis of a Sales Tax Reduction

Changing the sales and use tax rate results in an immediate impact on the relative prices of all goods and services in the economy. This impact affects consumers' purchasing patterns, which in turn affects the entire economy. When a tax is imposed on a specified set of goods and services, the price of the untaxed goods falls relative to the price of taxed goods and services. For example, a sales tax rate increase may induce consumers to substitute untaxed food for taxed manufactured goods. As a result, fewer manufactured goods and more food are produced. As the production of manufactured goods fall, some of the capital and labor formerly used in manufacturing are forced to find employment in food production. Following the chain of economic impacts, in order for the food production sector to be willing to absorb the newly

unemployed capital and labor factors from manufacturing production, the relative prices of capital and labor have to change, assuming that capital-labor ratios differ between the two sectors. If one assumes that the manufacturing sector is the capital-intensive sector, then relatively larger amounts of capital must be absorbed in the food production sector. The only way for this capital to find employment in the food sector, and for the markets to reach a new equilibrium, is for the relative price of capital to fall. At the new equilibrium position, all capital is relatively worse off, not just capital in the food sector.

In general, a tax on the output of a particular sector results in a decline in the relative price of the input used intensively in that sector. For example, a tax on manufactured goods tends to hurt households who received a proportionately larger share of their income from capital. In addition, households that consumed a proportionately larger amount of manufactured goods tend to bear relatively larger shares of the tax burden. The total incidence of the tax on manufactured goods depends on both the household and firm sides of Figure 1. For example, a household that supplies capital and consumes a relatively large amount of manufactured goods is worse off on both counts. On the other hand, a household supplying labor to firms and consuming relatively smaller amounts of manufactured goods is better off. compared to the first household, from the point of view of receiving a relatively smaller negative impact on labor income, and better off in terms of using relatively less of the taxed good.

Figure 2 depicts the economic consequences of the hypothetical $10 million sales tax rate reduction. The solid line at the top represents the reduction. However, the change in the sales tax rate results in a change in the relative price of taxed and untaxed goods and services. This change in relative prices affects consumers' choices. The tax cut results in both relatively lower priced taxed goods and more disposable income for consumers. Consumers' purchasing decisions in turn affect the production decisions of firms. The change in firms' production decisions affects both household income and the income taxes paid by firms. The change in household income due to changes in production decisions results in more income tax collected from households, and increased household income affects consumers' choices, which in this case, results in more disposable income and another round of tax revenue increases and further impacts on firms' production decisions.

Table 5 shows the impact of a reduction of the sales and use tax burden on each household group. The total reduction in sales tax receipts is approximately $878,000 less than the actual revenue reduction in Table 4. Table 5 presents the effect of the sales tax on households, but Table 4 presents the net reduction in state revenues after all the economic impacts of the sales tax reduction have been accounted for by the model. These are the economic impacts depicted in Figure 2.

Much of the difference is due to increased income tax receipts to the state. Also, the share of the tax reduction increases from 4.5% in the first household group to 23.9% in the sixth household group. From that point, ending with household income of $75,000, the share of the tax cut declines as household income increases. The last column of the Table 5, labeled "Burden Index

Share/Income," is the share of the sales tax reduction for each group divided by the percentage of total household income for the same group. This index provides some notion of the progressivity of the tax. For example, the fifth household group has 15.6% of the household income and receives 19.1% of the hypothetical sales tax reduction. This results in a burden index of 1.22, indicating that for this household group the share of the sales tax is greater than their share of the income. Reading down the column, the index numbers decrease, indicating that as income goes up the sales tax burden falls. This is the definition of a regressive tax.

Table 6 presents the share of the $10 million sales and use tax reduction by industrial sector. A sales and use tax rate reduction may be viewed from either the household or the industry sector. Here, the net impact of the hypothetical $10 million reduction is slightly different from the impact as viewed from the household sector. That is, the total from the household side is $8.969 million (Table 5) versus $9.188 million from the business side (Table 6). The difference is due to the effect of trade outside Nebraska. Because most retail transactions are subject to the sales tax, it is not surprising that most of the impact of a sales and use tax reduction falls on the retail sector (56.7%). However, there are other sectors that are affected by the sales and use tax. Utilities are taxable for most non-manufacturing uses. The accommodation and food services sector is affected due to sales taxes on prepared food and hotel and motel rooms. The tax reduction lowers prices of taxable goods for consumers. The TRAIN model allows us to determine the extent to which consumers, producers, firms, and households benefit from the tax cut.

Analysis of Income Tax Reduction

The structure of the analysis of an individual income tax is more straightforward than that of a sales tax. An income tax is equivalent to a set of taxes on capital and labor at the same rate. A tax on income, including labor income and capital income, is a tax on labor and capital in all sectors. As a result, there are no incentives to change labor or capital usage between sectors. Further, the assumption that the tax rate on capital and labor is equal and does not affect factor usage implies that labor must bear the entire burden of the tax. Reducing the tax will increase disposable income, with the consequence that Nebraskans pays less tax and receives more real income due to the positive economic impact of tax reductions.

Table 7 shows the impacts of a reduction of the individual income tax burden on each household group. Note that the total reduction in income tax is approximately $440,000 different from the actual revenue loss in Table 4 less than The original $10 million income tax cut generates a revenue loss to the state of $9.312 million, due to the effects of increased economic activity; however, the total income tax cut to households resulted in a state income tax reduction of $9.753 million. The $440,000 difference is largely due to increased sales tax collections due to the income tax cut. The percentage share is the share of the hypothetical $10 million individual income tax cut received by each household group. The share of the income tax borne by households in the first household group is 0.5%. In general, this percentage rises as income increases, reaching 21.9% for those households earning more than $150,000 in 2003. Because

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the hypothetical income tax cut is designed to be based on the percentage of the tax paid by each household group, the share of reduction also approximates the percentage of the Nebraska Individual Income tax burden borne by each group.

The final portion of this analysis based on hypothetical reductions of income and sales taxes considers the impact of these reductions on real personal income. This series of estimates shows how personal income, industrial output, investment, and employment change with the hypothetical tax cuts. The changes in income taxes in Table 7 are net tax reductions. That is, the $10 million reductions are not represented in the share of the personal income, because the personal income increases are due to increased economic activity, and not merely the tax reduction. In addition, the results of this analysis do not relate to tax incidence or burden, as in the previous portions of this analysis.

Table 8 presents changes in personal income due to the hypothetical tax reductions. The income tax column shows the amount of gain in personal income due to the $10 million reduction in income and sales taxes. This does not take into account the impact of the tax cut depicted in Table 3. For example, the total $12.14 million personal income impact due to a $10 million reduction in income tax does not include the increase in disposable personal income of $9.312 million that accrues to households due to the tax reduction.

Table 8 is divided between sales and income tax impacts. The first column under the income tax reduction scenario indicates that an additional $12.140 million in personal income would be generated when the state economy again reached an equilibrium condition. Under the alternative scenario, where a $10 million reduction is made in sales and use tax collections, the impact on state personal income is $16.751 million. The second column under each tax reduction alternative represents the percentage change in total household income. This is the percentage change in total personal income by household; it is not the share of the tax reduction or household share of personal income. The first two household groups experience a reduction in real income even though the income tax rate is decreased. The tax relief for these groups is relatively small, owing to the fact that their share of the income tax burden is also small, as is their share of income (Table 3). The model assumes that reductions in income tax payments also result in smaller governmental transfer payments to low-income households, which accounts for the small reductions in personal income.

Table 9 presents the impacts of the hypothetical $10 million income and sales tax reductions in terms of industrial output, investment, and employment.

Table 10 presents the tax impact on industrial output due to the hypothetical $10 million reductions in income and sales taxes by industrials sector. Table 9 shows that a reduction in sales tax rates generates more positive economic impacts in industrial output, investment, and employment. However, Table 10 shows that the impacts of sales and income tax reductions are quite different between sectors, although in terms of total industrial output they are nearly identical. Retailers and service industries generally get more positive effects in terms of

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industrial output from a sales tax reduction, while manufacturing industries get relatively smaller benefits, and some primary industries that produce mostly nontaxable goods, such as agriculture, the food industry, and construction experience negative impacts due to higher relative prices for their output.

The reduction in the income tax uniformly increases personal income across all sectors. The miscellaneous manufacturing sector (OTHERMS) benefits most in percentage terms from an income tax cut, although in terms of total output, it is a relatively minor sector in Nebraska. The accommodation and food services sector expands output under either tax cut scenario. Output in this sector increases $700,000 under an income tax cut and increases $1.8 million due to a sales tax cut.

Output from the retail sector expands $6.206 million (0.10%) due to a sales tax cut and $1.2 million due to an income tax cut. The largest sector in terms of industrial output, meat processing (MEATS), is largely unaffected by either type of tax reduction. The income tax cut results in a $0.560 million, or 0.006%, increase in industrial output, while the sales tax cut results in a $0.238 million, -0.002%, reduction in output.

TRAIN Analysis of 2003 Tax Policy

This section of the *2003 Nebraska Tax Burden Study* will review the impacts of tax policy decisions made during the 2002-2003 period and will focus on the tax consequences of these actions in 2003. It is important to remember that a TRAIN analysis compares two equilibrium positions that are assumed to be five or six years apart; therefore, impacts predicted by the model are not expected to have been fully realized until 2008 or 2009. Policy actions taken since 2003 may change the outcome predicted by the model.

The US economy slipped into recession in March 2001, with the latest expansion beginning in November 2001. The National Bureau of Economic Research (NBER), which identifies and dates turning points in business cycles, announced the start of the 2001 recession in November 2001, and the beginning of the expansion was announced in July 2003. The business cycle in Nebraska lagged the overall US economy, and did not peak until March 2002.[4] Between FY2000-01 and FY2003-04, actual General Fund revenues fell below forecast, resulting in budget shortfalls for the state.

Beginning in 2002, the Nebraska Legislature passed a number of budget cuts and tax increases to address the budget shortfall. In 2002, the Legislature's Fiscal Office noted that sales and income tax increases enacted during the 2002 session were "less than the income tax cut enacted five years ago," $83 million compared to $100 million in 1997.[5] The shortfall continued, and in the 2003 session the Legislature was confronted with a projected $544 million shortfall between revenues and appropriations for FY2003-04 and FY2004-05. "In the end, the Legislature determined that the reduction in the quantity and quality of state services necessary to balance

the budget without additional revenues was not an acceptable level of cuts, especially in light of previous cuts made in the FY02 and FY03 budgets"[6] In the 2003 session the Legislature acted to cut spending by $159 and $236 million and increase revenues by $136 and $237 million for FY2003-04 and FY2004-05, respectively. This was on top of actions taken by the 2002 Legislature to cut spending $223 million and $82 million, passed during the 2002 regular session and special session, along with $203 and $27 million in revenue increases for FY2002-03 and FY2003-04, respectively.

Included in these budget actions was LB1085, passed in 2002 over Governor Johanns's veto. LB1085 enacted a number of temporary tax increases and a permanent expansion of the sales tax base. The following year a number of the temporary increases were made permanent in LB759, including an increase in the state sales and use tax rate from 5.0% to 5.5%, and increases in the individual income tax rates. The average income tax rate increase was estimated to be 2.2%. The individual income tax increase was estimated by the Department of Revenue and LFO to raise an additional $35.507 million in income tax receipts through FY2003-04. The change in the sales and use tax rate was estimated to raise $92.922 million in FY2003-04. This section of the *2003 Nebraska Tax Burden Study* is an attempt to analyze the impact of the tax increases of this magnitude.

Sales Tax Impact

Table 11 presents income reduction due to the sales tax increase. The annual impact of the sales tax rate increase was estimated to be $92.922 million. However, as Table 11 suggests, the total impact on households was a reduction in income of $156.850 million over the five to six years necessary for the economy to achieve a new equilibrium. Note that the higher income groups bear more of the sales tax burden on a percentage basis.

Table 12 presents the impacts of the sales tax rate increase on industrial output, investment, and employment by economic sector modeled in TRAIN. The retail sector (RETAI) is most impacted by the sales tax rate increase, a result anticipated in the previous section of this study. Reading across the table, the final result of the sales tax rate increase was a $58.311 million reduction in industrial output, a $2.392 million reduction in investment, and a reduction in employment of 1,467 persons. As noted in the previous section, an increase in the sales tax rate does not impact business sectors uniformly. The economic impacts of the agricultural sectors AGCRO, AGLIV, FOODS, and MEATS are opposite of those in most of the other sectors in TRAIN. Industrial output, investment, and employment increase in those sectors in response to a sales tax increase. Because these sectors are largely exempt from the Nebraska sales and use tax base, increases in sales tax make production from these sectors relatively less expensive. The accommodation and food services sector (AFSER) exhibits the opposite result, which is not surprising given that prepared foods are a large portion of the sales tax base.

Income Tax Impact

This section presents the impacts on households due to an annual income tax increase of $35.507 million. Table 13 presents the impacts on disposable income by household group, and Table 14 presents the amount of additional income tax each income group paid. As noted previously, an income tax increase is equivalent to a set of taxes on capital and labor at the same rate, which limits analysis of the income tax burden on households. The economic impact of the income tax increase by sector in terms of industrial output, investment, and employment is presented in Table 15.

The total impact of the tax increase on households is $42.472 million (Table 13). The increase in total state income tax receipts is less than the impact of the tax because of adverse economic effects on labor and capital supplied by households. The difference between additional state income tax receipts of $35.507 million, and the total amount of additional income tax paid by all household groups in Table 14 of $34.135 million, is due to income taxes paid by non-Nebraska residents.

In the assessment of alternative tax systems, income distribution is considered one of the important equity issues. The income tax change results in higher income groups losing more real disposable income and paying more income taxes. The impact of the sales tax, however, is more evenly distributed across all household groups. This result implies that the income tax is more progressive than the sales tax. But in the income tax, lower income groups ($0–$15,000) experience an increase in real income because transfer payments from government are increased over what they could have otherwise been without the tax increase.

Table 15 summarizes the economic impacts and their percentage changes due the income tax increase in terms of industrial output, investment, and employment. The impact of the income tax increase is consistently negative across all sectors in TRAIN. On a percentage basis, the largest impacts of the income tax increase were in other manufacturing, entertainment, accommodation and food services, retail, and health care sectors.

Comparing the result of sales tax changes indicates that an increase in the sales tax had a more negative impact on the Nebraska economy than an increase in the income tax. However, the difference in impact is largely due to the relative size of the tax increases. In terms of industrial output, Table 10 indicates that for similar-size tax cuts, the change in output is $13.837 for income versus $15.781 million for sales. The larger negative impact of the sales tax increase, apart from its larger size, is due to the larger economic distortion resulting from the sales tax. The various exemptions in the sales tax code, such as prepared foods and many consumer services, impacts consumers' choices and thus the allocation of resources. This results in a greater loss of economic efficiency than is the case of an income tax. A second reason for a larger impact resulting from the sales tax is that the Nebraska economy—in reality and in the TRAIN—is considered to be a small open economy. Because the sales tax directly increases prices, the Nebraska economy might lose some competitiveness to other states. For example,

increased prices due to the sales tax encourage out-of-state mail-order sales. Finally, an increase in the sales tax has a relatively greater impact on retail, wholesale, and service sectors, and has a smaller impact on agricultural and manufacturing sectors. The income tax has relatively even impacts through all industries.

Tables 16 and 17 present the consolidated effects on individual income and income tax receipts.[7] When both taxes increased at same time, the tax impact escalated together, resulting in an even larger economic impact. The income reduction in Table 16 is slightly larger than the sum of each income effects, and the income tax receipt by law changes also lower than an initial estimations. Table 18 details the economic impacts of tax policy in 2003.

Historical Analysis of Nebraska Income Tax by Decile, 1995-2003

Table 19 presents Nebraska income tax records by decile from 1995 through 2003. This table was created by sorting all Form 1040N returns by adjusted gross income (AGI), dividing the total number of returns by ten, and summing each group. For convenience, the first seven deciles, or 70% of the returns, are treated as a single group. Thus, the 10th decile in 2003 represents the 75,100 returns reporting the highest adjusted gross income. This represents $12,459.5 million in AGI and $588.5 million in Nebraska individual income tax. Table 20 presents the same information as a percentage of the total AGI and as a percentage of the total Nebraska income tax after credits. Thus, summing the numbers across all 10 deciles will result in 100% of the AGI or of the Nebraska income tax. The last column in each decile group is labeled "Top 500 Returns." This represents the portion of the 10th decile and contains the 500 returns with the highest AGI. This is presented because the characteristics of the returns at the extremes are very different, when compared to a larger group at the decile or quartile level. Typically, these returns represent business income for sole proprietors and "pass-through" business entities such as S-corporations, partnerships, or limited liability companies. This is true of both the top and bottom deciles. For example, in 2003 the top decile begins at an AGI of $84,175 compared to the top 500, which begins at an AGI of $1,121,786. This column in Table 19 indicates that in 2003, the top 500 returns represent 5.77% of the total reported AGI, and they pay 5.77% of the total Nebraska personal income tax.

Table 21 is based on the information in Table 19. The block labeled "effective tax rate" is calculated as a percentage of the Nebraska income tax paid by the decile class divided by the AGI total for that class. This effective tax rate reflects the rate at which all the AGI in the decile is taxed. That is, if there were a flat tax rate on all AGI, with no credits or exemptions, the effective rate would produce the amount of tax paid by the returns in that decile class.

The block in Table 21 labeled "tax burden index" is calculated by dividing the numbers in the right block of Table 20, labeled "Nebraska Income Tax after Credits as a percent of total," by the numbers in the left block of Table 20, labeled "Federal Adjusted Gross as a percent of total." The result is a share index that relates the percent share of income in each decile to the percent share

of tax paid in the same decile group. For example, a hypothetical decile group with a tax burden index of 1.00, reporting 20% of the AGI, would have paid 20% of the tax. Similarly, if this decile paid less than 20% of the tax, the tax burden index would be less than 1.00. As a final example, consider the 10th decile in 1999. Ten percent of the returns reported 39.08% of the AGI and paid 54.08% of the individual income tax, resulting in a tax burden index of 1.38.

Reading these index numbers across a row for a single year shows that the index increases as one moves up the decile numbers. This demonstrates that the Nebraska Individual Income tax is progressive, in that lower income taxpayers pay a lower percentage of the total tax than do higher income taxpayers. Reading down the columns, one can follow the history of the tax burden on the decile. The stability of the index through most years indicates that the progressivity of the income tax has not changed significantly through the years. The possible exception is that the lower two decile groups presented (the first seven, and the eighth deciles) appear to have had their income tax burden lowered through the period of the analysis. The other exception is in 1993, after LB240 was enacted to shift a portion of the income tax burden to the upper income taxpayers, and in 1993 and 1994 the burden index increased for the 10th decile.

2003 Nebraska Tax Burden Study Recommendations

This section of the *2003 Nebraska Tax Burden Study* presents the recommendations of the Nebraska Department of Revenue for future tax burden studies. These recommendations are based on the Department's experience in producing the current study.

Previous burden studies were attempts to link employees' income tax information to their employers' business sector, in an attempt to measure each sector's tax burden. These attempts suffered from incomplete or inaccurate Nebraska Business Classification Codes and from federal tax records that could not be matched with Nebraska records. Furthermore, this approach did not incorporate other Nebraska taxes, especially the sales and use tax. The reliance on the TRAIN model in the 2003 burden study provides a much more comprehensive picture of the role of taxes in the Nebraska economy.

One recommendation for further study, suggested by current 2003 study, is a question of what the impacts on the state economy would have been if the tax code were compared to some "ideal" tax policy. For example, would the impact of changing the sales and use tax rate be as great if the sales and use tax base were more neutral—that is, broader and with fewer exemptions?

A second recommendation is to continue to expand the scope of the TRAIN model, specifically to include a more robust local government sector, capable of dealing with property tax issues.

Endnotes

1. Joel Slemrod and Jon Bakija, *Taxing Ourselves: A Citizen's Guide to the Great Debate over Tax Reform* (Cambridge MA: MIT Press, 1998), p. 64.

2. The 2003 Nebraska Tax Burden Study uses an updated version of TRAIN by Iksoo Cho. Full documentation of TRAIN is available. See (1) Matthew Cushing and Iksoo Cho, *Tax and Revenue Analysis in Nebraska* (Lincoln: Nebraska Legislature, 1998), and (2) Iksoo Cho, *General Equilibrium Analysis of Investment Tax Credits in Nebraska* (Ph.D. dissertation, University of Nebraska, 1999).

3. Minnesota IMPLAN Group Inc., *IMPLAN Pro Users Manual* (Stillwater, MN: Minnesota IMPLAN Group Inc., 2000), p. 269.

4. "What a New Set of Indexes Tells Us About State and National Business Cycles," *Business Review*, Federal Reserve Bank of Philadelphia, First Quarter 2006 (PDF, 387KB, 14 pages).

5. Legislative Fiscal Office, "State of Nebraska FY2001-01 and FY2002-03 Biennial Budget as Revised During the 2002 Legislative Session," May 17, 2002, p. 2.

6. Legislative Fiscal Office, "State of Nebraska FY2003-04/FY2004-05 Biennial Budget: As Enacted by the 98th Legislature, First Session," August 2003, p. 2.

7. This study takes into account the major impacts of tax policy changes, but does not reflect the effects of several miscellaneous (other than income or sales) tax bills that were passed in the 2003 session.

Figures

Figure 1. The Circular Flow Diagram.
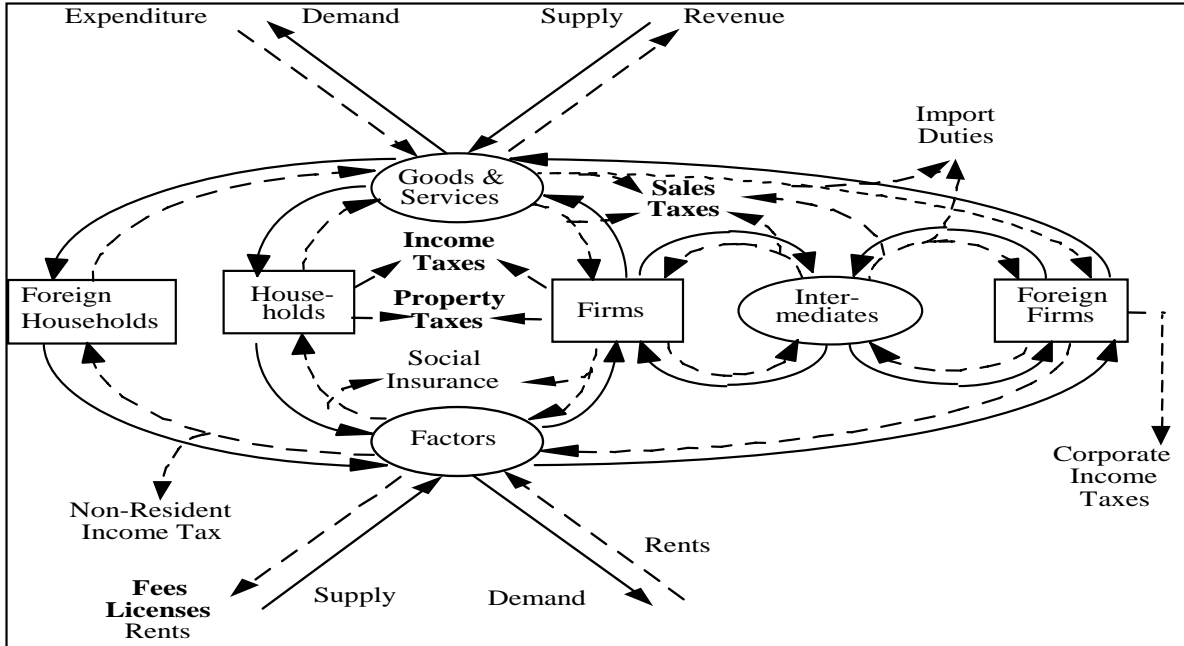
Figure 2. The Economic Consequences of a Sales Tax
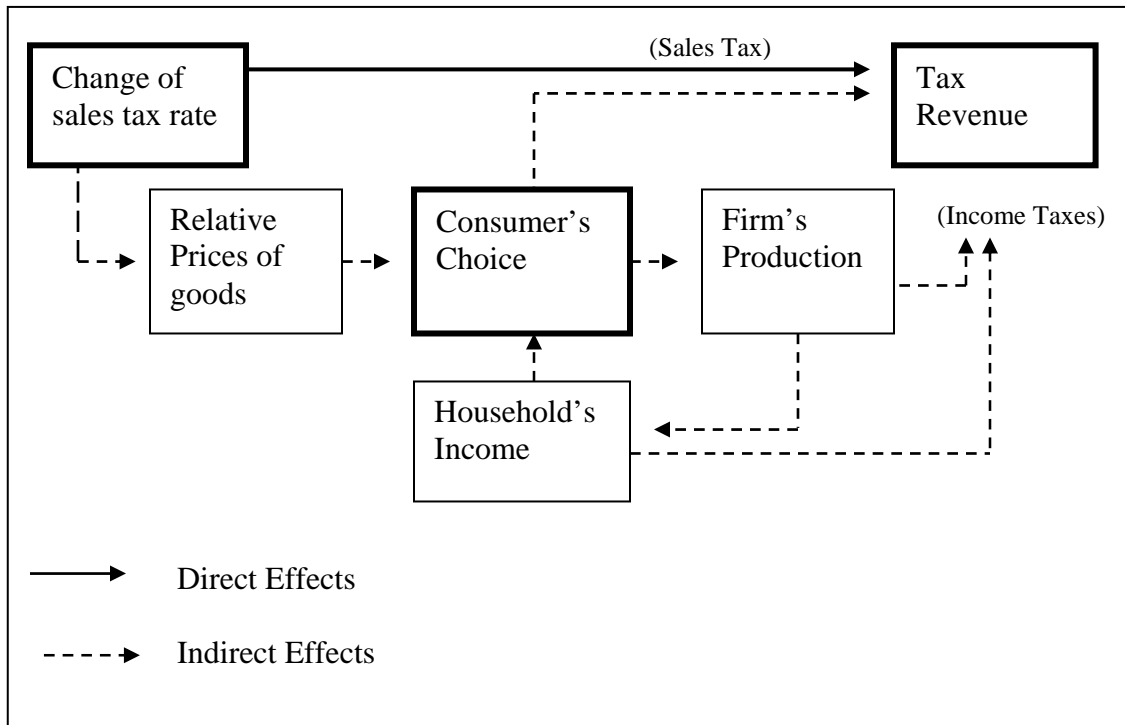
Tables

Table 1. Economic Sectors Modeled in TRAIN		
SECTOR **DESCRIPTION**	**SECTOR** **DESCRIPTION**	**SECTOR** **DESCRIPTION**
Industrial	**Federal Government**	**Local Government**
AGCRO Crops	FTSOC Social-Security Tax	LTPRP Property Tax
AGLIV Livestock	FTPIT Personal Income Tax	LTSAU Local Sales and Use Tax
OTHPR Primary Resources	FTPRO Corporate Income Tax	LTMSC Miscellaneous Taxes
UTILI Utility	FTDUT Import Duty Tax	LSTRA Local Transportation Expenditure
CONST Construction	FTMSC Miscellaneous Taxes	LSCOR Local Corrections Expenditure
FOODS Food Manufacturing	FSDNO Federal Non-Defense Spending	LSK12 K-12 Education Expenditure
MEATS Meatpacking	FSDDE Federal Defense Spending	LSHAW Local Health and Welfare Expenditure
MFRCO Construction-Oriented Manufacturing		LSOTH Other Expenditure
CHEMS Chemicals and Related	**State Government**	
METAL Metals and Machinery	NTINS Insurance Tax	**Household**
TEAFM Transportation. Equipment and Farm Machinery	NTMVS Motor Vehicle Taxes	1 $0–$10,000
ELECT Electronic Technology	NTGAS Gasoline Taxes	2 $10,000–$15,000
OTHMA Other Manufacturing	NTSAU Sales and Use Tax	3 $15,000–$25,000
TRANS Transportation and Warehousing	NTPRO Bank and Corporation Tax	4 $25,000–$35,000
WHOLE Wholesale Trade	NTLAB Unemployment Insurance Tax	5 $35,000–$50,000
RETAI Retail Trade	NTPIT Personal Income Tax	6 $50,000–$75,000
INFOR Information	NTUNI University Fees	7 $75,000–$100,000
BANKS Banking	NTINH Inheritance Tax	8 $100,000–$150,000
INSUR Insurance Carriers	NTSIN Alcohol, Tobacco, and Horse Racing Tax	9 Above $150,000
REALE Real Estate	NTMSC Miscellaneous Taxes	
PROED Professional and Educational Services	NGENF General Revenue Fund	**Factor**
BSERV Business Services	NSTRA Transportation Expenditures	LABOR Labor
HEALT Health Services	NSCOR Youth and Adult Correction Expenditure	CAPIT Capital
ENTER Entertainment	NSK12 Educational Expenditure	
AFSER Accommodation and Food Services	NSUNI Higher Educational Expenditure	**Other Sectors**
OSERV Other Services	NSHAW Health and Welfare Expenditure	ROW Other States and Foreign Countries
	NSOTH Legislature, Social Services, and Other Expenditures	

TRAIN Sector	Description	NAICS	Industry Output* ($ Millions)	Employment (Persons)
AGCRO	Crop Production	111	$6,839.9	30,834
AGLIV	Animal Production	112	$4,711.1	32,492
OTHPR	Forestry and Logging; Fishing, Hunting, and Trapping; Supporting Activities for Agriculture and Forestry; Mining	113, 114, 115, 21	$643.4	10,749
UTILI	Utility	22	$1,918.0	1,822
CONST	Construction	23	$7,498.1	72,780
FOODS	Food Manufacturing.	3111-3115, 3117-3121	$6,385.0	10,832
MEATS	Meat Processing	3116	$9,586.1	27,018
MFRCO	Wood and Paper Manufacturing; Nonmetallic Mineral Production; Furniture and Related Production	321-322, 327, 337	$1,715.9	9,353
CHEMS	Petroleum and Coal Production; Chemical Manufacturing; Plastics and Rubber Production	324, 325, 326	$3,299.3	9,511
METAL	Primary Metal Manufacturing; Fabricated Metal Production; Machinery Manufacturing	331, 332, 33312-33399	$2,711.2	13,795
TEAFM	Agriculture Implement Manufacturing; Transportation Equipment Manufacturing	33311, 336	$3,622.5	12,375
ELECT	Computer and Electronic Production; Electrical Equipment, Appliance and Component Manufacturing	334, 335	$2,451.8	8,297
OTHMA	Tobacco, Textile Mills and Production; Apparel, Leather, and Allied Production; Printing and Related Support Activities; Miscellaneous Manufacturing	3122-3169, 323-339	$1,321.6	11,488
TRANS	Transportation and Warehousing Except Postal Services	48-49	$6,665.9	52,138
WHOLE	Wholesale Trade	42	$4,873.0	42,124
RETAI	Retail Trade	44-45	$6,048.9	134,007
INFOR	Information	51	$4,756.4	22,297
BANKS	Finance and Related Activities	522, 523, 525	$4,393.8	32,835
INSUR	Insurance Carriers and Related Activities	524	$4,759.8	31,275
REALE	Real Estate	531	$3,356.3	27,464
PROED	Professional, Scientific, and Technical Services; Educational Services	54, 61	$6,548.6	74,039
BSERV	Management of Companies and Enterprises; Administrative and Support; Waste Management and Remediation Services	55 56	$4,943.2	68,968
HEALT	Health Care and Social Assistance	62	$7,656.7	115,441
ENTER	Arts, Entertainment, and Recreation	71	$659.9	18,294
AFSER	Accommodation and Food Services	72	$3,104.1	76,474
OSERV	Other Services	81	$3,742.6	68,826

Table 2. Description of Industrial Sectors and Base Industrial Output and Employment

* Source : IMPLAN 2003 database

Table 3. Description of Household Groups in TRAIN						
Household Group	Household Income	Number of Households	Percent of Households	Average Household Income	Total Household Income	Percent of Income
1	$0–10,000	62,128	8.3%	$7,002	$435,020,256	0.8%
2	$10,000–15,000	49,302	6.6%	$17,505	$863,031,510	1.6%
3	$15,000–25,000	110,766	14.8%	$28,008	$3,102,334,128	5.9%
4	$25,000–35,000	109,945	14.7%	$42,012	$4,619,009,340	8.8%
5	$35,000–50,000	137,700	18.4%	$59,518	$8,195,628,600	15.6%
6	$50,000–75,000	152,841	20.4%	$98,029	$14,982,850,389	28.6%
7	$75,000–100,000	65,520	8.7%	$126,037	$8,257,944,240	15.7%
8	$100,000–150,000	41,050	5.5%	$175,052	$7,185,884,600	13.7%
9	Over $150,000	19,561	2.6%	$245,073	$4,793,872,953	9.1%
Total		748,813	100.0%		52,435,750,912	100.0%

Table 4. Impact of $10 Million Tax Reduction		
	Revenue Impact ($ Millions)	
	Income Tax	Sales Tax
Initial Revenue Reduction	-10.000	-10.000
Revenue Offset by Economic Impact	0.688	1.909
Net Revenue Impact	-9.312	-8.091

Table 5. Effect of Sales and Use Tax Reduction by Household Group					
Household Group	Household Income	Percentage of Income in Group	Sales Tax Reduction ($ Millions)	Share Sales Tax (Percent)	Burden Index Share/Income
1	$0–10,000	0.8%	-0.404	4.5%	5.43
2	$10,000–15,000	1.6%	-0.350	3.9%	2.37
3	$15,000–25,000	5.9%	-0.787	8.8%	1.48
4	$25,000–35,000	8.8%	-0.965	10.8%	1.22
5	$35,000–50,000	15.6%	-1.709	19.1%	1.22
6	$50,000–75,000	28.6%	-2.146	23.9%	0.84
7	$75,000–100,000	15.7%	-1.182	13.2%	0.84
8	$100,000–150,000	13.7%	-0.901	10.0%	0.73
9	Over $150,000	9.1%	-0.525	5.9%	0.64
Total		100.0%	-8.969	100.0%	

Table 6. Effects of Sales and Use Tax Reduction by Industrial Sector		Sales Tax ($ Millions)	Share (Percent)
Sector	Description		
AGCRO	Crop Production	0.000	0.0%
AGLIV	Animal Production	-0.002	0.0%
OTHPR	Forestry and Logging; Fishing, Hunting and Trapping; Supporting Activities for Agriculture and Forestry, Mining	-0.001	0.0%
UTILI	Utility	-0.659	7.2%
CONST	Construction	0.000	0.0%
FOODS	Food Manufacturing	-0.006	0.1%
MEATS	Meat Processing	-0.012	0.1%
MFRCO	Wood and Paper Manufacturing, Nonmetallic Mineral Production, Furniture and Related Production	-0.051	0.6%
CHEMS	Petroleum and Coal Production, Chemical Manufacturing, Plastics and Rubber Production	-0.139	1.5%
METAL	Primary Metal Manufacturing, Fabricated Metal Production, Machinery Manufacturing	-0.013	0.1%
TEAFM	Agriculture Implement Manufacturing, Transportation Equipment Manufacturing	-0.065	0.7%
ELECT	Computer and Electronic Production; Electrical Equipment, Appliance and Component Manufacturing	-0.051	0.6%
OTHMA	Tobacco, Textile Mills and Production; Apparel, Leather, and Allied Production; Printing and Related Support Activities; Miscellaneous Manufacturing	-0.105	1.1%
TRANS	Transportation and Warehousing Except Postal Services	-0.018	0.2%
WHOLE	Wholesale Trade	-0.467	5.1%
RETAI	Retail Trade	-5.209	56.7%
INFOR	Information	-0.355	3.9%
BANKS	Finance and Related Activities	-0.099	1.1%
INSUR	Insurance Carriers and Related Activities	-0.007	0.1%
REALE	Real Estate	-0.029	0.3%
PROED	Professional, Scientific, and Technical Services; Educational Services	-0.065	0.7%
BSERV	Management of Companies and Enterprises; Administration and Support; Waste Management and Remediation Services	-0.013	0.1%
HEALT	Health Care and Social Assistance	-0.027	0.3%
ENTER	Arts, Entertainment, and Recreation	-0.159	1.7%
AFSER	Accommodation and Food Services	-1.210	13.2%
OSERV	Other Services	-0.426	4.6%
Total		-9.188	100.0%

Table 7. Effect of Individual Income Tax Reduction by Household Group					
Household Group	Household Income	Percentage of Income in Group	Income Tax Reduction ($ Millions)	Share of Income Tax Cut (Percent)	Burden Index Share/Income
1	$0–10,000	0.8%	-0.045	0.5%	0.56
2	$10,000–15,000	1.6%	-0.085	0.9%	0.53
3	$15,000–25,000	5.9%	-0.415	4.2%	0.71
4	$25,000–35,000	8.8%	-0.645	6.6%	0.75
5	$35,000–50,000	15.6%	-1.093	11.2%	0.72
6	$50,000–75,000	28.6%	-1.942	19.9%	0.70
7	$75,000–100,000	15.7%	-1.487	15.2%	0.97
8	$100,000–150,000	13.7%	-1.904	19.5%	1.42
9	Over $150,000	9.1%	-2.137	21.9%	2.40
Total		100.0%	-9.753	100.0%	

Table 8. Net Change in Real Personal Income Due to Hypothetical Tax Reductions					
		Income Tax		Sales Tax	
Household Group	Household Income	Additional Personal Income ($ Millions)	Change in Total Household Income	Additional Personal Income ($ Millions)	Change in Total Household Income
1	$0–10,000	-0.035	-0.01%	0.054	0.01%
2	$10,000–15,000	-0.098	-0.01%	0.356	0.03%
3	$15,000–25,000	0.246	0.01%	0.951	0.03%
4	$25,000–35,000	0.339	0.01%	1.440	0.03%
5	$35,000–50,000	1.235	0.02%	2.888	0.04%
6	$50,000–75,000	2.760	0.02%	5.321	0.04%
7	$75,000–100,000	2.454	0.04%	2.274	0.03%
8	$100,000–150,000	2.504	0.05%	2.074	0.04%
9	Over $150,000	2.735	0.08%	1.393	0.04%
Total		12.140		16.751	

Table 9. Tax Impact on the State Economy		
	Income Tax	Sales Tax
Industrial Output ($ Millions)	13.837	15.781
Investment ($ Millions)	0.620	1.014
Employment (Persons)	176	287

Table 10. Base Industrial Output and Impact Due to Income and Sales Tax Changes					
	Base	Income Tax		Sales Tax	
TRAIN Sector	Industrial Output ($ Millions)	Industrial Output ($ Millions)	Percent Change	Industrial Output ($ Millions)	Percent Change
AGCRO	$6,839.869	0.358	0.005%	-0.206	-0.003%
AGLIV	$4,711.141	0.119	0.003%	-0.088	-0.002%
OTHPR	$643.420	0.070	0.011%	0.015	0.002%
UTILI	$1,918.035	0.115	0.006%	0.284	0.015%
CONST	$7,498.068	0.624	0.008%	0.473	0.006%
FOODS	$6,384.989	0.443	0.007%	-0.336	-0.005%
MEATS	$9,586.076	0.564	0.006%	-0.238	-0.002%
MFRCO	$1,715.923	0.243	0.014%	-0.259	-0.015%
CHEMS	$3,299.286	0.520	0.016%	0.115	0.003%
METAL	$2,711.218	0.330	0.012%	-0.353	-0.013%
TEAFM	$3,622.452	0.555	0.015%	0.335	0.009%
ELECT	$2,451.813	0.378	0.015%	0.064	0.003%
OTHMA	$1,321.552	0.355	0.027%	0.159	0.012%
TRANS	$6,665.904	0.514	0.008%	0.373	0.006%
WHOLE	$4,872.957	0.644	0.013%	0.883	0.018%
RETAI	$6,048.865	1.195	0.020%	6.206	0.103%
INFOR	$4,756.403	0.375	0.008%	0.474	0.010%
BANKS	$4,393.781	0.735	0.017%	0.878	0.020%
INSUR	$4,759.849	0.512	0.011%	0.270	0.006%
REALE	$3,356.326	0.459	0.014%	0.549	0.016%
PROED	$6,548.563	1.014	0.015%	0.751	0.011%
BSERV	$4,943.160	0.563	0.011%	0.464	0.009%
HEALT	$7,656.693	1.641	0.021%	1.880	0.025%
ENTER	$659.910	0.162	0.025%	0.262	0.040%
AFSER	$3,104.087	0.700	0.023%	1.839	0.059%
OSERV	$3,742.609	0.649	0.017%	0.987	0.026%
Total	$114,212.949	13.837	0.012%	15.781	0.014%

Table 11. Income Effect of Sales and Use Tax Changes on Household Groups			
Household Group	Household Income	Income ($ Millions)	Percentage Reduction in Total Household Income
1	$0–10,000	-0.515	-0.10%
2	$10,000–15,000	-3.319	-0.29%
3	$15,000–25,000	-8.870	-0.23%
4	$25,000–35,000	-13.462	-0.25%
5	$35,000–50,000	-27.031	-0.33%
6	$50,000–75,000	-49.899	-0.37%
7	$75,000–100,000	-21.274	-0.31%
8	$100,000–150,000	-19.409	-0.35%
9	Over $150,000	-13.071	-0.40%
Total		-156.850	

Table 12. Economic Impacts of the 2003 Sales Tax Change Increase by Sector						
	Industrial Output		**Investment**		**Employment**	
Sector	**($ Millions)**	**Percent**	**($ Millions)**	**Percent**	**(Persons)**	**Percent**
AGCRO	1.948	0.03%	0.019	0.01%	17	0.06%
AGLIV	0.828	0.02%	0.112	0.02%	20	0.06%
OTHPR	-0.137	-0.02%	-0.016	-0.04%	1	0.01%
UTILI	-2.662	-0.15%	-0.436	-0.16%	-2	-0.12%
CONST	-4.427	-0.06%	-0.118	-0.08%	-31	-0.04%
FOODS	3.171	0.05%	0.029	0.03%	8	0.07%
MEATS	2.249	0.02%	-0.006	-0.01%	9	0.03%
MFRCO	2.429	0.14%	0.047	0.11%	15	0.16%
CHEMS	-1.061	-0.03%	-0.070	-0.05%	-1	-0.01%
METAL	3.310	0.12%	0.177	0.09%	19	0.14%
TEAFM	-3.125	-0.09%	-0.013	-0.11%	-9	-0.07%
ELECT	-0.591	-0.02%	-0.070	-0.05%	-1	-0.01%
OTHMA	-1.474	-0.11%	-0.181	-0.13%	-11	-0.10%
TRANS	-3.481	-0.05%	-0.662	-0.08%	-18	-0.04%
WHOLE	-8.249	-0.19%	-0.572	-0.21%	-76	-0.18%
RETAI	-58.311	-1.08%	-2.392	-1.06%	-1,467	-1.10%
INFOR	-4.424	-0.09%	-0.444	-0.11%	-17	-0.08%
BANKS	-8.207	-0.18%	-0.551	-0.19%	-52	-0.16%
INSUR	-2.514	-0.05%	-0.162	-0.08%	-13	-0.04%
REALE	-5.137	-0.16%	-1.826	-0.16%	-35	-0.13%
PROED	-7.016	-0.11%	-0.316	-0.13%	-69	-0.09%
BSERV	-4.337	-0.09%	-0.239	-0.11%	-53	-0.08%
HEALT	-17.586	-0.23%	-0.867	-0.25%	-256	-0.22%
ENTER	-2.445	-0.38%	-0.116	-0.39%	-68	-0.37%
AFSER	-17.214	-0.57%	-0.608	-0.57%	-438	-0.57%
OSERV	-9.225	-0.25%	-0.228	-0.27%	-169	-0.25%
Total	-147.688		-9.509		-2,698	

Table 13. Income Effect of an Income Tax Change			
Household Group	Household Income	Income ($ Millions)	Share Percent
1	0–10,000	0.118	0.024
2	10,000 –15,000	0.351	0.03
3	15,000–25,000	-0.852	-0.022
4	25,000–35,000	-1.184	-0.022
5	35,000–50,000	-4.319	-0.053
6	50,000–75,000	-9.662	-0.072
7	75,000–100,000	-8.586	-0.124
8	100,000 -150,000	-8.76	-0.157
9	Above 150,000	-9.578	-0.29
Total		-42.472	

Table 14. Income Tax by Household Group			
Household Group	Household Income	Income ($ Millions)	Share Percent
1	$0–$10,000	0.157	0.46
2	$10,000–$15,000	0.297	0.87
3	$15,000–$25,000	1.452	4.25
4	$25,000–$35,000	2.258	6.62
5	$35,000–$50,000	3.826	11.21
6	$50,000–$75,000	6.796	19.91
7	$75,000–$100,000	5.205	15.25
8	$100,000–$150,000	6.665	19.53
9	Above $150,000	7.479	21.91
Total		34.135	100.00

Table 15. Economic Impact of the 2003 Income Tax Increase						
	Industrial Output		Investment		Employment	
Sector	($ Millions)	Percent	($ Millions)	Percent	(Persons)	Percent
AGCRO	-1.255	-0.02%	-0.025	-0.01%	-9	-0.03%
AGLIV	-0.417	-0.01%	-0.058	-0.01%	-8	-0.03%
OTHPR	-0.245	-0.04%	-0.013	-0.03%	-5	-0.05%
UTILI	-0.401	-0.02%	-0.053	-0.02%	-1	-0.04%
CONST	-2.186	-0.03%	-0.025	-0.02%	-26	-0.04%
FOODS	-1.551	-0.02%	-0.017	-0.02%	-4	-0.03%
MEATS	-1.977	-0.02%	-0.004	-0.01%	-7	-0.03%
MFRCO	-0.852	-0.05%	-0.016	-0.04%	-5	-0.06%
CHEMS	-1.821	-0.05%	-0.061	-0.05%	-6	-0.07%
METAL	-1.159	-0.04%	-0.061	-0.03%	-7	-0.05%
TEAFM	-1.945	-0.05%	-0.005	-0.04%	-7	-0.06%
ELECT	-1.326	-0.05%	-0.052	-0.04%	-5	-0.06%
OTHMA	-1.243	-0.09%	-0.107	-0.08%	-12	-0.10%
TRANS	-1.799	-0.03%	-0.145	-0.02%	-18	-0.03%
WHOLE	-2.255	-0.05%	-0.111	-0.04%	-26	-0.06%
RETAI	-4.182	-0.08%	-0.144	-0.06%	-114	-0.09%
INFOR	-1.313	-0.03%	-0.070	-0.02%	-8	-0.04%
BANKS	-2.572	-0.06%	-0.138	-0.05%	-22	-0.07%
INSUR	-1.791	-0.04%	-0.052	-0.03%	-14	-0.04%
REALE	-1.608	-0.05%	-0.522	-0.05%	-18	-0.07%
PROED	-3.551	-0.05%	-0.099	-0.04%	-44	-0.06%
BSERV	-1.970	-0.04%	-0.055	-0.03%	-31	-0.05%
HEALT	-5.743	-0.07%	-0.203	-0.06%	-91	-0.08%
ENTER	-0.568	-0.09%	-0.023	-0.08%	-18	-0.10%
AFSER	-2.451	-0.08%	-0.070	-0.07%	-67	-0.09%
OSERV	-2.272	-0.06%	-0.041	-0.05%	-48	-0.07%
Total	-48.453		-2.170		-618	

Table 16. The Consolidated Income Effect of Tax Policy Changes

Household Group	Household Income	Income ($ Millions)	Share Percent
1	$0–$10,000	-0.398	-0.08
2	$10,000–$15,000	-2.964	-0.26
3	$15,000–$25,000	-9.722	-0.26
4	$25,000–$35,000	-14.649	-0.28
5	$35,000–$50,000	-31.360	-0.38
6	$50,000–$75,000	-59.613	-0.44
7	$75,000–$100,000	-29.876	-0.43
8	$100,000–$150,000	-28.180	-0.51
9	Above $150,000	-22.667	-0.69
Total		-199.429	

Table 17. Consolidated Effect on Income Tax

Household Group	Household Income	Income ($ Millions)	Share Percent
1	$0–$10,000	0.157	0.52
2	$10,000–$15,000	0.297	0.99
3	$15,000–$25,000	1.417	4.72
4	$25,000–$35,000	2.14	7.13
5	$35,000–$50,000	3.328	11.08
6	$50,000–$75,000	5.36	17.85
7	$75,000–$100,000	4.612	15.36
8	$100,000–$150,000	5.881	19.59
9	Above $150,000	6.835	22.76
Total		30.027	100.00

Table 18. Consolidated Economic Impact of Tax Policy in 2003						
	Industrial Output		Investment		Employment	
Sector	($ Millions)	Percent	($ Millions)	Percent	(Persons)	Percent
AGCRO	0.697	0.01%	-0.006	-0.00%	8	0.03%
AGLIV	0.412	0.01%	0.054	0.01%	12	0.04%
OTHPR	-0.382	-0.06%	-0.028	-0.07%	-5	-0.04%
UTILI	-3.065	-0.17%	-0.490	-0.18%	-3	-0.16%
CONST	-6.615	-0.09%	-0.143	-0.10%	-57	-0.08%
FOODS	1.625	0.03%	0.011	0.01%	4	0.04%
MEATS	0.276	0.00%	-0.010	-0.02%	3	0.01%
MFRCO	1.588	0.09%	0.031	0.07%	10	0.11%
CHEMS	-2.880	-0.09%	-0.130	-0.10%	-7	-0.07%
METAL	2.163	0.08%	0.116	0.06%	13	0.09%
TEAFM	-5.070	-0.14%	-0.017	-0.15%	-16	-0.13%
ELECT	-1.915	-0.08%	-0.122	-0.09%	-6	-0.07%
OTHMA	-2.716	-0.20%	-0.288	-0.21%	-23	-0.20%
TRANS	-5.281	-0.08%	-0.808	-0.09%	-36	-0.07%
WHOLE	-10.508	-0.25%	-0.684	-0.25%	-102	-0.24%
RETAI	-62.540	-1.16%	-2.538	-1.12%	-1,582	-1.18%
INFOR	-5.740	-0.12%	-0.514	-0.13%	-25	-0.11%
BANKS	-10.784	-0.23%	-0.689	-0.24%	-74	-0.23%
INSUR	-4.306	-0.09%	-0.215	-0.11%	-27	-0.09%
REALE	-6.747	-0.20%	-2.349	-0.21%	-53	-0.19%
PROED	-10.570	-0.16%	-0.416	-0.17%	-113	-0.15%
BSERV	-6.308	-0.13%	-0.294	-0.14%	-84	-0.12%
HEALT	-23.339	-0.30%	-1.071	-0.31%	-348	-0.30%
ENTER	-3.015	-0.47%	-0.139	-0.46%	-86	-0.47%
AFSER	-19.679	-0.65%	-0.679	-0.64%	-505	-0.66%
OSERV	-11.504	-0.32%	-0.269	-0.32%	-216	-0.31%
Total	-196.203		-11.687		-3,318	

		Federal Adjusted Gross Income					Nebraska Income Tax after Credits(a)				
Tax Year	Total Number of Returns	First 7 Deciles mil.$	8th Decile mil.$	9th Decile mil.$	10th Decile mil.$	Top 500 Returns mil.$	First 7 Deciles mil.$	8th Decile mil.$	9th Decile mil.$	10th Decile mil.$	Top 500 Returns mil.$
1986	630,513	4,378.2	1,818.6	2,336.0	4,501.2	455.2	68.1	37.3	54.3	168.4	29.7
1987(d)	650,919	4,710.6	2,003.4	2,597.2	5,022.1	422.6	87.1	45.8	65.7	183.4	20.8
1988	662,517	5,062.6	2,123.1	2,762.2	5,897.4	733.3	85.8	47.6	70.0	224.7	35.2
1989	673,048	5,367.8	2,247.8	2,925.6	6,225.4	776.8	88.9	49.1	73.0	225.2	29.0
1990(e)	681,442	5,690.5	2,379.5	3,096.5	6,676.5	860.0	103.5	57.4	85.8	262.0	31.1
1991(f)	690,112	5,766.9	2,471.7	3,228.0	6,714.3	744.9	113.4	64.5	97.8	286.5	30.1
1992	694,041	6,008.2	2,581.9	3,383.7	7,347.1	928.2	117.5	67.7	103.8	318.4	36.4
1993(g)	695,479	6,210.3	2,668.2	3,502.0	7,419.7	804.2	114.6	69.2	107.2	338.0	33.2
1994	706,311	6,275.2	2,771.9	3,657.5	7,794.8	868.8	117.3	72.7	113.6	358.2	36.5
1995	716,195	6,781.4	2,945.4	3,886.9	8,903.6	1,392.1	129.8	79.5	123.6	393.4	39.6
1996	729,023	7,143.2	3,141.0	4,148.7	9,529.3	1,281.8	140.6	86.9	135.6	445.6	49.8
1997(h)	739,103	7,976.3	3,372.4	4,448.8	10,586.5	1,564.1	135.2	84.9	132.8	427.8	48.8
1998	748,163	8,505.6	3,572.1	4,724.8	12,042.1	2,221.4	153.9	97.2	154.3	521.6	59.4
1999(i)	757,222	9,001.7	3,779.8	4,995.6	12,666.5	2,113.2	167.8	106.6	168.6	576.7	69.7
2000	763282	9472.5	3964.3	5243.1	13607.8	2529.4	184.1	113.8	180.5	607	71.9
2001(j)	757159	9476	3965.1	5224.2	12205.1	1717.4	182.6	112.1	177.4	553.4	59.2
2002	752974	9495.1	3958	5228.7	11989.6	1641.2	176.3	110.6	175.6	536.7	54.2
2003(k)	751000	9968.1	4063.9	5387.4	12459.8	1784.3	190.5	119.3	190.6	588.5	62.8

Table 19. Federal Adjusted Gross Income and Nebraska Income Tax After Credits by Deciles (Resident Returns)

Footnotes follow Table 22.

	Federal Adjusted Gross Income as a percent of total					Nebraska Income Tax after Credits(a) as a percent of total				
Tax Year	First 7 Deciles percent	8th Decile percent	9th Decile percent	10th Decile percent	Top 500 Returns percent	First 7 Deciles percent	8th Decile percent	9th Decile percent	10th Decile percent	Top 500 Returns percent
1986	33.59	13.95	17.92	34.53	3.49	20.77	11.36	16.53	51.34	9.05
1987(d)	32.86	13.98	18.12	35.04	2.95	22.80	11.99	17.20	48.01	5.45
1988	31.95	13.40	17.43	37.22	4.63	20.04	11.11	16.36	52.49	8.23
1989	32.01	13.41	17.45	37.13	4.63	20.37	11.26	16.74	51.62	6.65
1990(e)	31.89	13.34	17.35	37.42	4.82	20.35	11.28	16.87	51.51	6.11
1991(f)	31.72	13.60	17.75	36.93	4.10	20.18	11.47	17.39	50.96	5.35
1992	31.10	13.36	17.51	38.03	4.80	19.34	11.15	17.09	52.43	5.99
1993(g)	31.36	13.48	17.69	37.47	4.06	18.22	11.00	17.04	53.74	5.28
1994	30.61	13.52	17.84	38.02	4.24	17.72	10.99	17.17	54.12	5.52
1995	30.12	13.08	17.26	39.54	6.18	17.87	10.95	17.02	54.16	5.46
1996	29.81	13.11	17.31	39.77	5.35	17.39	10.74	16.77	55.10	6.16
1997(h)	30.23	12.78	16.86	40.12	5.93	17.32	10.88	17.01	54.81	6.25
1998	29.49	12.38	16.38	41.75	7.70	16.60	10.49	16.65	56.27	6.41
1999(i)	29.57	12.42	16.41	41.61	6.94	16.45	10.45	16.53	56.55	6.83
2000	29.34	12.28	16.24	42.15	7.83	16.96	10.48	16.63	55.92	6.62
2001(j)	30.7	12.84	16.92	39.54	5.56	17.81	10.93	17.3	53.96	5.77
2002	30.96	12.9	17.05	39.09	5.35	17.65	11.07	17.58	53.72	5.42
2003(k)	31.27	12.75	16.9	39.08	5.6	17.49	10.96	17.5	54.05	5.77

Table 20. Federal Adjusted Gross Income and Nebraska Income Tax After Credits by Deciles (Resident Returns)

Footnotes follow Table 22.

Table 21. Effective Tax Rate and Burden Index by Deciles (Resident Returns)										
	Effective Tax Rate(h)					Tax Burden Index(i)				
Tax Year	First 7 Deciles percent	8th Decile percent	9th Decile percent	10th Decile percent	Top 500 Returns percent	First 7 Deciles	8th Decile	9th Decile	10th Decile	Top 500 Returns
1986	1.56	2.05	2.32	3.74	6.52	0.62	0.81	0.92	1.49	2.59
1987(d)	1.85	2.29	2.53	3.65	4.93	0.69	0.86	0.95	1.37	1.85
1988	1.69	2.24	2.54	3.81	4.81	0.63	0.83	0.94	1.41	1.78
1989	1.66	2.18	2.50	3.62	3.73	0.64	0.84	0.96	1.39	1.44
1990(e)	1.82	2.41	2.77	3.92	3.62	0.64	0.85	0.97	1.38	1.27
1991(f)	1.97	2.61	3.03	4.27	4.04	0.64	0.84	0.98	1.38	1.30
1992	1.95	2.62	3.07	4.33	3.92	0.62	0.83	0.98	1.38	1.25
1993(g)	1.85	2.59	3.06	4.56	4.13	0.58	0.82	0.96	1.43	1.30
1994	1.87	2.62	3.11	4.59	4.20	0.58	0.81	0.96	1.42	1.30
1995	1.91	2.70	3.18	4.42	2.85	0.59	0.84	0.99	1.37	0.88
1996	1.97	2.77	3.27	4.68	3.89	0.58	0.82	0.97	1.39	1.15
1997(h)	1.70	2.52	2.99	4.04	3.12	0.57	0.85	1.01	1.37	1.05
1998	1.81	2.72	3.27	4.33	2.67	0.56	0.85	1.02	1.35	0.83
1999(i)	1.86	2.82	3.37	4.55	3.30	0.56	0.84	1.01	1.36	0.98
2000	1.94	2.87	3.44	4.46	2.84	0.58	0.85	1.02	1.33	0.85
2001(j)	1.93	2.83	3.4	4.53	3.45	0.58	0.85	1.02	1.36	1.04
2002	1.86	2.79	3.36	4.48	3.30	0.57	0.86	1.03	1.37	1.01
2003(k)	1.91	2.94	3.54	4.72	3.52	0.56	0.86	1.04	1.38	1.03

Table 22. Beginning AGI Level (Dollars)

Tax Year	8th Decile	9th Decile	10th Decile	Top 500
1996	37,687	48,098	66,701	907,097
1999	43,611	56,781	77,690	1,345,486
2003	56,381	61,698	84,175	1,121,786

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Footnotes to Tables 19-21:

(a) Represents the net tax liability of the taxpayer after allowance of non-refundable credits, including the personal exemption credit or child dependent care credit, and so on.

(b) Effective rate is defined as Nebraska individual income tax liability net of non-refundable credits as percent of Federal Adjusted Gross Income (AGI).

(c) Tax burden index is defined as the net-liability share index weighted by the AGI share index. Index < 1 indicates that income share is greater than net-liability share. Index > 1 indicates that income share is less than net liability share.

(d) Tax Reform Act of 1986 (prior to 1987 40% of capital gains is included in AGI, starting in 1987, 100% of capital gains is included in AGI).

(e) LB1059, individual income tax increase, effective in tax years 1990 and 1991.

(f) Excludes depreciation surcharge.

(g) LB240, individual income tax restructured, effective in tax year 1993.

(h) LB401, Nebraska individual income tax rate cut.

(i) For tax years after 1998, the Nebraska liability net of non-refundable credits has been modified to include the effect of the refundable portion of the child care credit.

(j) For the tax years after 2001, the Nebraska liability net of non-refundable credits has been modified to include the effect of the refundable beginning farmer tax credit.

(k) LB1085, individual income tax rate increase, effective in tax year 2003