
Economic Impact of Proposed Tax and Spending Reductions in Kansas

Final Report

*Prepared by:
John D. Wong, J.D., Ph.D.*

For

*Kansas Economic Progress Council
212 SW 8th Avenue, Suite 200
Topeka, KS 66612*

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Executive Summary

Background

During its 2011 session the Kansas Legislature considered House Substitute for Senate Bill No. 1, the March to Economic Growth Act (MEGA). House Sub. for SB 1 would provide for reductions in individual and corporation income tax rates beginning in tax year 2012 based on the extent to which a certain specified group of State General Fund (SGF) tax sources have increased over the base year of FY 2010.

Objective

The objective of this research is to analyze the economic impact and tax incidence implications of proposed tax reductions on the Kansas economy. This study was conducted at the request of and funded by the Kansas Economic Progress Council. The overall purpose of the study was to provide public officials, businesses, and the general public with information on the economic impact of such tax reductions and resulting state spending cuts.

Methods

This study employs economic impact analysis (EIA) and tax incidence analysis to assess the effects of proposed tax reductions on the Kansas economy. EIA traces changes in economic activity resulting from an initial change. EIA identifies which industries benefit or lose from a change in economic activity and estimates resulting changes in income and employment in the region. The economic impact of proposed reductions in individual and corporation income tax rates and reductions in state spending were estimated using IMPLAN 3. The tax incidence implications of proposed reductions in individual and corporation income tax rates were evaluated using the Kansas Tax Incidence Model.

Conclusion

The cumulative impact of \$603.5 million in tax and state government spending reductions on state output is a net loss of \$58.1 million, including a direct effect of -\$27.2 million, an indirect effect of \$66.0 million, and an induced effect of -\$58.1 million. For every job created by a reduction in income tax rates, 1.63 jobs would be lost by an equal reduction in state spending. Similarly, for every dollar of labor income generated by a reduction in income tax rates, \$1.78 would be lost by an equal reduction in state spending. Likewise, for every dollar of value added generated by a reduction in income tax rates, \$1.34 would be lost by an equal reduction in state spending. Finally, for every dollar of total output generated by a reduction in income taxes, \$1.09 would be lost by an equal reduction in state spending.

Combined individual income, residential property, and retail sales taxes in Kansas are proportional to slightly regressive under existing individual income tax rates. Out of the ten income groupings the highest effective tax rate paid is by households that earn less than \$10,000 (24.5 percent) while the lowest effective rate paid is for households with \$200,000 or more of income (5.3 percent). The average effective tax rate for the state as a whole is 6.1 percent.

Combined individual income, residential property, and retail sales taxes in Kansas are proportional to slightly regressive under income tax rate rollback provisions. Out of the ten income groupings the highest effective tax rate paid is by households that earn less than \$10,000 (23.8 percent) while the

lowest effective rate paid is for households with \$200,000 or more of income (4.8 percent). The average effective tax rate for the state as a whole is 5.7 percent.

A \$603.5 reduction in state general fund receipts resulting from proposed income tax rate reductions would be 9.6 percent below receipts under existing income tax rates. Assuming an across the board spending reduction, human services expenditures would be reduced by \$147.3 million. This would include reductions of \$69.3 million for overall Social and Rehabilitation Services, \$56.9 million for the Division of Health in the Department of Health and Environment, and \$20.2 million for the Department of Aging.

Author Bio

Dr. John D. Wong is presently the Associate Dean of the Division of Urban and Professional Studies at the University of North Texas at Dallas. Dr. Wong was previously the Interim Director and a Professor in the Hugo Wall School of Urban and Public Affairs at Wichita State University. Professor Wong's primary teaching specializations are in the areas of public finance and public policy and he has taught graduate level courses in public sector economics, public finance, local government finance, state and local financial systems, urban and regional economic development, policy analysis and program evaluation, and public works. Professor Wong has also taught several classes in the areas of criminal justice and law and gerontology. Professor Wong has also made numerous professional development and training presentations on fiscal management issues to finance officers and other state and local government officials.

Dr. Wong was the principal author of the annual *Governor's Economic and Demographic Report*, consulting economist for the official Kansas Consensus Revenue Estimating Group, a consulting economist for the Kansas Department of Revenue, and a consulting economist for the Kansas Department of Labor. Dr. Wong has also completed studies on the consolidation of Kansas counties, the incidence of Kansas taxes, and a study of sales tax base erosion for Kansas Department of Revenue and the Kansas Advisory Council on Intergovernmental Relations, and a study of comparative economic development expenditures in Kansas and neighboring states for Kansas, Inc. Professor Wong has also served on the Governor's Kansas Energy and Environmental Planning Advisory Group (KEEP) and the Governor's Transportation Leveraging Investments in Kansas (T-LINK) Task Force. He has also served on the Kansas Governor's Tax Equity Task Force as a consultant on the distributional impact of tax reform and the effect of taxation on economic development. Dr. Wong has also previously served as a consultant for several cities and counties.

Dr. Wong co-authored *State and Local Government Capital Improvement Planning and Budgeting* and *Public/Private Partnerships* and has written extensively on public finance and policy issues including several articles on revenue forecasting, taxation, electric utility deregulation, and health care finance, and contributions to the *Handbook on Taxation* and the *State and Local Government Debt Issuance and Management Service*.

Professor Wong received his Bachelor of Business Administration and Master of Arts in Economics degrees from WSU, a Juris Doctorate from Washburn University, and a Doctor of Philosophy degree from Northeastern University. Professor Wong is also licensed to practice law in Kansas state and federal courts as well as the U.S. Supreme Court.

Economic Impact of Proposed Tax and Spending Reductions in Kansas

Background

2011 House Substitute for Senate Bill No. 1

During its 2011 session the Kansas Legislature considered House Substitute for Senate Bill No. 1, the March to Economic Growth Act (MEGA). House Sub. for SB 1 would provide for reductions in individual and corporation income tax rates beginning in tax year 2012 based on the extent to which a certain specified group of State General Fund (SGF) tax sources have increased over the base year of FY 2010. According to the provisions of this act:

§1(c)(1). . . commencing with fiscal year 2011, in any fiscal year in which the amount of selected actual state general fund receipts from such fiscal year exceeds the base fiscal year selected actual state general fund receipts, the director of legislative research shall certify such amount to the secretary of revenue and the director of the budget. Upon receipt of such certified amount, the secretary shall compute the percentage increase in selected actual state general receipts in such fiscal year. Based on such percentage of calculated receipt growth, the secretary shall reduce individual and corporation income tax rates. . . by a percentage equal to such percentage of calculated receipt growth for each income tax category and bracket for the income tax year in which the increase in selected actual state general fund receipts occurred, except that in no event shall be corporation normal income tax rate be less than 3.5% of the taxable income of such corporation. In any computation by the secretary pursuant to this section in which an individual or corporation income tax rate for any income tax category or bracket is below .4%, such rate shall be 0%.

§(c)(2) In any fiscal year in which the amount of selected actual state general fund receipts are less than the selected actual state general fund receipts from the immediately preceding fiscal year, the director of legislative research shall certify such amount and fact to the secretary of revenue and the director of the budget. Upon receipt of such amount and fact, the secretary of revenue shall not make any adjustment to the individual and corporation income tax rates for that tax year.

§(c)(3) Following any such fiscal year in which selected actual state general fund receipts were less than the previous fiscal year as described in subsection (c)(2), if the selected actual state general fund

receipts in any subsequent fiscal year exceed selected actual state general fund receipts from the immediately preceding fiscal year, the director of legislative research shall certify such amount to the secretary of revenue and the director of the budget. Upon such occurrence, the director shall also certify the amount of selected actual state general fund receipts for such fiscal year which exceeds the base year selected actual state general fund receipts to the secretary and the director. Upon receipt of such certified amount, the secretary shall compute the percentage increase in such actual receipts. Based on such percentage of calculated receipt growth, the secretary shall reduce individual and corporation income tax rates in the same manner as provided in subsection (c)(1).

Research Objective and Purpose of Study

The objective of this research is to analyze the economic impact and tax incidence implications of proposed tax reductions on Kansas. This study was conducted at the request of and funded by the Kansas Economic Progress Council. The overall purpose of the study was to provide public officials, businesses, and the general public with information on the economic impact of such tax reductions and resulting state spending cuts.

Income Tax Rate Rollback Provisions

The Director of Legislative Research would be required to certify at the conclusion of each fiscal year beginning with FY 2011 the amount by which a specific set of SGF tax receipts – generally most major income, privilege, and excise taxes – has grown over the FY 2010 base year. The Secretary of Revenue would then be required to compute that percentage growth and reduce all individual and corporation income tax brackets for the upcoming tax year by that percentage, except that the corporation income tax base rate would not be allowed to fall below 3.5 percent.

An exception to this formula would be provided when the selected set of tax sources produces less revenue in a given fiscal year relative to the preceding fiscal year, in which case no income tax rate reductions would be provided for the upcoming tax year. Following any such year when no rate reductions were triggered, the formula would be further adjusted to test the next fiscal year's receipts against the preceding fiscal year's receipts.

Fiscal Impact

Based on actual FY 2010 receipts and the current Consensus estimate for FY 2011, State General Fund (SGF) tax receipts from the selected tax sources are expected to grow by approximately \$610 million, or 12.63 percent, as summarized below in Exhibit 1.

Exhibit 1:

Selected SGF Tax Receipts			
(\$ in thousands)			
	FY 2010		FY 2011
	Actual		Est.
Individual	\$	2,418,208	\$ 2,577,175
Corporation		224,940	260,000
Financial Inst.		16,515	20,770
Retail Sales		1,652,037	2,000,000
Comp. Use		205,540	280,000
Cigarette		99,829	97,000
Tobacco Prod.		6,352	6,600
CM Beverage		1,989	1,900
Liq. Gallonage		17,953	18,800
Liq. Enforce		54,827	58,000
Liq. Drink		8,930	9,300
Corp. Franchise		41,462	18,000
Severance		81,870	92,800
TOTAL THESE SOURCES	\$	4,830,452	\$ 5,440,345
GROWTH			\$ 609,893
PCT GROWTH			12.63%

Source: Supplemental Note on House Substitute for Senate Bill No. 1, As Amended by House Committee of the Whole, 2011

Applying the 12.63 percent rate reduction to all individual and corporation income tax brackets for tax year 2012 (except that the corporation base rate could not fall below the specified 3.5 percent floor) would adjust the rates as shown below in Exhibit 2:

Exhibit 2: Current and Proposed Income Tax Rates for TY2012

	<u>Current</u>	<u>Proposed</u>
Individual	3.50 %	3.058 %
Individual	6.25	5.461
Individual	6.45	5.635
Corporation	4.00 %	3.500 %
Corporation	7.00	6.116

Source: Supplemental Note on House Substitute for Senate Bill No. 1, As Amended by House Committee of the Whole, 2011

The Department of Revenue estimates that such reductions in income tax rates would, by virtue of changes in withholding and estimated payments, have the following impact on FY 2012 SGF receipts as shown in Exhibit 3:

Exhibit 3: Impact of Proposed Tax Reductions on FY2012 Receipts

(in thousands)	
Individual	\$ (121,500)
Corporation	(14,400)
Total	\$ (135,900)

Source: Supplemental Note on House Substitute for Senate Bill No. 1, As Amended by House Committee of the Whole, 2011

Based on the current Consensus estimates for FY 2012, the selected tax sources would be expected to be above the FY 2010 base year receipts, even after the \$135.9 million reduction, by \$715.3 million, or 14.81 percent as shown in Exhibit 4.

Exhibit 4:

Selected SGF Tax Receipts		
(\$ in thousands)		
	FY 2012 Est.	FY 2012 Proposed
Individual	\$ 2,705,000	\$ 2,583,500
Corporation	275,000	260,600
Financial Inst.	21,000	21,000
Retail Sales	2,090,000	2,090,000
Comp. Use	295,000	295,000
Cigarette	97,000	97,000
Tobacco Prod.	6,800	6,800
CM Beverage	1,900	1,900
Liq. Gallonage	19,200	19,200
Liq. Enforce	59,000	59,000
Liq. Drink	9,500	9,500
Corp. Franchise	8,000	8,000
Severance	94,300	94,300
TOTAL THESE SOURCES	\$ 5,681,700	\$ 5,545,800
REDUCTION BELOW CURRENT LAW		\$ (135,900)
GROWTH OVER FY 2010		715,348
PCT. GROWTH OVER FY 2010		14.81%

Source: Supplemental Note on House Substitute for Senate Bill No. 1, As Amended by House Committee of the Whole, 2011

Applying the further income tax rate reductions to tax year 2013 and taking into account the 3.5 percent floor for the corporation base rate would change the rates as shown in Exhibit 5.

Exhibit 5: Proposed Income Tax Rates For TY2012 and TY2012

	TY 2012	TY 2013
Individual	3.058 %	2.610 %
Individual	5.461	4.650
Individual	5.635	4.800
Corporation	3.500 %	3.500 %
Corporation	6.116	5.210

Source: Supplemental Note on House Substitute for Senate Bill No. 1, As Amended by House Committee of the Whole, 2011

The Department of Revenue estimates that such reductions would have the following impact on FY 2013 receipts as shown in Exhibit 6.

Exhibit 6: Impact on FY2013 Receipts

(in thousands)	
Individual	\$ (541,900)
Corporation	(61,600)
Total	\$ (603,500)

Source: Supplemental Note on House Substitute for Senate Bill No. 1, As Amended by House Committee of the Whole, 2011

Additional income tax reductions of growing magnitude would be expected beginning in FY 2014 based on the assumption that SGF receipts would be expected to continue to grow under current law. Computation of future fiscal notes for income taxes under this formula is extremely problematic, given that the Consensus estimates for FY 2013 were not be made until November 2011; and estimates for FY 2014 will not be made until November 2012. Using the Department of Revenue estimates as a baseline, Appendix A presents the impact on FY 2013 receipts using alternative tax rate reduction scenarios.

Adjusted General Fund Tax Receipts

Because of periodic changes in statutes, regulations, and administrative procedures, direct comparisons of Actual General Fund Tax Receipts over time may be misleading. In order to facilitate valid comparisons over time Actual General Fund Tax Receipts must be adjusted such that all past years reflect present statutes, regulations, and administrative procedures. The following discusses adjustments made to Actual General Fund Tax Receipts to estimate the revenue that would have been generated in past years if Fiscal Year 2010 statutes, regulations, and administrative procedures were in effect for the entire period Fiscal Years 1992 through 2009.

The most important adjustments are for changes in (1) the tax base, (2) the tax rate, and (3) administrative procedures. Adjustments for statutory, regulatory, or administrative changes that have a one-time effect are made in the year of that effect. Adjustments for changes that will have an ongoing impact are made by determining the proportion of FY 2010 tax receipts comprised by the change and allocating this proportion back for previous years. FY 2010 was used as the baseline because this will be

the first fiscal year during which provisions of the change will be fully implemented because of timing differences in the tax year and the fiscal year.

Historical Rates of Change of Key Tax Sources

The average annual rates of change for Adjusted General Fund Tax Receipts were calculated for four time periods: Fiscal Years 1992 through 2009, Fiscal Years 1998 through 2009, Fiscal Years 2003 through 2009, and Fiscal Years 2005 through 2009. Two methods were used to compute annual rates of change. The two-point method is computed by determining the total percentage change over the entire time period divided by the number of years.

$$\text{Rate of Change} = \left[\frac{\text{Receipts in Last Year} - \text{Receipts in First Year}}{\text{Receipts in First Year}} \right] \div \text{Number of Years}$$

One problem with the two-point method is that the rate of change is totally dependent on the values of the end-point years. Therefore if unusual circumstances exist in one or both of the end-point years the rate of change will be misleading.

However, with the trend method all values in the time period under consideration are used. The point method is computed using a log-linear regression of the natural logarithm of receipts as the dependent variable and time as the independent variable.

$$\ln(\text{Receipts}) = a + b(\text{Time}) + e$$

Alpha (α) is the intercept term, beta (β) is the slope term, and epsilon (ϵ) is the random error term.

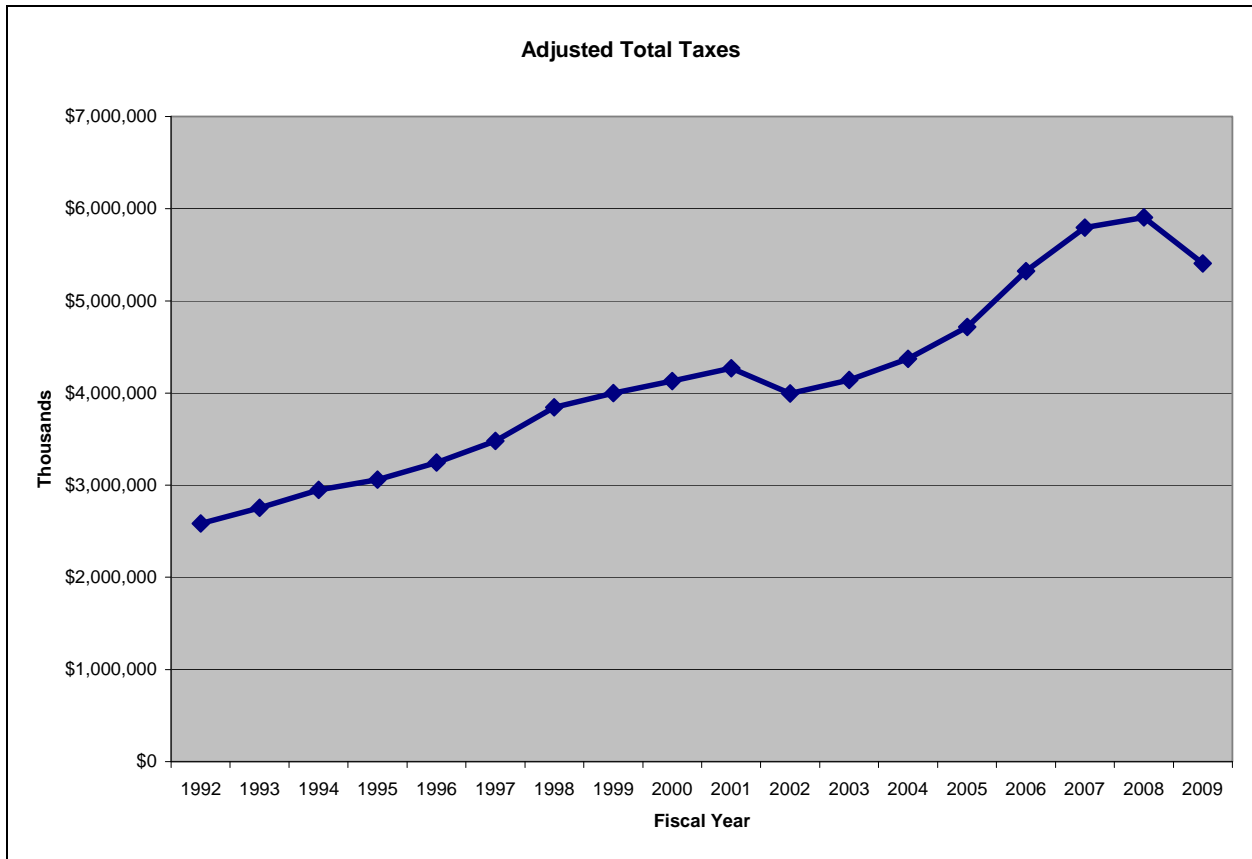
In a log-linear regression the coefficient of the slope variable is an estimate of the average annual rate of change.

It should be noted that the average annual rates of change may be somewhat misleading because of the impact of the unprecedented declines in several state general fund revenue sources during Fiscal Years 2002 and 2009.

Total Taxes

According to trend estimates Adjusted Total General Fund Tax Receipts grew at an average annual rate of 4.5 percent from Fiscal Year 1992 through Fiscal Year 2009. Adjusted Total General Fund Tax Receipts increased at an average annual rate of 3.6 percent from Fiscal Year 1998 through Fiscal Year 2009. Adjusted Total General Fund Tax Receipts rose at an average annual rate of 5.3 percent from Fiscal Year 2003 through Fiscal year 2009. Most recently, Adjusted Total General Fund Tax Receipts increased at an average annual rate of 3.8 percent from Fiscal Year 2005 through Fiscal year 2009. Exhibit 7 presents Kansas Adjusted Total General Fund Tax Receipts from Fiscal Year 1992 through Fiscal Year 2009.

Exhibit 7:

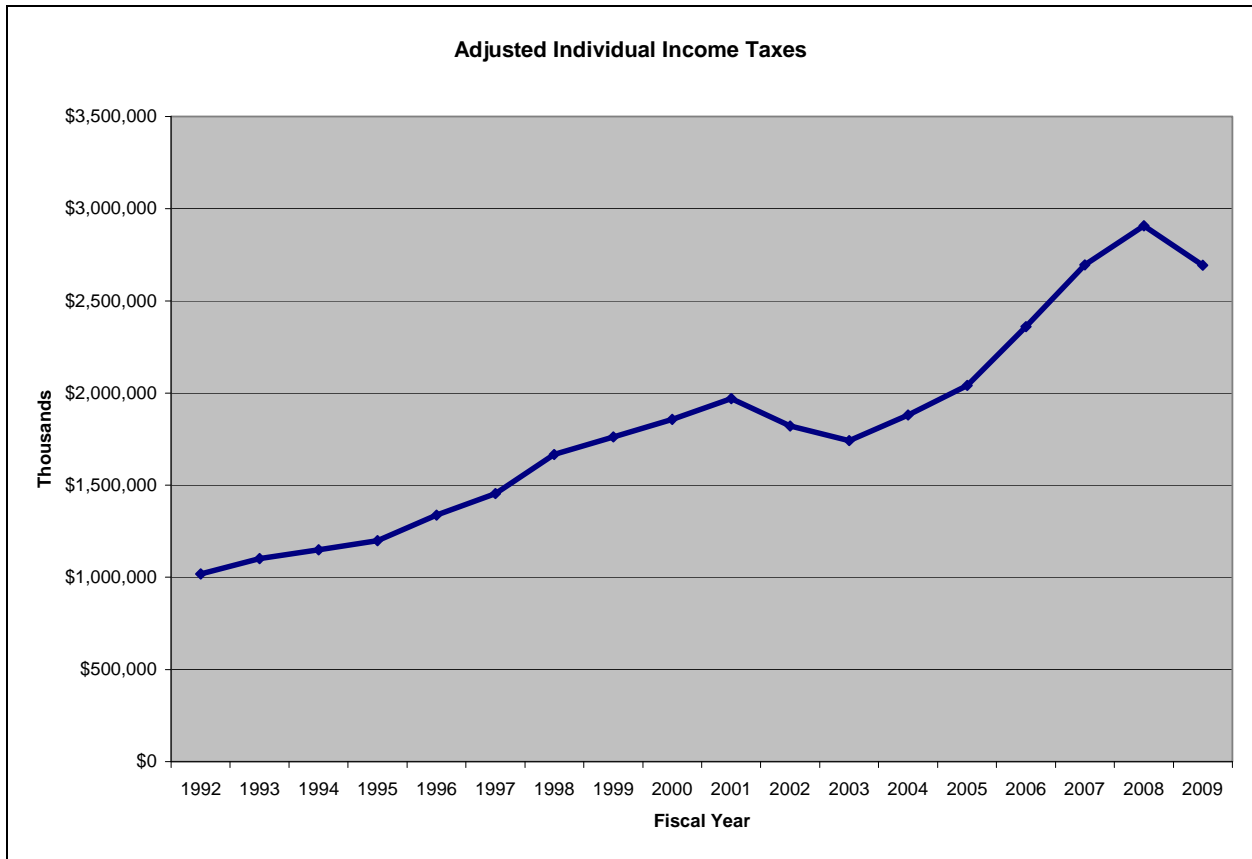


Source: Wong (2009), *State of Kansas Adjusted General Fund Tax Receipts, Rates of Change, Elasticities, Composition, and Effective Tax Rates: Fiscal Years 1992 Through 2009*

Individual Income Taxes

According to trend estimates Adjusted Individual Income Tax Receipts grew at an average annual rate of 5.7 percent from Fiscal Year 1992 through Fiscal Year 2009. Adjusted Individual Income Tax Receipts increased at an average annual rate of 4.6 percent from Fiscal Year 1998 through Fiscal Year 2009. Adjusted Individual Income Tax Receipts rose at an average annual rate of 8.7 percent from Fiscal Year 2003 through Fiscal Year 2009. Most recently, Adjusted Individual Income Tax Receipts grew at an average annual rate of 7.7 percent from Fiscal Year 2005 through Fiscal Year 2009. Exhibit 8 presents Kansas Adjusted Individual Income Tax Receipts from Fiscal Year 1992 through Fiscal Year 2009.

Exhibit 8:

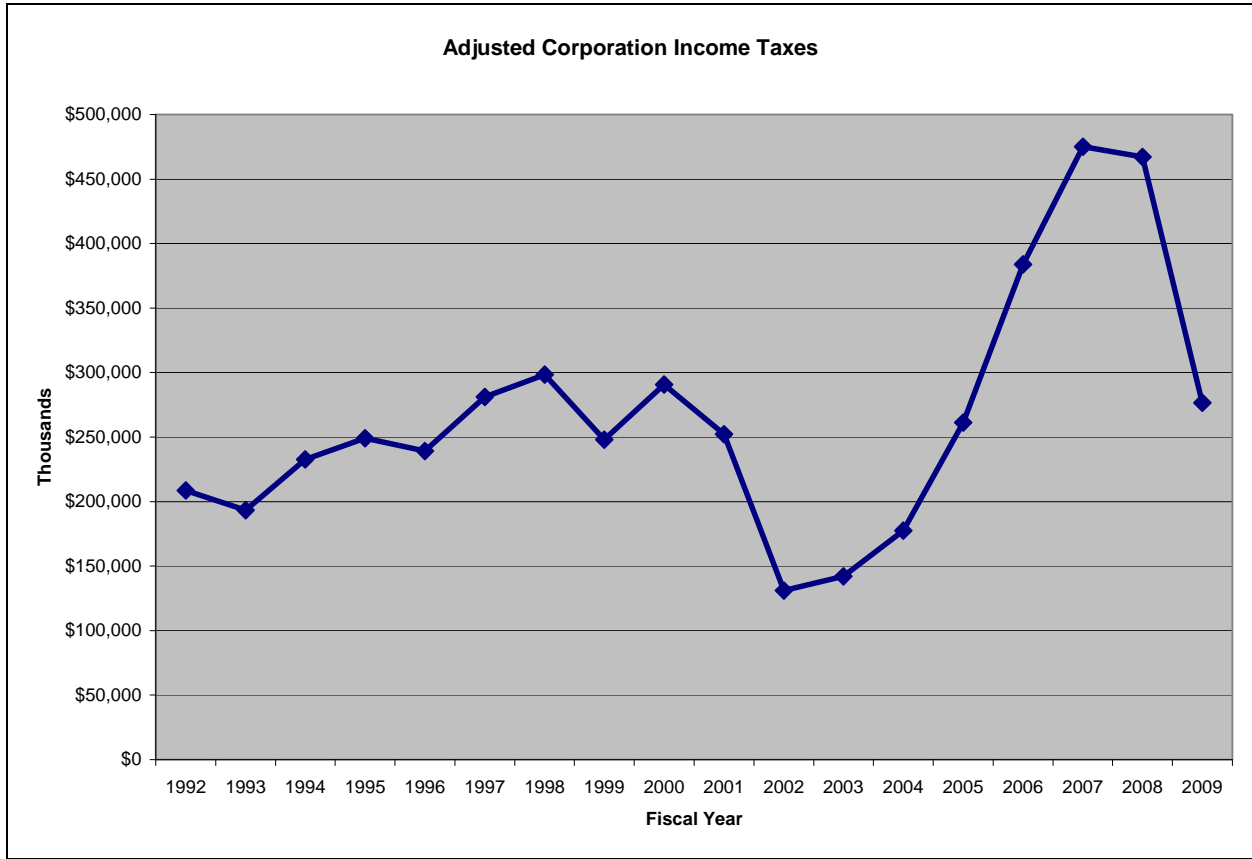


Source: Wong (2009), *State of Kansas Adjusted General Fund Tax Receipts, Rates of Change, Elasticities, Composition, and Effective Tax Rates: Fiscal Years 1992 Through 2009*

Corporation Income Taxes

According to trend estimates Adjusted Corporation Income Tax Receipts increased at an average annual rate of 2.2 percent from Fiscal Year 1992 through 2009. Adjusted Corporation Income Tax Receipts increased at an average annual rate of 2.0 percent from Fiscal Year 1998 through Fiscal Year 2009. Adjusted Corporation Income Tax Receipts rose at an average annual rate of 13.9 percent from Fiscal Year 2003 through Fiscal Year 2009. Most recently, Adjusted Corporation Income Tax Receipts grew at an average annual rate of 3.3 percent from Fiscal Year 2005 through Fiscal Year 2009. Exhibit 9 presents Kansas Adjusted Corporation Income Tax Receipts from Fiscal Year 1992 through Fiscal Year 2009.

Exhibit 9:

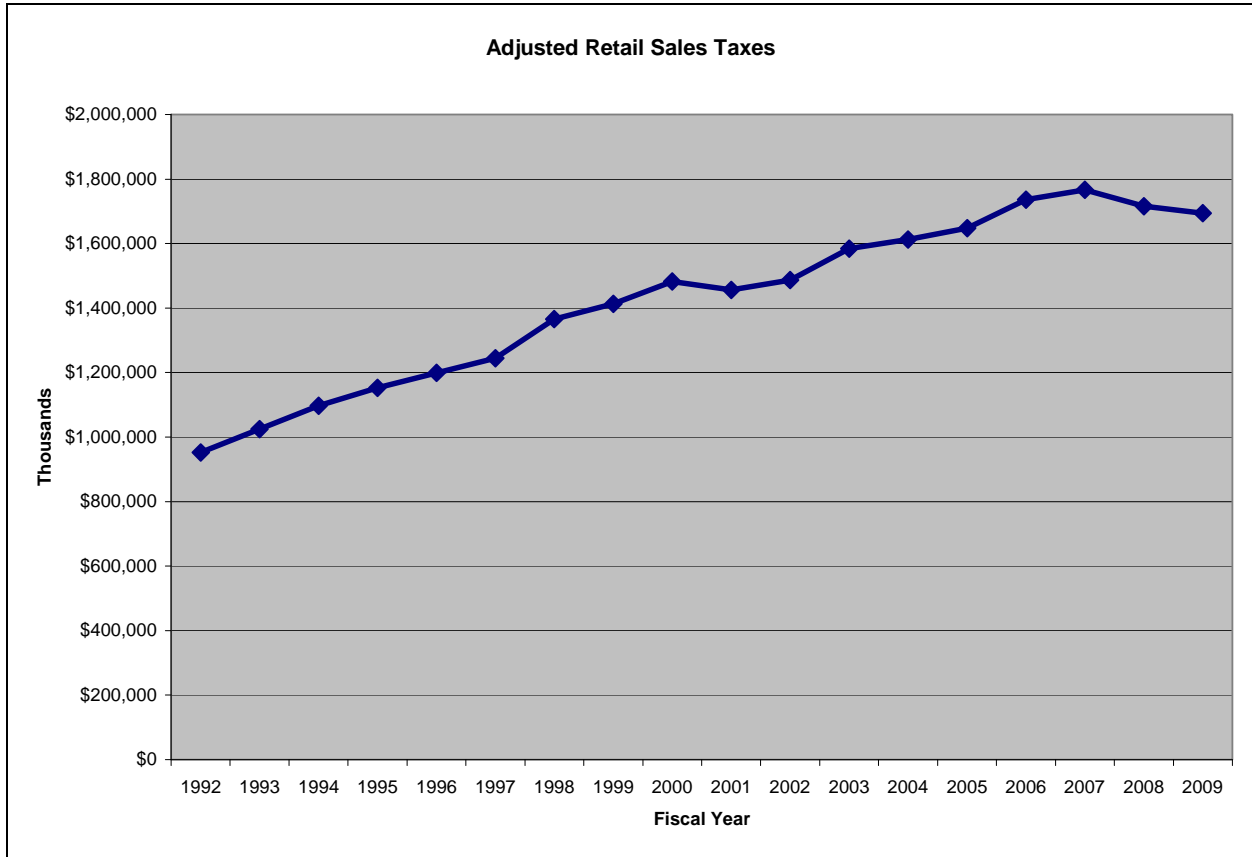


Source: Wong (2009), *State of Kansas Adjusted General Fund Tax Receipts, Rates of Change, Elasticities, Composition, and Effective Tax Rates: Fiscal Years 1992 Through 2009*

Retail Sales Taxes

According to trend estimates Adjusted Retail Sales Tax Receipts rose at an average annual rate of 3.4 percent from Fiscal Year 1992 through Fiscal Year 2009. Adjusted Retail Sales Tax Receipts grew at an average annual rate of 2.2 percent from Fiscal Year 1998 through Fiscal Year 2009. Adjusted Retail Sales Tax Receipts increased at an average annual rate of 1.3 percent from Fiscal Year 2003 through Fiscal Year 2009. Most recently, Adjusted Retail Sales Tax Receipts increased at an average annual rate of only 0.4 percent from Fiscal Year 2005 through Fiscal Year 2009. Exhibit 10 presents Kansas Adjusted Retail Sales Tax Receipts from Fiscal Year 1992 through Fiscal Year 2009.

Exhibit 10:

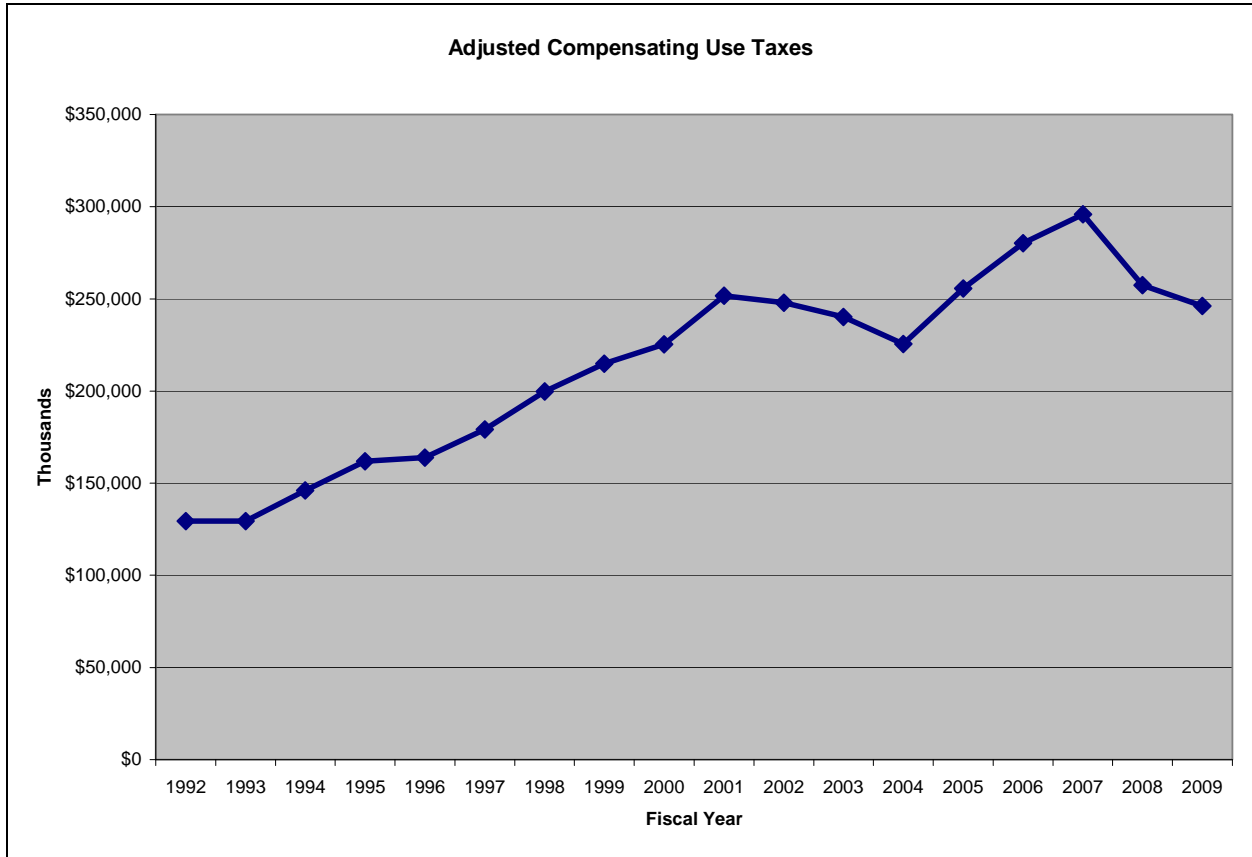


Source: Wong (2009), *State of Kansas Adjusted General Fund Tax Receipts, Rates of Change, Elasticities, Composition, and Effective Tax Rates: Fiscal Years 1992 Through 2009*

Compensating Use Taxes

According to trend estimates Adjusted Compensating Use Tax Receipts rose at an average annual rate of 4.1 percent from Fiscal Year 1992 through Fiscal Year 2009. Adjusted Compensating Use Tax Receipts grew at an average annual rate of 2.2 percent from Fiscal Year 1998 through Fiscal Year 2009. Adjusted Compensating Use Tax Receipts increased at an average annual rate of only 0.4 percent from Fiscal Year 2003 through Fiscal Year 2009. Most recently, Adjusted Compensating Use Tax Receipts decreased at an average annual rate of 1.6 percent from Fiscal Year 2005 through Fiscal Year 2009. Exhibit 11 presents Kansas Adjusted Compensating Use Tax Receipts from Fiscal Year 1992 through Fiscal Year 2009.

Exhibit 11:



Source: Wong (2009), *State of Kansas Adjusted General Fund Tax Receipts, Rates of Change, Elasticities, Composition, and Effective Tax Rates: Fiscal Years 1992 Through 2009*

Input-Output (I-O) Models

An ***input-output model (I-O model)*** is a mathematical model that describes the flows of money between industries within a region's economy. Flows are predicted by examining what each industry requires from every other industry to produce a dollar's worth of output. Using each industry's production function, I-O models also determine the proportions of sales that go to wage and salary income, proprietor's income, and taxes. Multipliers can be estimated from I-O models based on the estimated re-circulation of spending within the region. Exports and imports are determined based upon estimates of the propensity of households and businesses within the region to purchase goods and services from local sources (often called RPC's or regional purchase coefficients). The higher the proportion of goods and services purchased within the region, the higher the multipliers for the region (Stynes, 1997: 6).

Input-output analysis is a broad category of models that estimate economic change based on the premise that production in a region is comprised of interlinked businesses that interact with one another. Changes are most often the result of some change in consumption or demand. Other changes that can be assessed using I-O analysis include changes in government policies, market oriented demand changes, and changes in production by a given industry. I-O analysis provides an important tool to address questions of "economic impact" resulting from some pre-specified change in economic activity. I-O models can model economic changes caused by both demand and supply changes (Shaffer, Deller, and Marcouiller, 2004).

Economic Impact Analysis (EIA)

Economic impact analysis (EIA) traces changes in economic activity resulting from an initial activity. An EIA identifies which economic industries benefit or lose from a change in economic activity and estimates resulting changes in income and employment in the region. Several measures of changes in economic activity can be derived. The most commonly reported measures are changes in spending, changes in income, and changes in employment. EIA procedures do not assess economic efficiency nor do they generally produce estimates of the fiscal costs of an action (Stynes, 1997: 3).

A standard economic impact analysis follows the flow of money from an initial change in economic activity to:

- Businesses—Supplying goods and services to consumers and other businesses,
- Households—Earning income by working in related industries, and
- Government—Through various taxes and charges.

The **total economic impact** of an initial change in economic activity is the sum of direct, indirect, and induced effects within a region. Indirect and induced effects are sometimes collectively called **secondary effects**. Any of these impacts may be measured as gross output or sales, income, employment, or value added (Stynes, 1997: 5).

- **Direct effects** are production changes associated with the immediate effects of changes in economic activity (Stynes, 1997: 5).
- **Indirect effects** are changes in economic activity resulting from various rounds of re-spending of the initial receipts in other backward-linked industries (Stynes, 1997: 5).
- **Induced effects** are the changes in economic activity resulting from household spending of income earned directly or indirectly as a result of the initial change in economic activity. Induced effects are the result of sales, income, and jobs from household spending of added wage, salary, or proprietor's income (Stynes, 1997: 6).

The magnitude of secondary effects depends on the propensity of businesses and households in the region to purchase goods and services from local suppliers. Induced effects may also occur when local consumers purchase goods or services outside of the local area resulting in a leakage of employment and income from the area. Not only are supporting industries (indirect effects) affected, but the entire local economy suffers due to the leakage of jobs and household income from the region. Similar effects occur in the opposite direction when there is a significant increase in jobs and household income (Stynes, 1997: 6).

Final demand refers to sales to the final consumers of goods and services. Government spending is also considered final demand (Stynes, 1997: 6).

Impact Analyses and Planning (IMPLAN)

Impact Analyses and Planning (IMPLAN) is a regional economic impact model that was originally developed in the late 1970's by the University of Minnesota in cooperation with the U.S. Department of Agriculture (USDA) Forest Service, the Federal Emergency Management Agency (FEMA), and the U.S. Department of the Interior's (DOI) Bureau of Land Management (BLM) to assist in land and resource management planning. Since 1993, development of the IMPLAN model has been the exclusive right of the Stillwater, Minnesota-based company, Minnesota IMPLAN Group, Inc., which licenses and distributes the software and data to users (Mulkey and Hodges, 2000: 4).

IMPLAN and the associated database contain a set of social/economic accounts that describe the structure of the U.S. economy in terms of transactions between households, governments, and 440 standardized industry sectors classified on the basis of the primary commodity or service produced. The database also describes the local and regional economy in terms of industry output, value added, employment, imports, and exports. A wide variety of sources are used to construct the databases, including the annual economic census conducted by the U.S. Commerce Department and the U.S. Bureau of Labor Statistics.

The IMPLAN© Version 3 (Professional Social Accounting and Impact Analysis) software, developed by MIG, Inc., Stillwater, MN, was used to conduct a comparative analysis of the economic impact on Kansas from state income tax and spending reductions. This analysis is based on the 2008 IMPLAN database for the State of Kansas using Social Accounting Matrix (SAM) multipliers. Of course, not all purchases will be made within the study region by recipient organizations. The IMPLAN model provides estimates of leakages (how much supporting economic activity will originate from outside the model's study area). Multipliers are estimated within the IMPLAN model and are based on the actual industry where the spending initially occurs and the structure of the study area's economy. IMPLAN also estimates induced activity based on data collected on household consumption patterns (Cutler, 2008: 12).

Economic Multipliers

IMPLAN is an economic input-output model used to estimate the volume of supplemental economic activity that might be expected to result from a certain direct impact. This supporting activity is referred to as the **multiplier effect**. Whenever there is a positive economic infusion in a regional economy, additional economic activity is generated by those entities that have benefited from the increased purchase goods and services. There is also re-spending of wages and income received by individuals paid in providing this economic activity. Indirect activity is activity related to suppliers purchasing goods within the regional economy to provide services and goods to recipient organizations. Induced activity is the re-spending of wages and salaries paid to workers who are employed directly by recipient organizations and by suppliers providing goods and services to recipient organizations (Cutler, 2008: 12).

Multipliers capture the secondary economic effects (indirect and induced) of increased economic activity, as well as the economic interdependencies between industries within a particular region's economy. There are many different kinds of multipliers reflecting which secondary effects are included and which measure of economic activity is used (spending, income, or employment), and thus, multipliers vary considerably from region to region and industry to industry.

Multipliers are estimates of the extent to which direct expenditures are re-spent in successive rounds of spending throughout the local economy. Because of the effect of economic multipliers, the total economic impact is far greater than the amount of direct spending. Since State of Kansas economic data were used to run the model, the economic multipliers generated by IMPLAN are specific to the State of Kansas.

In general, economic multipliers are defined as the net change in economic activity in a community or a region that results from spending attributed to a particular activity (or set of activities), event, or facility. The purpose of an economic impact analysis is to measure the economic benefits that accrue to a particular community or region.

The concept of the multiplier recognizes that changes in the level of economic activity in one area create successive rounds of spending throughout the economy. The total amount of spending is the first round of spending and represents the **direct** economic impact. In turn, direct spending by the vendors

of the initial activity stimulate economic activity as the dollars paid to the suppliers of commodities and services spend the money they receive as income to pay for salaries, wages, benefits, and supplies and to pay taxes to various levels of government. Thus, direct spending by the vendors of the initial activity precipitates a second round of spending that is called the ***indirect*** economic impact. Thus, to summarize, the suppliers of commodities and services spend money in five categories:

- ***Local Industry Purchases***: Payments to other private sector businesses in the same jurisdiction to restock inventories, provide for future sales, maintain grounds and buildings, pay insurance premiums;
- ***Direct Household Income***: Payments to employees who reside in the area in the form of salaries and wages, which constitutes personal income to them;
- ***Local Government Revenue***: Payments to local governments for sales taxes, property taxes, or taxes on profits;
- ***Nonlocal Government Revenue***: Payments to the federal and state governments for sales taxes, taxes on profits, or other taxes;
- ***Nonlocal Leakage***: Payments to employees, shareholders, businesses, organizations, and others who reside outside the local area.

The latter two categories of spending illustrate that the local economy is part of a larger state and national economy, and some money “leaks” out of the area’s economy to pay taxes or buy goods and services from entities outside the area. Only those dollars remaining in the local economy after leakage has taken place constitute the net economic gain to the area. The portion of first round expenditures that remains in the area from local inter-industry purchases, direct household income, or local government revenue is subsequently spent in one of the five ways listed above and thereby sets into motion a further round of economic activity. The portion of household income (employee wages and salaries) that is spent locally on goods and services is called the ***induced*** impact. The indirect and induced effects taken together are called secondary impacts. As a result of these successive waves of spending, the total economic impact is significantly larger than the initial level of direct spending. The ***multiplier*** is the total of the successive rounds of spending in an economy divided by the original direct expenditure (Thompson and Wagenhals, 2002: 23-24).

Economic Impact of Tax and/or Spending Reductions

Individual Income Tax Reduction

The following economic impacts were computed using IMPLAN 3 Professional and are based on an individual income tax reduction of \$541.9 million for tax year 2013 estimated by the Legislative Research Department for the Supplemental Note on House Substitute for Senate Bill Number 1 as Amended by House Committee of the Whole. The impact of the individual income tax reduction was estimated by distributing the increase in personal income proportionally according to personal income groupings. Exhibit 12 below summarizes the economic impact of a reduction in state individual income tax rates. The total effect on state output is \$590.0 million, including a direct effect of \$369.2 million, an indirect effect of \$112.9 million, and an induced effect of \$108.0 million. The total effect on state value added is \$339.4 million, including a direct effect of \$216.3 million, an indirect effect of \$60.1 million, and an induced effect of \$62.3 million. The total effect on state labor income is \$185.2 million, including a direct effect of \$114.7 million, an indirect effect of \$36.7 million, and an induced effect of \$33.8 million. The total effect on state-wide employment is a gain of 4,903 jobs, including a direct effect of 3,235 jobs gained, and indirect effect of 770 jobs gained, and an induced effect of 899 jobs gained.

Exhibit 12: Economic Impact of Individual Income Tax Reduction

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	3,235	\$114,727,680	\$216,330,752	\$369,161,280
Indirect Effect	770	\$36,716,848	\$60,801,280	\$112,852,552
Induced Effect	899	\$33,752,044	\$62,258,176	\$107,976,560
Total Effect	4,903	\$185,196,576	\$339,390,464	\$589,990,400

Exhibit 13 below summarizes the top ten industries by employment affected by an income tax rate reduction.

Exhibit 13: Industries Most Affected by Individual Income Tax Reduction

Description	Total Employment	Total Labor Income	Total Value Added	Total Output
Food services and drinking places	545	\$9,922,394	\$14,888,088	\$32,789,562
Private hospitals	270	\$15,627,437	\$16,411,171	\$33,188,218
Offices of physicians, dentists, and other health practitioners	264	\$21,119,186	\$24,495,570	\$37,226,272
Real estate establishments	227	\$4,757,982	\$22,367,202	\$30,524,510
Nursing and residential care facilities	218	\$6,388,454	\$6,621,364	\$10,147,554
Retail Stores - Food and beverage	180	\$4,971,335	\$7,555,343	\$12,046,058
Retail Stores - General merchandise	162	\$4,361,666	\$6,486,309	\$10,189,123
Retail Nonstores - Direct and electronic sales	143	\$1,093,399	\$3,696,870	\$5,313,541
Wholesale trade businesses	136	\$10,235,323	\$17,599,678	\$25,093,800
Private household operations	131	\$866,300	\$992,820	\$1,024,878

Corporation Income Tax Reduction

The following economic impacts are based on a corporation income tax reduction of \$61.6 million for tax year 2013 estimated by the Legislative Research Department for the Supplemental Note on House Substitute for Senate Bill Number 1 as Amended by House Committee of the Whole. The impact of the corporation income tax reduction was estimated by distributing the increase in corporation income proportionally according to total tax liability by North American Industry Classification System (NAICS) two-digit industry code as reported by the Kansas Department of Revenue. Exhibit 14 below summarizes the economic impact of a reduction in state corporation income tax rates (2010). The total effect on state output is \$93.3 million, including a direct effect of \$60.5 million, an indirect effect of \$17.9 million, and an induced effect of \$14.9 million. The total effect on state value added is \$46.3 million, including a direct effect of \$28.1 million, an indirect effect of \$9.5 million, and an induced effect of \$8.7 million. The total effect on state labor income is \$27.0 million, including a direct effect of \$16.8 million, an indirect effect of \$5.4 million, and an induced effect of \$4.9 million. The total effect on state-wide employment is a gain of 582 jobs, including a direct effect of 347 jobs gained, and indirect effect of 105 jobs gained, and an induced effect of 131 jobs gained.

Exhibit 14: Economic Impact of Corporation Income Tax Reduction

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	347	\$16,756,934	\$28,078,738	\$60,526,945
Indirect Effect	105	\$5,367,917	\$9,500,342	\$17,913,013
Induced Effect	131	\$4,910,877	\$8,715,769	\$14,908,635
Total Effect	582	\$27,035,727	\$46,294,849	\$93,348,593

Exhibit 15 below summarizes the top ten industries by employment affected by an income tax rate reduction.

Exhibit 15: Industries Most Affected by Corporation Income Tax Reduction

Description	Total Employment	Total Labor Income	Total Value Added	Total Output
44-45 Retail trade	192	\$5,074,001	\$8,096,886	\$12,118,831
42 Wholesale Trade	49	\$3,498,865	\$6,016,313	\$8,869,705
31-33 Manufacturing	37	\$2,868,116	\$4,375,562	\$22,286,226
48-49 Transportation & Warehousing	34	\$1,804,887	\$2,792,315	\$4,911,209
81 Other services	32	\$831,498	\$1,061,458	\$2,072,989
52 Finance & insurance	32	\$1,873,892	\$3,255,125	\$6,376,445
62 Health & social services	31	\$1,365,600	\$1,593,908	\$2,660,500
54 Professional- scientific & tech svcs	27	\$1,760,437	\$2,022,155	\$3,684,460
56 Administrative & waste services	21	\$723,061	\$919,379	\$1,496,155
72 Accomodation & food services	20	\$362,745	\$554,332	\$1,173,980

State Spending Reduction

The following economic impacts are based on a state spending reduction of \$603.5 million for tax year 2013 estimated by the Legislative Research Department for the Supplemental Note on House Substitute for Senate Bill Number 1 as Amended by House Committee of the Whole. The impact of the state spending reduction was estimated by distributing the decrease in state spending across all non-education state spending. Exhibit 16 below summarizes the economic impact of a state spending reduction equal to the combined reduction in individual income tax and corporation income tax reductions. The total effect on state output is \$741.5 million, including a direct effect of \$456.9 million, an indirect effect of \$64.8 million, and an induced effect of \$219.5 million. The total effect on state value added is \$516.0 million, including a direct effect of \$355.5 million, an indirect effect of \$33.9 million, and an induced effect of \$126.6 million. The total effect on state labor income is \$378.4 million, including a direct effect of \$289.0 million, an indirect effect of \$0.7 million, and an induced effect of \$68.7 million. The total effect on state-wide employment is a loss of 8,927 jobs, including a direct effect of 6,578 jobs lost, and indirect effect of 440 jobs lost, and an induced effect of 1,909 jobs lost.

Exhibit 16: Economic Impact of State Spending Reduction

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	-6,578	(\$288,973,312)	(\$355,521,536)	(\$456,851,168)
Indirect Effect	-440	(\$20,702,318)	(\$33,888,256)	(\$64,778,268)
Induced Effect	-1,909	(\$68,683,016)	(\$126,576,384)	(\$219,833,184)
Total Effect	-8,927	(\$378,358,656)	(\$515,986,432)	(\$741,462,592)

Exhibit 17 below summarizes the top ten industries effected by the state spending reduction resulting from a reduction in the ten most negatively effected industry based on employment.

Exhibit 17: Industries Most Affected by State Spending Reduction

Description	Total Employment	Total Labor Income	Total Value Added	Total Output
* Employment and payroll only (state & local govt, non-education)	-4,805	(\$212,760,240)	(\$240,979,824)	(\$240,979,840)
Food services and drinking places	-478	(\$8,322,664)	(\$12,487,768)	(\$26,988,442)
Employment services	-310	(\$8,780,215)	(\$9,475,155)	(\$12,986,845)
Real estate establishments	-187	(\$3,742,514)	(\$17,593,502)	(\$23,359,324)
Maintenance and repair construction of nonresidential structures	-180	(\$10,260,589)	(\$10,734,187)	(\$20,332,102)
Wholesale trade businesses	-139	(\$10,015,381)	(\$17,221,488)	(\$25,389,220)
Offices of physicians, dentists, and other health practitioners	-106	(\$8,076,694)	(\$9,367,937)	(\$14,029,389)
Private hospitals	-103	(\$5,677,064)	(\$5,961,774)	(\$11,977,762)
Nursing and residential care facilities	-94	(\$2,631,255)	(\$2,727,185)	(\$4,023,325)
Services to buildings and dwellings	-88	(\$2,274,134)	(\$2,788,197)	(\$5,325,746)

Cumulative Impact

This section of the report outlines the cumulative impacts of the tax and government spending reductions discussed above. Exhibit 18 below summarizes the cumulative economic impact of cuts in state individual and corporation income tax rates and a state spending reduction equal to the combined reduction in individual income tax and corporation income tax reductions. The total effect on state output is a net loss of \$58.1 million, including a direct effect of -\$27.2 million, an indirect effect of \$66.0 million, and an induced effect of -\$58.1 million. The total effect on state value added is a net loss of \$130.3 million, including a direct effect of -\$111.1 million, an indirect effect of \$36.4 million, and an induced effect of -\$55.6 million. The total effect on state labor income is a net loss of \$166.1 million, including a direct effect of -\$157.5 million, an indirect effect of \$21.4 million, and an induced effect of -\$166.1 million. The total effect on state-wide employment is a net loss of 3,441 jobs, including a direct effect of 2,996 jobs lost, an indirect effect of 434 jobs gained, and an induced effect of 879 jobs lost. As such, for every job created by a reduction in income tax rates, 1.63 jobs would be lost by an equal reduction in state spending. Similarly, for every dollar of labor income generated by a reduction in income tax rates, \$1.78 would be lost by an equal reduction in state spending. Likewise, for every dollar of value added generated by a reduction in income tax rates, \$1.34 would be lost by an equal reduction in state spending. Finally, for every dollar of total output generated by a reduction in income taxes, \$1.09 would be lost by an equal reduction in state spending.

Exhibit 18: Combined Impact of Tax and Spending Reductions

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	-2,996	(\$157,488,698)	(\$111,112,046)	(\$27,162,943)
Indirect Effect	434	\$21,382,447	\$36,413,366	\$65,987,297
Induced Effect	-879	(\$30,020,095)	(\$55,602,439)	(\$96,947,989)
Total Effect	-3,441	(\$166,126,353)	(\$130,301,119)	(\$58,123,599)

Tax Incidence: Introduction

Former Senator Russell Long of Louisiana had a succinct definition of tax reform: “Tax reform means ‘don’t tax you, don’t tax me, tax that fellow behind the tree.’” While states tinker with their tax systems every year, most have tended to overlook the need for more fundamental tax reform to reflect structural economic change.

Reconfiguring a tax system is a daunting task and broad tax reform efforts are not undertaken lightly. Yet most states have at least considered it at one time or another, usually through commissioning a tax study or appointing a blue ribbon panel.

At least 37 states have conducted tax studies since 2000 (State Tax Study Commissions, 2004).

The benefits to a state and its residents of developing the capacity to determine the incidence of its tax structure are many (Mazerov, 2002):

- Making information about the distribution of tax liabilities across different income groups available to policymakers and to the public at large ensures that discussion about “who pays?”

and “who should pay?” state and local taxes can be included in the debate that accompanies the formulation of tax policy.

- The availability of such information makes it much more possible for lawmakers to formulate tax change proposals that affect tax burdens in the way they intend.
- States can use information about how tax proposals affect the distribution of their tax systems to ensure that tax changes complement rather than work against the priorities that have shaped spending decisions.
- Moreover it is important to prepare distributional analyses periodically and not just when major tax changes are being considered. A comprehensive study of the overall distribution of state and local tax burdens by income at regular intervals allows elected officials and the residents of a state to step back from time to time and assess the implications of changes in tax policy that may have been made piecemeal over the course of years. Regular tax incidence studies also allow policymakers and the public to determine whether changes in a state’s economy have resulted in an unintended shift in tax burdens among people in different economic circumstances. This knowledge can lead to initiatives to change the resulting distribution. In addition developing the capacity to do regular tax incidence studies usually means that the capacity exists to study tax changes when they are proposed.

According to Mazerov (2002) three states, Maine, Minnesota, and Texas, have enacted laws mandating that the state conduct both periodic studies of the incidence of the overall state tax system and analyses of the distributional impact of proposed tax legislation. Exhibit 19 presents the tax incidence analysis capacity of the various states.

Exhibit 19: State Tax Incidence Models

States with Multi-tax Economic Incidence Models		
<u>Latest periodic "snapshot" report</u>		
Colorado		1994
Maine		2000
Minnesota		2001
Missouri		None
Nebraska		None
Oregon		2001
Texas		2001
Washington		None
States Developing Multi-tax Economic Incidence Models		
Alabama New Hampshire		
States with Multi-tax Initial Tax Impact-Type Models		
<u>Latest periodic "snapshot" report</u>		
Utah		2001
States with Personal Income Tax Microsimulation Models		
Arizona	Massachusetts	Ohio
California	Michigan	Pennsylvania
Delaware	Mississippi	Rhode Island
Illinois	Montana	Vermont
Iowa	New Jersey	Virginia
Kansas	New Mexico	Wisconsin
Kentucky	New York	
Maryland	North Carolina	
States Lacking a Significant Tax Incidence Analysis Capacity		
Alaska*	Hawaii	Oklahoma
Arkansas	Idaho	South Carolina
Connecticut	Indiana	South Dakota*
Dist. of Columbia	Louisiana	Tennessee*
Florida*	Nevada*	West Virginia
Georgia	North Dakota	Wyoming*
*States without personal income taxes		

Source: Mazerov, 2002.

Definition

Tax incidence is the study of who ultimately bears the economic burden of a tax. Broadly speaking tax incidence analysis examines the impact of taxes on the distribution of income within a society. To compare the tax burden of one population group to another it is useful to measure the tax burden as a percentage of household income: $\text{Tax Incidence} = \text{Tax Burden} / \text{Household Income}$. Thus the task of a tax incidence study is to estimate: (1) the tax burden for a particular household or group of households; and (2) household income for that household or group (*Wisconsin Tax Incidence Study*, 2004).

Tax incidence analysis begins with the basic premise that the party with the legal responsibility to pay a tax may not be the party whose economic wellbeing is ultimately impaired by the imposition of the tax (Fullerton and Metcalf, 2002). The legal incidence of a tax concerns who has the legal obligation to remit the tax. The economic incidence of a tax concerns whose economic wellbeing is ultimately negatively affected due to the tax. The economic incidence and the legal incidence is usually the same for taxes imposed on households. However for taxes imposed on businesses this may not be the case. The economic incidence of a tax may differ from the legal incidence of a tax due to tax shifting. Tax shifting occurs when one party is able to transfer the economic burden of a tax onto another party by engaging in avoidance behavior. The *Minnesota Tax Incidence Study* (2005) defines tax shifting as the process by which the incidence of a tax is transferred from the entity legally obligated to pay the tax to entity ultimately bearing the economic impact of the tax.

However tax avoidance should be distinguished from tax evasion. On the one hand tax evasion is illegally failing to pay a tax that is legally owed. On the other hand tax avoidance involves changing one's behavior to legally limit tax liability. A tax may be forward shifted onto a party downstream in the course of commerce or backward shifted onto a party upstream in the course of commerce. For example in most cases retailers have the legal obligation to collect and remit sales taxes however they may avoid the economic burden by shifting the burden of the tax forward onto consumers in the form of higher prices. Some business taxes may also be backward shifted onto workers and suppliers in the form of lower wages and payments.

Effective Tax Rate

One basic measure of tax incidence is to compare effective tax rates (ETR) across income classes. The effective tax rate is the tax rate paid as a percentage of gross income. The measure of income used in this study is Kansas adjusted gross income. However, when using the ETR as a measure of tax incidence it should be noted that effective tax rates for low income groups may be unreliable. Specifically lower income groups may include households with temporarily low incomes or who consume based on wealth rather than current income (retirees, for example).

Tax Equity

Tax equity has two primary components. First horizontal equity concerns whether taxpayers with comparable abilities to pay owe comparable amounts of tax. Second vertical equity concerns the rationality of the tax structure. A tax is regarded as being progressive if the proportion of income paid as tax increases as income increases, a tax is proportional if the proportion of income paid as tax remains constant regardless of income, and a tax is considered to be regressive if the proportion of income paid as tax decreases as income increases. The *Minnesota Tax Incidence Study* (2005) uses the following definitions:

- Progressive tax—A tax for which the effective tax rate rises as income rises.
- Proportional tax—A tax for which the effective tax rate does not change with income.

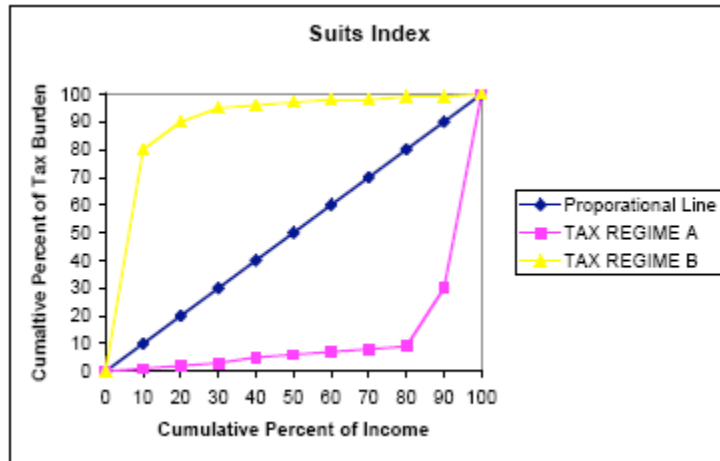
- Regressive tax—A tax for which the effective tax rate falls as income rises.

According to the ability-to-pay principle a taxation scheme is equitable if taxpayers are charged according to their ability to pay. Based on the ability-to-pay principle a progressive tax would be regarded as being equitable because those with a greater ability to pay would pay a higher proportion of their income in the form of taxation. A proportional tax may be regarded as equitable to the extent that all taxpayers would pay the same proportion of their income as tax. Note that higher income taxpayers may actually be paying a higher absolute dollar amount of taxes than lower income taxpayers. Alternatively according to the benefit principle a taxation scheme is fair if taxpayers are charged according to the benefit they receive from government services. Even a regressive tax may be regarded as being fair using this standard to the extent that the distribution of the benefit of government services may accrue more to lower income taxpayers than to higher income taxpayers. In many cases even for regressive taxes although lower income taxpayers pay a higher proportion of their income as tax higher income taxpayers still actually pay a higher absolute dollar amount of taxes.

Measures

Measuring the tax burden as a percentage of household income allows a comparison of incidence across household groups. However this does not provide a measure of the overall progressivity of a tax (Wisconsin, 2004). Although the definition of tax progressivity is generally agreed upon there is not specific agreement on how it should be measured. There have been many alternative means proposed for measuring tax progressivity. These measures may be categorized two ways: based on what the measure purports to measure and what affects the actual value of the measure. Within the category of measures of what affects the value of the measure the measures may be further divided into two subcategories: structural measures and distributional measures. Structural measures are determined by the relationship between the amount of income and the amount of tax imposed on that income. Distributional measures are determined by both the tax structure and the distribution of income. Distributional measures may be further divided based on the measure of dispersion used: a measure of concentration or a measure of income equality. Some of the more commonly used distributional measures based on concentration include: effective progression, the Pechman-Okner Index, the Reynolds-Smolensky Index, the Khetan-Poddar Index, the Kakwani Index, and the Khetan-Poddar-Suits Index (Kiefer, 1986). Most of these indices are adaptations of the Lorenz Curve and the Gini Coefficient of income equality. Indices based on income equality are derived from social welfare functions and assumptions about society's preference for income equity. For computational purposes this study will employ the Suits Index and the Kakwani Index as alternative measures of tax progressivity.

Exhibit 20: Suits Index

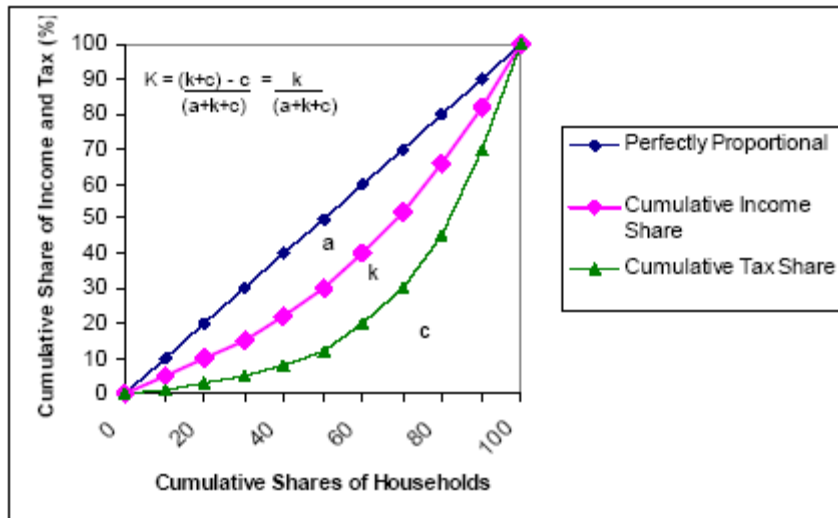


Source: Wisconsin Tax Incidence Study, 2004.

Suits Index

The Suits Index was developed to measure and compare different degrees of progressivity of taxes. The Suits Index is based on a comparison of the cumulative proportion of income and the cumulative proportion of taxes. The Suits Index is a measure of the progressivity of a tax or tax system. The value of the index can vary between -1 and +1. Positive values reflect progressivity, negative values show regressivity, and values around zero indicate proportionality (Suits, 1977). Exhibit 20 depicts a hypothetical Suits Index. Graphically the value of the Suits Index equals [1 - (Area below Incidence Curve/Area below Proportional Line)]. Tax regime A would be illustrative of a tax that is extremely progressive while tax regime B would be indicative of a tax structure that is extremely regressive. The Minnesota, Oregon, Texas, and Wisconsin incidence studies use the Suits Index as their measures of tax incidence.

Exhibit 21: Kakwani Index



Source: Wisconsin Tax Study, 2004.

Kakwani Index

The Kakwani Index was developed to analyze the effect of taxation on income distribution and *vice versa*. The Kakwani Index is based on a measure of tax concentration (Kakwani, 1977). The Kakwani Index is determined by the distribution of taxes across households as well as the distribution of pre-tax income. The Kakwani Index compares the distribution of taxes to the pre-tax income distribution. If the share of taxes borne by higher-income households exceeds their share of total income then the tax is considered progressive. If the share of total taxes borne by these households is less than their share of total income then the tax is considered regressive. Exhibit 21 depicts a hypothetical Kakwani Index by plotting the cumulative proportion of income and cumulative tax share (vertical axis) against the cumulative percent of households (horizontal axis).

With respect to income the 45-degree line represents a perfectly equal income distribution whereby each household quintile receives exactly 20 percent of total income. The thick line represents the pre-tax income concentration curve often referred to as the Lorenz curve. The extent to which this curve sags below the 45-degree line represents the degree of inequity in the distribution of income before taxes.

The thin line represents the tax concentration curve. A tax curve that is identical to the 45-degree line implies that each population group pays the same share of taxes. A tax concentration curve that sags below the 45-degree line reflects a tax system where the population groups with the lowest income pay a smaller share of taxes than their share of the population and the higher income groups pay a larger share of taxes than their population shares. In both cases the farther the curves are below the diagonal line the more income and taxes are concentrated in the higher income groups.

An indication of progressivity is obtained by comparing the tax concentration curve to the income concentration curve. As seen in Exhibit 4 the Kakwani Index (K) measures the area below the income concentration curve (k+c) minus the area below the tax curve (c).

Thus the area denoted as (k) measures the area between the income concentration curve and the tax concentration curve. It is measured as a percentage of the total area below the 45-degree line (a+k+c). A tax is progressive if the tax concentration curve lies below the income curve in which case (K) would be positive. A negative value for K occurs when the tax curve lies above the pre-tax income concentration curve and reflects a regressive tax. If the tax and income curves coincide (K) will be zero and reflect a proportional tax. The value of the Kakwani index ranges from -2 to +2; the closer it is to those extremes the more regressive or progressive a tax or tax structure is judged to be. *The Wisconsin Tax Study* (2004) uses the Kakwani Index as its measure of tax progressivity.

Tax Incidence Models

Theoretical Models

Partial-Equilibrium Analysis

The most basic type of theoretical tax incidence analysis is partial-equilibrium analysis. This approach focuses on the context of a single market ignoring any tax-induced effects on other markets. Even if only one party is legally responsible for paying the tax the burden may be borne both by consumers and producers. Keeping in mind however that the burden on producers is a burden on people inanimate objects do not pay taxes; the producers' burden may result in lower profits to the owners, lower wages to employees, or lower payments to other factors of production. How the sellers' burden is divided among factors of production cannot be determined in a single-market analysis.

Generally the party who is less able to change their behavior in response to the tax will bear the greater share of the burden. Ability to change behavior as a tax alters prices is characterized by the price elasticity. If consumers are more able to change behavior than producers then demand will be relatively more price elastic than supply and producers will bear the greater burden of any tax. If producers are more able to change behavior than supply will be more price elastic than demand and consumers will bear the greater share of the burden. If supply is perfectly inelastic reflecting that the same quantity will be supplied regardless of price producers bear the full burden of the tax. If demand is perfectly inelastic then consumers will not change their behavior as a tax alters price so that the consumers' price rises by the full amount of the tax and thus consumers bear the full burden of the tax.

A tax also imposes an efficiency cost as consumers and producers are induced to switch to less desirable alternatives. The efficiency cost is the difference between the benefit to consumers and the opportunity cost to society of each unit of the product foregone. That is the difference between marginal social benefit and marginal social cost.

Two limitations of single-market analysis are that: the effects in other markets whether for other goods or for the same good in a different location are not considered and the manner in which any producers' burden gets distributed among the various factors of production is not explicitly analyzed (Zodrow, 1999). Examples of studies that use this approach include the Texas' Comptroller's annual *Tax Exemptions and Tax Incidence* (2005) study and the Utah State Tax Commission's *Western States' Tax Burdens Fiscal Year 2002-2003: Initial State and Local Tax Burdens for Selected Western States, Revised* (MacDonald, 2004). Texas law requires the Comptroller to provide these estimates to the Governor and Legislature prior to each regular legislative session. The Utah model uses a sample of individual income tax returns for over 34,000 full year resident taxpayers and takes all necessary data from their state returns and where possible federal tax returns.

General-Equilibrium Analysis

However partial-equilibrium analysis is limited because most taxes have important effects on markets other than the one in which they are assessed. The imposition of a tax may have an effect in parallel markets and factor markets. The primary insight obtained from such models is that effects in markets other than that in which a tax is introduced are often very important (Zodrow, 1999). Two examples of studies that use this approach are the *Nebraska Tax Burden Study* (2002) and the *Oregon Tax Incidence Model* (2001).

The Nebraska model is based upon a series of data sets constructed from tax files developed by the Nebraska Department of Revenue and the U.S. Department of the Treasury Internal Revenue Service. These files contain information on Nebraska resident taxpayers and businesses. The four tax files used in this study are the 1999 Federal Information Return Master File (IRMF), the Nebraska Business Master File (NBMF), and the 1999 Nebraska Individual Income Tax Form 1040N. In addition wage and salary information for the State of Nebraska developed by the U.S. Department of Commerce Bureau of Economic Analysis (BEA) is used in this study for comparison purposes.

The federal IRMF is initially used to develop a data set detailing wage and employment information for Nebraska residents. This file contains information regarding the number of employees, number of jobs, total wages, and the amounts of deferred compensation and dependent care benefits. The IRMF data is used to study employment and compensation summarized by the size of the employer and by the location of employees.

In order to obtain employment and compensation information the IRMF data is merged with the NBMF data summarized by business sector of the employer. This merged IRMF and NBMF data is

merged again with information from the Nebraska Individual Income Tax Form 1040N in order to develop adjusted gross income (AGI) information for each Nebraska household. The AGI data is used to calculate imputed Nebraska income and sales taxes. The results of the calculated taxes can be summarized to study Nebraska taxes by location, employer size, or industrial sector. Finally the study uses BEA data on wages by industrial sector to compare the results of the study data.

The foundation of the Oregon Tax Incidence Model is a computable general equilibrium model of the Oregon economy. The model specifies a description of the relationships among state households, businesses, and governments and the rest of the world. The Oregon economy is divided into 110 distinct sectors: 29 industrial sectors, two factor sectors (labor and capital), eight household sectors, one investment sector, 69 government sectors, and one sector which represents the rest of the world. The government sector is the most detailed sector in the model because of its focus on the impact of state government policy.

Empirical Models

Representative Taxpayer Model

The representative taxpayer approach to analyzing tax incidence compares tax liabilities at different income levels by calculating state and local taxes that would be paid by predefined “representative” taxpayers. Because taxpayer profiles are constructed hypothetically the results are only an extrapolation of how tax liabilities would be distributed under the given assumptions. A representative taxpayer model calculates the state and local taxes that would be paid by hypothetical taxpayers based on income, consumption, homeownership, and demographic characteristics. A predefined number of taxpayer profiles are created. Varying levels of income are assigned to the profiles and then additional characteristics affecting tax liability that would be typical for taxpayers of each income level are assigned. Other variables potentially affecting state and local tax liabilities are also assigned to each profile. For example profiles are assumed to be renters or homeowners and data from the Census Bureau are used to assign typical home values for families at each income level. Data from the U.S. Labor Department’s Consumer Expenditure Survey may be used to estimate the share of income for each profile devoted to purchasing different types of goods and services which determines the families’ sales tax liabilities. Family sizes and ages of household members are assigned which affect the number (and in many states the magnitude) of personal exemptions subtracted on state income tax returns. Finally assumptions are made concerning the location of the profiled families within the state since property tax rates usually vary widely among different local jurisdictions (Mazerov, 2002)

An example of a study that uses this approach is the District of Columbia’s annual *Tax Rates and Tax Burdens* (2005) study. The Office of the Chief Financial Officer for Washington, DC produces an annual report that compares the rates and burdens of major taxes in the District of Columbia and other large cities in the United States. This study compares tax burdens in 51 different locations for a hypothetical family of four. The major state and local tax burdens for the family in the District of Columbia are compared with those in the largest city in each state.

In addition the office also analyzes the relative tax position of the District compared to surrounding jurisdictions. This study compares the state and local tax burdens on a hypothetical family of four in six major metropolitan Washington area jurisdictions: the District of Columbia; the Maryland counties of Montgomery and Prince George’s; the Virginia counties of Arlington and Fairfax; and the City of Alexandria in Virginia.

The hypothetical family in this study consists of two wage-earning spouses and two school-age children. Families with annual gross income levels of \$25,000, \$50,000, \$75,000, \$100,000, and

\$150,000 for each jurisdiction are analyzed. Families at the \$25,000 and \$50,000 income levels are assumed to own their own home and one automobile. Families with annual incomes of \$75,000, \$100,000 and \$150,000 are assumed to own their own home and two automobiles. This study compares the tax burden in each jurisdiction for the hypothetical family for four major tax categories: individual income tax, sales tax, real estate tax and the automobile-related taxes.

Initial Impact Model

The initial tax impact approach is equivalent to the economic incidence approach in terms of analyzing the distribution among income groups of taxes directly imposed on households. Both approaches are based on taxpayer profiles constructed from sampled income tax returns and third-party data using statistical sampling and matching methods. The major difference between the two approaches is that the initial impact approach attempts to analyze only those taxes with an initial impact on households themselves while the economic incidence approach includes the impact of business taxes which may be shifted onto other parties such as consumers and/or workers in the form of higher prices and/or lower wages. Initial tax impact models avoid some of the resource demands and economic theory disputes that are entailed in integrating taxes imposed on business into a tax distribution model (Mazerov, 2002).

Economic Incidence Model

The economic incidence approach is the most comprehensive method of determining how tax obligations are distributed among income groups. The economic incidence approach incorporates the impact both of taxes imposed directly on households and of taxes that are imposed initially on businesses and then passed through to households. The model is based on a representative sample of all taxpayers and the model's results therefore can be generalized to the entire population of a state. The economic incidence model requires more preparation and data collection than the initial tax impact model or the representative taxpayer model (Mazerov, 2002).

The core of an economic incidence model is a statistical sample of state income tax returns. Information from the tax returns is supplemented with information about sources of income not reported on the return, such as home values, monthly rent payments, and similar variables that may affect income tax or property tax liabilities. Such information may come from the U.S. Census Bureau, state or local property tax office, or other agency that collects relevant data. The information may be integrated with each taxpayer profile in one of two ways. If the actual data can be obtained for the precise taxpayer—a so-called “hard match”—the information may be combined directly. If this cannot be done then a “statistical match” may be done. Statistical matching involves imputing a value for an unknown variable by using a sample of households with similar characteristics. Estimates of household expenditure patterns generally are taken from Consumer Expenditure Survey compiled by the U.S. Bureau of Labor Statistics and are added to all of the household profiles. This information is used most often to analyze the distribution of sales and excise tax liabilities. Expenditure information must be added from a third-party source because very little relevant information of this kind can be gleaned from income tax returns. The taxpayer profile data are used to calculate tax liability for whatever household-level taxes are included in the economic incidence model. Economic incidence models may also estimate the amount of business taxes that should be assigned to each household profile. The models incorporate assumptions concerning the extent to which business taxes paid by businesses are passed on to individuals through higher prices for consumers, lower wages for workers, or lower returns to shareholders (Mazerov, 2002).

Three examples that use this approach include the Institute on Taxation and Economic Policy's (ITEP) study *Who Pays?: A Distributional Analysis of the Tax Systems in all 50 States, 2nd Edition* (McIntyre, et al.), the *Minnesota Tax Incidence Study* (2005), and the *Wisconsin Tax Incidence Study* (2004). The ITEP model uses one of the largest databases of tax returns and supplementary data in existence with nearly three quarters of a million records. The ITEP model's approach is very similar to that used by the congressional Joint Committee on Taxation, the U.S. Treasury Department, and the Congressional Budget Office.

The Minnesota model includes detailed information on income and taxes for a stratified random sample of 63,808 Minnesota households. This sample was extrapolated to represent over 2.3 million Minnesota households. Individual income tax returns and property tax refund returns filed with the Department of Revenue were the primary sources of information and were supplemented with data on nontaxable income obtained from various sources. The use of social security numbers to merge income data from different sources for specific individuals was a unique and important aspect of this study. Income data was matched for example with property tax and market value information for individual homeowners. Information obtained from the American Community Survey of the United States Bureau of the Census was used to calibrate a number of items notably nontaxable income and property tax-related variables. American Community Survey data were also used to estimate annual rent expenditures for renter households. Finally estimates of household spending patterns were obtained from United States Department of Labor Consumer Expenditure Survey data.

The Wisconsin study employed data gathered from individual income tax returns and Homestead Credit returns. This information was collected on a stratified random sample of income tax returns, homestead tax relief credit claims, and farmland preservation credit claims weighted to reflect a population of 2.55 million tax filers/credit claimants. Because not all people are required to file income tax returns the Tax Model did not cover the entire income-receiving population. As such data for low-income households that are not in the tax-filing population and that did not file a homestead credit return were obtained from non-Department of Revenue sources. Data from the Department of Workforce Development (DWD) allowed nontaxable income from Wisconsin Works (W-2) payments and child-care subsidies to be included. The DWD data also allowed for additional sample members who did not file either a Wisconsin income tax return or a homestead or farmland preservation credit claim. Non-filer households that received social security benefits were also added to the Tax Model data. A one-in-ten sample was drawn from the 174,000 non-filer social security recipients using Internal Revenue Service (IRS) informational return data. The IRS data are also used to identify other income sources for non-filers and for nontaxable income of tax filers.

Exhibit 22 identifies principal differences among the types of empirical tax incidence models.

Exhibit 22: Principal Differences among Empirical Tax Incidence Models

	Taxes Included	Selection Method for Taxpayer Data
“Economic” Incidence Model	Household taxes and Business taxes passed-through to households	Statistics-based sample of actual taxpayers
Initial Tax Impact Model	Household taxes only*	Statistics-based sample of actual taxpayers
Representative Taxpayer Model	Household taxes only*	Subjective construction of hypothetical taxpayers

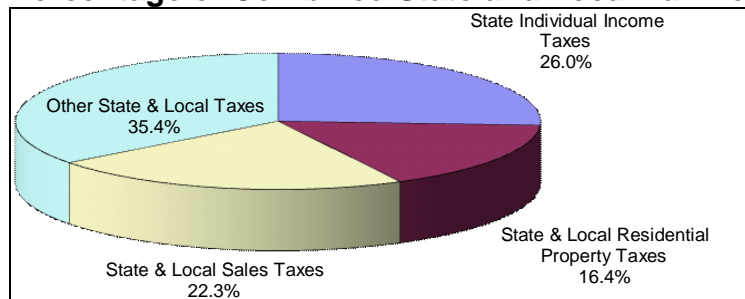
*Both models sometimes include estimates of property taxes on rental properties owned by businesses that are passed-through into rent payments of households.

Source: Mazerov, 2002.

Kansas Tax Incidence Model

The underlying structure of the model developed for this study is based upon a methodology established for a study for the *Report of the Governor’s Tax Equity Task Force* (Wong and Snyder, 1995). The taxes included in the Kansas tax incidence model are the state individual income tax, state and local residential property taxes, and state and local retail sales taxes. In 2010 state individual income taxes accounted for 26.0 percent of total state and local taxes, while state and local residential property taxes accounted for 16.4 percent, and state and local retail sales taxes accounted for 22.3 percent (*Kansas Tax Facts, Eighth Edition, 2010*). Collectively these three tax sources accounted for \$7.4 billion or 64.6 percent of total state and local taxes collected in Kansas in 2010. Exhibit 23 shows the breakdown of combined state and local tax revenue in 2010 by tax source.

Exhibit 23: Percentage of Combined State and Local Tax Revenue, 2010



Source: *Kansas Tax Facts, Eighth Edition, 2010*

Incidence of Kansas Individual Income Tax

The incidence of the Kansas individual income tax was estimated using the Individual Income Tax Incidence Model. The details of the Individual Income Tax Incidence Model are discussed in Appendix B. Exhibit 24 shows the imputed taxes per household before nonrefundable credits under existing tax

rates. The Consensus Revenue Estimating Group estimates that Kansas individual income tax receipts for fiscal year 2013 will be \$3.065 billion.

Exhibit 24: Imputed Gross Taxes per Household before Credits (Existing)

2013 KANSAS INCOME TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999 >\$200,000	
GROSS TAXES PER HOUSEHOLD										
Married with children	-	-	175	525	963	2,144	3,731	6,150	9,375	10,988
Married without children	-	70	333	683	1,175	2,425	4,022	6,440	9,665	11,278
Single with children	-	-	228	619	1,400	2,688	4,301	6,719	9,944	11,557
Single without children	-	254	516	1,134	1,930	3,220	4,833	7,251	10,476	12,089
Nonfamily households	-	254	516	1,134	1,930	3,220	4,833	7,251	10,476	12,089

Exhibit 25 shows imputed gross taxes per household before nonrefundable credits under individual income tax rate rollback provisions proposed by House Substitute for Senate Bill Number 1, as Amended by the House Committee of the Whole. The tax rates used to impute gross income taxes per household were estimated by the Legislative Research Department in the Supplemental Note for the bill. See Exhibit 5 above.

Exhibit 15: Imputed Gross Taxes per Household before Credits (Proposed)

2013 KANSAS INCOME TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999 >\$200,000	
GROSS TAXES PER HOUSEHOLD										
Married with children	-	-	131	392	718	1,597	2,778	4,626	6,978	8,178
Married without children	-	52	248	509	876	1,806	2,994	4,794	7,194	8,394
Single with children	-	-	170	461	1,043	2,001	3,201	5,001	7,401	8,601
Single without children	-	206	385	845	1,437	2,397	3,597	5,397	7,797	8,997
Nonfamily households	-	206	385	845	1,437	2,397	3,597	5,397	7,797	8,997

Exhibit 26 shows the imputed taxes per household after refundable credits under existing tax rates.

Exhibit 26: Imputed Taxes less Refundable Credits (Existing)

2013 KANSAS INCOME TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999 >\$200,000	
TAXES LESS REFUNDABLE CREDITS										
Married with children	(1,406)	(1,540)	(1,320)	(648)	546	1,844	3,431	5,850	9,075	10,688
Married without children	(65)	(7)	333	683	1,175	2,425	4,022	6,440	9,665	11,278
Single with children	(1,315)	(1,464)	(1,116)	(299)	1,085	2,388	4,001	6,419	9,644	11,257
Single without children	(65)	242	516	1,134	1,930	3,220	4,833	7,251	10,476	12,089
Nonfamily households	(65)	242	516	1,134	1,930	3,220	4,833	7,251	10,476	12,089

Exhibit 27 shows the imputed taxes per household after refundable credits under proposed tax rates.

Exhibit 27: Imputed Taxes less Refundable Credits (Proposed)

2013 KANSAS INCOME TAXES	\$10,000- \$15,000- \$25,000- \$35,000- \$50,000- \$75,000- \$100,000- \$150,000-									
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
TAXES LESS REFUNDABLE CREDITS										
Married with children	(1,406)	(1,540)	(1,320)	(768)	301	1,297	2,478	4,326	6,678	7,878
Married without children	(65)	(25)	248	509	876	1,806	2,994	4,794	7,194	8,394
Single with children	(1,315)	(1,464)	(1,116)	(457)	728	1,701	2,901	4,701	7,101	8,301
Single without children	(65)	193	385	845	1,437	2,397	3,597	5,397	7,797	8,997
Nonfamily households	(65)	193	385	845	1,437	2,397	3,597	5,397	7,797	8,997

Because of its graduated tax rate structure and allowance of personal exemptions and deductions the individual income tax is by design progressive. Under the present individual income tax rate structure, the average effective tax rate is 2.4 percent. Effective tax rates rise significantly with increases in household income. At the low end the ETR for the income tax is -5.2 percent for the lowest income group. It rises steadily to 3.2 percent for the highest income group. Lower income households can receive refundable tax credits which can more than offset any income tax liabilities. Based on household composition single households without children and non-family households have the highest ETR at 2.9 percent while married couples with children have the lowest ETR at 1.5 percent.

Under the existing individual income tax rate structure, the Kansas individual income tax is modestly progressive. Although the Kansas individual income tax is only modestly progressive it tends to be more progressive than many other states because it is comprised of only three brackets with some taxpayers subject to the highest rate with taxable income as low as \$30,000. The progressivity of the individual income tax nearly offsets the regressivity of the other taxes.

Exhibit 28 presents Kansas individual income tax incidence by household composition and income class under the existing tax rate structure. The first section of the table shows the percentage of Kansas households with the respective combinations of household and income characteristics. Out of the ten income groupings the highest percentage of households (19.4 percent) earn between \$50,000 and \$74,999. Based on household composition the highest percentage of households are composed of non-family members (32.4 percent), followed by married couples without children (29.3 percent), and married couples with children (21.1 percent). The second section of the table shows the percentage of income received by households with the respective combinations of household and income characteristics. Again out of the ten income groupings the highest percentage of income (20.8 percent) is received by households earning between \$100,000 and \$149,999.

The third section of the table shows the percentage of Kansas individual income taxes paid by households with the respective combinations of household and income characteristics. Again out of the ten income groupings the highest percentage of individual income tax paid (26.3 percent) is by households that earn between \$100,000 and \$149,999. Based on household composition the highest percentage of individual income tax paid is by households comprised of non-family members (42.7 percent), followed by married couples without children (29.3 percent), and married couples with children (13.5 percent). Notice that some combinations of household and income characteristics show negative percentages of taxes. This is because some households may actually have a negative tax liability because of refundable credits.

The fourth section of the table shows the average effective tax rates paid by Kansas households with the respective combinations of household and income characteristics. The average ETRs are computed as a percentage of Kansas adjusted gross income. Because of its graduated tax rate structure and allowance of personal exemptions and deductions the individual income tax is progressive by design. The average ETR for the state as a whole is 2.4 percent. At the low end the effective tax rate for the

income tax is –5.2 percent for the lowest income group. It rises steadily to 3.2 percent for the highest income group. Lower income households can receive refundable tax credits which can more than offset any income tax liabilities. Based on household composition single households without children and non-family households have the highest ETR at 3.2 percent while married couples with children have the lowest ETR at 1.5 percent.

As a basis of comparison the *Minnesota Tax Incidence Study* (2005) found an average effective individual income tax rate of 4.1 percent with the lowest income group (\$8,354 and under) paying an effective tax rate of –1.1 percent and the highest income group (\$102,427 and over) paying an ETR of 5.5 percent. However it should be kept in mind that findings from different studies may not be directly comparable because of differences in study methodologies, tax structures, and income definitions, and economic conditions. Similarly the *Wisconsin Tax Incidence Study* (2004) found an effective income tax rate for all households averaged of 3.6 percent. The effective individual income tax rate was 0.32 percent for the lowest income group and rose steadily for higher-income households. The highest income group paid 5.3 percent of their income in individual income taxes.

The last section of the table shows information used to assess the overall incidence of the individual income tax. The data for this section are derived from the above sections. Both the Suits Index (0.2040) and the Kakwani Index (0.1965) indicate the Kansas individual income tax is modestly progressive. Accordingly the *Minnesota Tax Incidence Study* (2005) found a Suits Index of 0.199 for that state's personal income tax and the *Wisconsin Tax Incidence Study* (2004) reported a Suits Index of 0.185 and a Kakwani Index of 0.167 for individual income taxes. The Kansas individual income tax may be more progressive than many other states because it is comprised of only three brackets with some taxpayers subject to the highest rate with taxable income as low as \$30,000. In addition the progressivity of Kansas income taxes is probably overstated to the extent that it includes many deductions and credits designed to offset the regressivity of the residential property and retail sales taxes.

Exhibit 28: Individual Income Tax Incidence (Existing)

2013 INCOME TAXES	\$10,000- \$15,000- \$25,000- \$35,000- \$50,000- \$75,000- \$100,000- \$150,000-										
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
PERCENTAGE OF HOUSEHOLDS											
Married with children	1.5%	1.2%	2.6%	2.4%	3.4%	4.1%	2.6%	2.1%	0.7%	0.6%	21.1%
Married without children	2.1%	1.7%	3.6%	3.3%	4.7%	5.7%	3.6%	3.0%	0.9%	0.9%	29.3%
Single with children	0.7%	0.5%	1.1%	1.0%	1.5%	1.8%	1.1%	0.9%	0.3%	0.3%	9.3%
Single without children	0.4%	0.3%	0.7%	0.6%	0.9%	1.1%	0.7%	0.6%	0.2%	0.2%	5.6%
Nonfamily households	2.5%	2.0%	4.2%	3.9%	5.5%	6.7%	4.2%	3.5%	1.1%	1.0%	34.6%
Total	7.1%	5.9%	12.1%	11.3%	15.9%	19.4%	12.1%	10.1%	3.2%	2.9%	100.0%
PERCENTAGE OF INCOME											
Married with children	0.1%	0.3%	0.8%	1.2%	2.4%	4.2%	3.7%	4.4%	2.0%	2.0%	21.1%
Married without children	0.2%	0.4%	1.2%	1.6%	3.3%	5.9%	5.1%	6.1%	2.7%	2.8%	29.3%
Single with children	0.1%	0.1%	0.4%	0.5%	1.0%	1.9%	1.6%	1.9%	0.9%	0.9%	9.3%
Single without children	0.0%	0.1%	0.2%	0.3%	0.6%	1.1%	1.0%	1.2%	0.5%	0.5%	5.6%
Nonfamily households	0.2%	0.4%	1.4%	1.9%	3.9%	7.0%	6.1%	7.2%	3.2%	3.4%	34.6%
Total	0.6%	1.2%	4.0%	5.6%	11.2%	20.1%	17.5%	20.8%	9.3%	9.7%	100.0%
PERCENTAGE OF TAXES											
Married with children	-0.8%	-0.8%	-1.3%	-0.6%	0.7%	3.0%	3.5%	4.9%	2.4%	2.6%	13.5%
Married without children	-0.1%	0.0%	0.5%	0.9%	2.2%	5.4%	5.6%	7.5%	3.6%	3.8%	29.3%
Single with children	-0.3%	-0.3%	-0.5%	-0.1%	0.6%	1.7%	1.8%	2.4%	1.1%	1.2%	7.5%
Single without children	0.0%	0.0%	0.1%	0.3%	0.7%	1.4%	1.3%	1.6%	0.7%	0.8%	6.9%
Nonfamily households	-0.1%	0.2%	0.9%	1.7%	4.2%	8.5%	8.0%	9.9%	4.6%	4.8%	42.7%
Total	-1.3%	-0.8%	-0.4%	2.2%	8.3%	20.0%	20.1%	26.3%	12.5%	13.2%	100.0%
AVERAGE TAX RATES											
Married with children	-15.8%	-6.9%	-3.7%	-1.2%	0.7%	1.7%	2.2%	2.6%	2.9%	3.0%	1.5%
Married without children	-0.7%	0.0%	0.9%	1.3%	1.6%	2.2%	2.6%	2.9%	3.1%	3.2%	2.4%
Single with children	-14.8%	-6.6%	-3.1%	-0.6%	1.4%	2.1%	2.6%	2.9%	3.1%	3.2%	1.9%
Single without children	-0.7%	1.1%	1.4%	2.1%	2.5%	2.9%	3.1%	3.3%	3.4%	3.4%	2.9%
Nonfamily households	-0.7%	1.1%	1.4%	2.1%	2.5%	2.9%	3.1%	3.3%	3.4%	3.4%	2.9%
Total	-5.2%	-1.6%	-0.2%	0.9%	1.8%	2.4%	2.7%	3.0%	3.2%	3.2%	2.4%
CUMULATIVE % OF HOUSEHOLDS	7.1%	13.0%	25.1%	36.4%	52.3%	71.7%	83.8%	93.9%	97.1%	100.0%	
CUMULATIVE % OF INCOME	0.6%	1.8%	5.8%	11.4%	22.6%	42.7%	60.2%	81.0%	90.3%	100.0%	
CUMULATIVE % OF TAX	-1.3%	-2.1%	-2.5%	-0.3%	8.0%	28.0%	48.1%	74.4%	86.8%	100.0%	
KAKWANI INDEX	0.0007	0.0017	0.0074	0.0113	0.0209	0.0284	0.0162	0.0095	0.0016	0.0005	0.1965
SUITS INDEX	0.0001	0.0004	0.0025	0.0056	0.0147	0.0293	0.0235	0.0196	0.0047	0.0017	0.2040

Exhibit 29 presents Kansas individual income tax incidence by household composition and income class under proposed income tax rollback provisions. Again out of the ten income groupings the highest percentage of individual income tax paid (26.9 percent) is by households that earn between \$100,000 and \$149,999. Based on household composition the highest percentage of individual income tax paid is by households comprised of non-family members (43.9 percent), followed by married couples without children (30.1 percent), and married couples with children (12.0 percent). Under proposed tax rates, the average ETR for the state as a whole is 1.9 percent. At the low end the effective tax rate for the income tax is -2.0 percent for the lowest income group. It rises steadily to 2.7 percent for the highest income group. Based on household composition single households without children and non-family households have the highest ETR at 2.5 percent while married couples with children have the lowest ETR at 1.1 percent. Both the Suits Index (0.2294) and the Kakwani Index (0.2241) indicate the Kansas individual income tax is modestly progressive. As such, the income tax rate rollback provisions proposed by House Substitute for Senate Bill Number 1 as Amended by the House Committee of the Whole slightly increase the progressivity of the Kansas individual income tax.

Exhibit 29: Individual Income Tax Incidence (Proposed)

2013 INCOME TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-			
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
PERCENTAGE OF TAXES											
Married with children	-1.1%	-1.0%	-1.8%	-1.0%	0.5%	2.9%	3.4%	5.0%	2.5%	2.6%	12.0%
Married without children	-0.1%	0.0%	0.5%	0.9%	2.2%	5.6%	5.8%	7.7%	3.7%	3.9%	30.1%
Single with children	-0.5%	-0.4%	-0.7%	-0.3%	0.6%	1.7%	1.8%	2.4%	1.2%	1.2%	6.9%
Single without children	0.0%	0.0%	0.1%	0.3%	0.7%	1.4%	1.3%	1.6%	0.8%	0.8%	7.1%
Nonfamily households	-0.1%	0.2%	0.9%	1.8%	4.3%	8.7%	8.2%	10.2%	4.7%	4.9%	43.9%
Total	-1.8%	-1.2%	-1.0%	1.7%	8.3%	20.3%	20.5%	26.9%	12.8%	13.5%	100.0%
AVERAGE TAX RATES											
Married with children	-17.9%	-7.9%	-4.2%	-1.6%	0.5%	1.3%	1.8%	2.2%	2.4%	2.5%	1.1%
Married without children	-0.8%	-0.1%	0.8%	1.1%	1.3%	1.8%	2.2%	2.4%	2.6%	2.7%	2.0%
Single with children	-16.8%	-7.5%	-3.6%	-1.0%	1.1%	1.7%	2.1%	2.4%	2.6%	2.6%	1.5%
Single without children	-0.8%	1.0%	1.2%	1.8%	2.2%	2.4%	2.6%	2.8%	2.8%	2.9%	2.5%
Nonfamily households	-0.8%	1.0%	1.2%	1.8%	2.2%	2.4%	2.6%	2.8%	2.8%	2.9%	2.5%
Total	-5.9%	-2.0%	-0.5%	0.6%	1.5%	2.0%	2.3%	2.5%	2.7%	2.7%	1.9%
CUMULATIVE % OF HOUSEHOLDS	7.1%	13.0%	25.1%	36.4%	52.3%	71.7%	83.8%	93.9%	97.1%	100.0%	
CUMULATIVE % OF INCOME	0.6%	1.8%	5.8%	11.4%	22.6%	42.7%	60.2%	81.0%	90.3%	100.0%	
CUMULATIVE % OF TAX	-1.8%	-3.0%	-4.1%	-2.3%	6.0%	26.3%	46.8%	73.7%	86.5%	100.0%	
KAKWANI INDEX	0.0008	0.0021	0.0089	0.0133	0.0241	0.0320	0.0180	0.0104	0.0018	0.0006	0.2241
SUITS INDEX	0.0001	0.0004	0.0030	0.0066	0.0169	0.0330	0.0261	0.0216	0.0052	0.0019	0.2294

Incidence of Kansas Residential Property Tax

The incidence of the Kansas residential property was estimated using the Residential Property Tax Incidence Model. The details of the Residential Property Tax Incidence Model are discussed in Appendix C. Exhibit 30 shows the percentage of property taxes paid according to residential characteristics and income grouping. Because of the continuing nature of the residential real estate downturn, it is assumed that residential real estate taxes will remain at the 2010 level of \$1,885.0 billion.

Exhibit 30: Percentage of Property Taxes Paid

2013 PROPERTY TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-			
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
PERCENTAGE OF TAXES											
Owner-occupied units	5.3%	4.4%	9.1%	8.5%	11.9%	14.6%	9.1%	7.6%	2.4%	2.2%	75.0%
Less than \$50,000	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.2%	0.2%	0.1%	0.0%	1.6%
\$50,000 to \$99,999	0.6%	0.5%	1.0%	0.9%	1.3%	1.6%	1.0%	0.8%	0.3%	0.2%	8.4%
\$100,000 to \$149,999	0.8%	0.7%	1.4%	1.3%	1.8%	2.2%	1.4%	1.2%	0.4%	0.3%	11.5%
\$150,000 to \$199,999	1.0%	0.8%	1.7%	1.6%	2.2%	2.7%	1.7%	1.4%	0.5%	0.4%	14.1%
\$200,000 to \$299,999	1.2%	1.0%	2.1%	1.9%	2.7%	3.3%	2.1%	1.7%	0.6%	0.5%	17.1%
\$300,000 to \$499,999	0.9%	0.8%	1.6%	1.4%	2.0%	2.5%	1.6%	1.3%	0.4%	0.4%	12.8%
\$500,000 to \$999,999	0.5%	0.5%	0.9%	0.9%	1.2%	1.5%	0.9%	0.8%	0.2%	0.2%	7.7%
\$1,000,000 or more	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.2%	0.2%	0.1%	0.1%	1.8%
Renter-occupied units	1.8%	1.5%	3.0%	2.8%	4.0%	4.8%	3.0%	2.5%	0.8%	0.7%	25.0%
Less than \$200	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
\$200 to \$299	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3%
\$300 to \$499	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	0.3%	0.3%	0.1%	0.1%	2.6%
\$500 to \$749	0.5%	0.5%	0.9%	0.9%	1.2%	1.5%	0.9%	0.8%	0.2%	0.2%	7.8%
\$750 to \$999	0.5%	0.4%	0.8%	0.8%	1.1%	1.3%	0.8%	0.7%	0.2%	0.2%	6.7%
\$1,000 to \$1,499	0.4%	0.3%	0.7%	0.6%	0.9%	1.1%	0.7%	0.6%	0.2%	0.2%	5.6%
\$1,500 or more	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.2%	0.2%	0.1%	0.1%	1.9%
No cash rent	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	7.1%	5.9%	12.1%	11.3%	15.9%	19.4%	12.1%	10.1%	3.2%	2.9%	100.0%

Overall households paid 1.5 percent of their income in property taxes. The lowest income group (under \$10,000) paid 17.6 percent of their income in property taxes. In contrast the highest-income households (\$200,000 and over) spent an average of 0.4 percent of their income on property taxes. The Kansas residential property tax is significantly regressive. Property taxes were regressive across all household groups. This result derives because lower income households tend to spend a higher proportion of income on housing than higher income households. In some cases effective tax rates over

100 percent may be reported in cases where the taxpayer may be occupying a high value residence while receiving a low level of income. According to the *Minnesota Tax Incidence Study* (2005) the effective tax rate for the lowest income group may be overstated for several reasons. First the lowest income group includes households who have temporarily low incomes or have better overall economic well-being than is indicated by their money income. A portion of retirees for example may be living primarily on savings or other assets but report small amounts of annual money income received. Due to unemployment or business fluctuations some households who normally have higher incomes are also included in the lowest income group. Second effective tax rates for the lowest income group may be overstated because income may be understated. The value of most Social Security payments, some pensions, food stamps, and housing subsidies are not included in the income base. Based on occupancy characteristics, owner-occupied taxpayers pay an average of 1.6 percent of income as property tax while renter-occupied taxpayers pay an average of 1.1 percent of income as property tax.

As a basis of comparison the *Minnesota Tax Incidence Study* (2005) found an effective average residential property tax rate of 1.9 percent with the lowest income population group (\$8,354 and under) paying an effective tax rate of 5.8 percent while the highest income population group (\$102,426 and over) paid an effective tax rate of 1.2 percent. According to *Texas Tax Exemptions and Tax Incidence* (2005) that state's effective average school property tax rate ranged from 9.3 percent for the lowest income group (less than \$12,820) to 2.3 percent for the highest income population group (\$135,599 and over). The *Wisconsin Tax Study* (2004) found that residents paid 4.5 percent of their income in residential property taxes. According to this study the lowest income group paid 6.9 percent their income in residential property taxes. In contrast the top income group paid 4.0 percent of their income on residential property taxes.

Exhibit 31 presents Kansas residential property tax incidence by residential characteristics and income class. Because of the methodology used to compute residential property tax liabilities the values of the Suits and Kakwani Indices will be equal. The Suits/Kakwani Index (-0.4113) indicates that the Kansas residential property tax is significantly regressive. Comparatively the *Minnesota Tax Incidence Study* (2005) found a Suits Index of -0.148 for that state's local general homeowners' property tax, while *Texas Tax Exemptions and Tax Incidence* (2005) found a Suits Index of -0.06 for that state's school property tax, and the *Wisconsin Tax Incidence Study* (2004) reported a Suits Index of -0.073 and Kakwani Index of -0.054 for residential properties including rental housing. However it should be kept in mind that the regressivity of Kansas residential property taxes is probably overstated to the extent that it does not include many income tax deductions and credits designed to offset the regressivity of the residential property taxes.

Exhibit 31: Residential Property Tax Incidence

2013 PROPERTY TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
AVERAGE TAX RATES BASED ON INCOME											
Owner-occupied units	19.4%	7.8%	4.9%	3.2%	2.3%	1.6%	1.1%	0.8%	0.6%	0.5%	1.6%
Less than \$50,000	2.7%	1.1%	0.7%	0.5%	0.3%	0.2%	0.2%	0.1%	0.1%	0.1%	0.2%
\$50,000 to \$99,999	8.9%	3.6%	2.2%	1.5%	1.1%	0.7%	0.5%	0.4%	0.3%	0.2%	0.7%
\$100,000 to \$149,999	15.1%	6.1%	3.8%	2.5%	1.8%	1.2%	0.9%	0.6%	0.4%	0.4%	1.3%
\$150,000 to \$199,999	21.4%	8.5%	5.3%	3.6%	2.5%	1.7%	1.2%	0.9%	0.6%	0.5%	1.8%
\$200,000 to \$299,999	30.7%	12.3%	7.7%	5.1%	3.6%	2.5%	1.8%	1.2%	0.9%	0.8%	2.5%
\$300,000 to \$499,999	49.3%	19.7%	12.3%	8.2%	5.8%	3.9%	2.8%	2.0%	1.4%	1.2%	4.1%
\$500,000 to \$999,999	92.8%	37.1%	23.2%	15.5%	10.9%	7.4%	5.3%	3.7%	2.7%	2.3%	7.7%
\$1,000,000 or more	123.9%	49.6%	31.0%	20.6%	14.6%	9.9%	7.1%	5.0%	3.5%	3.1%	10.2%
Renter-occupied units	13.6%	5.4%	3.4%	2.3%	1.6%	1.1%	0.8%	0.5%	0.4%	0.3%	1.1%
Less than \$200	1.7%	0.7%	0.4%	0.3%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%
\$200 to \$299	4.8%	1.9%	1.2%	0.8%	0.6%	0.4%	0.3%	0.2%	0.1%	0.1%	0.4%
\$300 to \$499	7.9%	3.2%	2.0%	1.3%	0.9%	0.6%	0.5%	0.3%	0.2%	0.2%	0.7%
\$500 to \$749	12.6%	5.0%	3.1%	2.1%	1.5%	1.0%	0.7%	0.5%	0.4%	0.3%	1.0%
\$750 to \$999	17.8%	7.1%	4.4%	3.0%	2.1%	1.4%	1.0%	0.7%	0.5%	0.4%	1.5%
\$1,000 to \$1,499	25.5%	10.2%	6.4%	4.3%	3.0%	2.0%	1.5%	1.0%	0.7%	0.6%	2.1%
\$1,500 or more	30.7%	12.3%	7.7%	5.1%	3.6%	2.5%	1.8%	1.2%	0.9%	0.8%	2.5%
No cash rent	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	17.6%	7.0%	4.4%	2.9%	2.1%	1.4%	1.0%	0.7%	0.5%	0.4%	1.5%
COMBINED AVERAGE TAX RATES BASED ON INCOME											
Less than \$50,000	2.5%	1.0%	0.6%	0.4%	0.3%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%
\$50,000 to \$99,999	8.7%	3.5%	2.2%	1.4%	1.0%	0.7%	0.5%	0.3%	0.2%	0.2%	0.7%
\$100,000 to \$149,999	14.8%	5.9%	3.7%	2.5%	1.7%	1.2%	0.8%	0.6%	0.4%	0.4%	1.2%
\$150,000 to \$199,999	21.4%	8.5%	5.3%	3.6%	2.5%	1.7%	1.2%	0.9%	0.6%	0.5%	1.8%
\$200,000 to \$299,999	29.3%	11.7%	7.3%	4.9%	3.5%	2.3%	1.7%	1.2%	0.8%	0.7%	2.4%
\$300,000 to \$499,999	49.3%	19.7%	12.3%	8.2%	5.8%	3.9%	2.8%	2.0%	1.4%	1.2%	4.1%
\$500,000 to \$999,999	92.8%	37.1%	23.2%	15.5%	10.9%	7.4%	5.3%	3.7%	2.7%	2.3%	7.7%
\$1,000,000 or more	123.9%	49.6%	31.0%	20.6%	14.6%	9.9%	7.1%	5.0%	3.5%	3.1%	10.2%
Total	17.6%	7.0%	4.4%	2.9%	2.1%	1.4%	1.0%	0.7%	0.5%	0.4%	1.5%
CUMULATIVE % OF HOUSEHOLDS	7.1%	13.0%	25.1%	36.4%	52.3%	71.7%	83.8%	93.9%	97.1%	100.0%	
CUMULATIVE % OF INCOME	0.6%	1.8%	5.8%	11.4%	22.6%	42.7%	60.2%	81.0%	90.3%	100.0%	
CUMULATIVE % OF TAX	7.1%	13.0%	25.1%	36.4%	52.3%	71.7%	83.8%	93.9%	97.1%	100.0%	
KAKWANI INDEX	(0.0023)	(0.0052)	(0.0185)	(0.0249)	(0.0434)	(0.0570)	(0.0319)	(0.0184)	(0.0032)	(0.0010)	(0.4113)
SUITS INDEX	(0.0002)	(0.0011)	(0.0061)	(0.0124)	(0.0305)	(0.0589)	(0.0461)	(0.0379)	(0.0091)	(0.0033)	(0.4113)

Incidence of Kansas Retail Sales Taxes

The incidence of the Kansas retail sales tax was estimated using the Retail Sales Tax Incidence Model. The details of the Retail Sales Tax Incidence Model are discussed in Appendix D. Exhibit 32 shows average sales taxes paid by Kansas consumers based on consumption category and income group. The Consensus Revenue Estimating Group estimates that Kansas retail sales tax receipts will increase 6.8 percent in fiscal year 2012 and 4.8 percent in fiscal year 2013. As such, combined state and local sales taxes for 2013 are estimated to be \$3,022.9 billion.

Average Kansas household pays \$1,958 in retail sales taxes annually. The largest amount goes to housing (\$584), food (\$509), and transportation (\$315). The average effective tax rate for the state as a whole is 2.3 percent. For 2013 the effective consumer sales tax rate for the lowest income group was 12.1 percent compared to the rate for the highest income group of 1.6 percent. In agreement with most incidence studies this analysis finds the consumer portion of the sales tax to be regressive especially at low-income levels. This is because the share of income represented by taxable consumption tends to be smaller for high-income households than for low-income ones. Hence tax burdens as a proportion of income tend to decline as income increases. Retail sales taxes in Kansas tend to be more regressive than many states because of the base of the tax is relatively broad and has relatively few major exemptions for such as for food and clothing.

Exhibit 32 presents Kansas retail sales tax incidence by expenditure category and income class.

Exhibit 32: Retail Sales Tax Incidence

2013 SALES TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
AVG. TAXES PER HOUSEHOLD	861	863	1,172	1,388	1,608	2,163	2,428	3,302	4,668	4,668	1,958
Food	265	260	320	369	432	551	614	823	1,105	1,105	509
Food at home	175	186	221	242	267	314	349	449	555	555	301
Cereals and bakery products	24	25	31	34	36	45	50	61	76	76	42
Meats, poultry, fish, and eggs	40	42	50	53	59	68	72	95	116	116	65
Dairy products	19	18	23	25	27	33	37	47	61	61	32
Fruits and vegetables	32	34	41	46	49	57	64	88	113	113	56
Other food at home	61	66	76	84	96	111	125	157	189	189	106
Food away from home	90	74	98	127	165	238	265	374	550	550	208
Alcoholic beverages	15	11	14	20	26	37	40	60	107	107	34
Housing	267	287	380	429	478	631	700	908	1,422	1,422	584
Shelter	18	9	16	21	23	44	55	102	263	263	53
Utilities, fuels, & public services	156	185	241	264	284	336	361	411	494	494	304
Household operations	19	24	31	35	41	58	66	91	171	171	55
Housekeeping supplies	26	29	33	36	41	59	66	83	111	111	51
Household furnishings & equip.	47	41	60	73	88	135	152	221	382	382	122
Apparel and services	67	50	85	99	109	141	156	281	375	375	141
Transportation	86	83	161	221	266	386	462	615	697	697	315
Vehicle purchases (net outlay)	53	45	103	155	184	274	329	440	441	441	215
Other vehicle expenses	34	39	58	67	82	112	132	175	256	256	100
Health care	3	5	7	8	9	11	13	16	23	23	10
Entertainment	78	81	107	128	150	226	253	391	584	584	208
Fees and admissions	12	9	12	19	26	46	57	100	213	213	48
TVs, radios, & sound equip.	39	44	55	62	71	90	98	118	141	141	79
Pets, toys, & playground equip.	21	19	30	34	40	61	67	96	105	105	50
Other entertainment sply., equip.,	6	9	9	13	13	28	31	77	125	125	30
Personal care products & services	21	21	30	33	37	49	58	87	116	116	48
Reading	4	3	5	6	6	8	9	14	23	23	8
Tobacco products & smoking sply.	27	26	30	32	35	34	33	23	20	20	30
Miscellaneous	27	36	34	41	59	88	90	85	197	197	70
AVG. TAX RATE BASED ON INC.	12139.6%	4863.5%	4130.0%	3261.3%	2665.6%	2438.4%	1955.3%	1861.8%	1879.6%	1644.7%	2330.5%
CUMULATIVE % OF HOUSEHOLDS	7.1%	13.0%	25.1%	36.4%	52.3%	71.7%	83.8%	93.9%	97.1%	100.0%	
CUMULATIVE % OF INCOME	0.6%	1.8%	5.8%	11.4%	22.6%	42.7%	60.2%	81.0%	90.3%	100.0%	
CUMULATIVE % OF TAX	3.0%	5.6%	12.7%	20.5%	33.3%	54.3%	69.0%	85.7%	93.2%	100.0%	
KAKWANI INDEX	(0.0009)	(0.0018)	(0.0065)	(0.0090)	(0.0158)	(0.0217)	(0.0124)	(0.0068)	(0.0012)	(0.0004)	(0.1531)
SUITS INDEX	(0.0001)	(0.0004)	(0.0021)	(0.0045)	(0.0111)	(0.0225)	(0.0180)	(0.0140)	(0.0035)	(0.0014)	(0.1550)

As a basis of comparison the *Minnesota Tax Incidence Study (2005)* found an average effective state and local retail sales rate on purchases by individuals of 1.9 percent with the lowest income population group (\$8,354 and under) paying an effective rate of 5.2 percent and the highest income population group (\$102,426 and over) paying an ETR of 1.3 percent. According to *Texas Tax Exemptions and Tax Incidence (2005)* that state's effective average limited sales and use tax rate ranged from 10.0 percent for the lowest income group (less than \$12,820) to the highest income population group (\$135,599 and over) paying an ETR of 1.6 percent. The *Wisconsin Tax Incidence Study (2004)* found that households paid 2.1 percent of their income on sales taxes. The lowest income households paid 4.0 percent of their income in sales taxes whereas the highest income households paid 1.5 percent of their income in sales taxes.

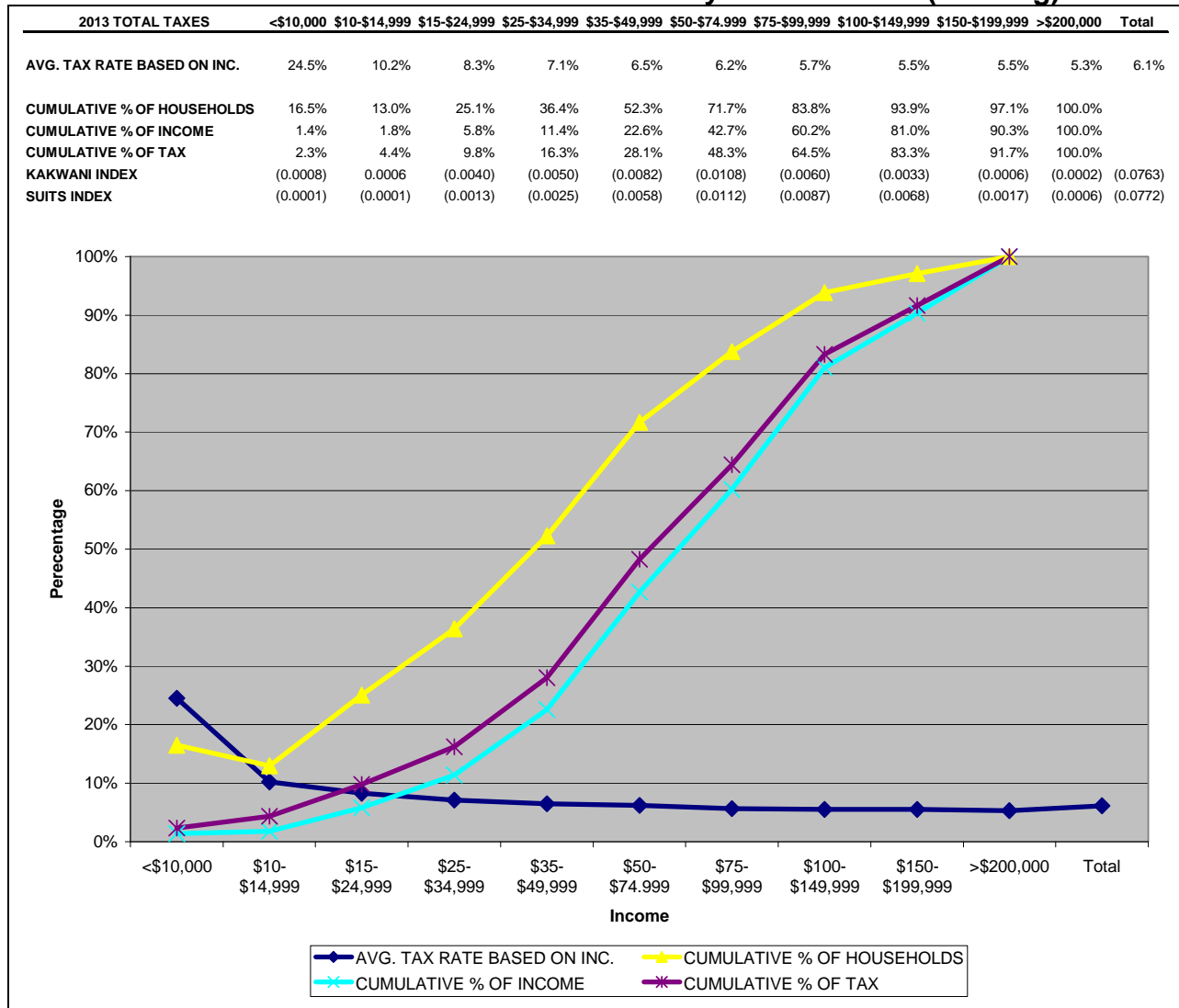
The data for this section are derived from the above sections. Both the Suits Index (-0.1550) and the Kakwani Index (-0.1531) indicate the Kansas retail sales tax is modestly regressive. The *Minnesota Tax Incidence Study (2005)* found a Suits Index of -0.143 for that state's state and local sales tax. Similarly *Texas Tax Exemptions and Tax Incidence (2005)* found a Suits Index of -0.18 for that state's limited sales and use tax while the *Wisconsin Tax Incidence Study* reported a Suits Index of -0.134 and a Kakwani Index of -0.099 for consumer purchases. Retail sales taxes in Kansas tend to be more regressive than many states because of the base of the tax is relatively broad and has relatively few major exemptions for such as for food and clothing. It should also be remembered that the regressivity of Kansas retail sales taxes is probably overstated to the extent that it does not include income tax credits designed to offset the regressivity of the tax.

Incidence of Combined Individual Income, Residential Property, and Retail Sales Taxes

Combined individual income, residential property, and retail sales taxes in Kansas are proportional to slightly regressive under existing individual income tax rates. Exhibit 33 presents the distribution of combined Kansas individual income, residential property, and retail sales taxes by income grouping. Out of the ten income groupings the highest effective tax rate paid is by households that earn less than \$10,000 (24.5 percent) while the lowest effective rate paid is for households with \$200,000 or more of income (5.3 percent). Again it should be kept in mind that the ETRs are computed as a percentage of Kansas adjusted gross income. The average effective tax rate for the state as a whole is 6.1 percent.

As a basis of comparison the *Minnesota Tax Incidence Study* (2005) found an effective average total state and local tax rate on individuals of 8.9 percent with the lowest income population group (\$8,354 and under) paying an effective tax rate of 10.2 percent while the highest income population group (\$102,426 and over) paying an effective tax rate of 9.1 percent. According to the *Oregon Tax Incidence Model* (2001) that state's effective average total state and local tax rate on households was 7.1 percent, ranging from 5.9 percent for households earning between \$21,255 and \$128,739 to the highest income group (over \$126,172) paying an ETR of 8.9 percent. The *Wisconsin Tax Incidence Study* (2004) found that the overall tax structure was moderately progressive to proportional for almost all households. The lowest income group paid 9.6 percent of their income in taxes, while households with income between \$93,401 and \$254,200 paid the highest tax rate of 11.9 percent, but the tax rate for the highest income group declined to 10.9 percent.

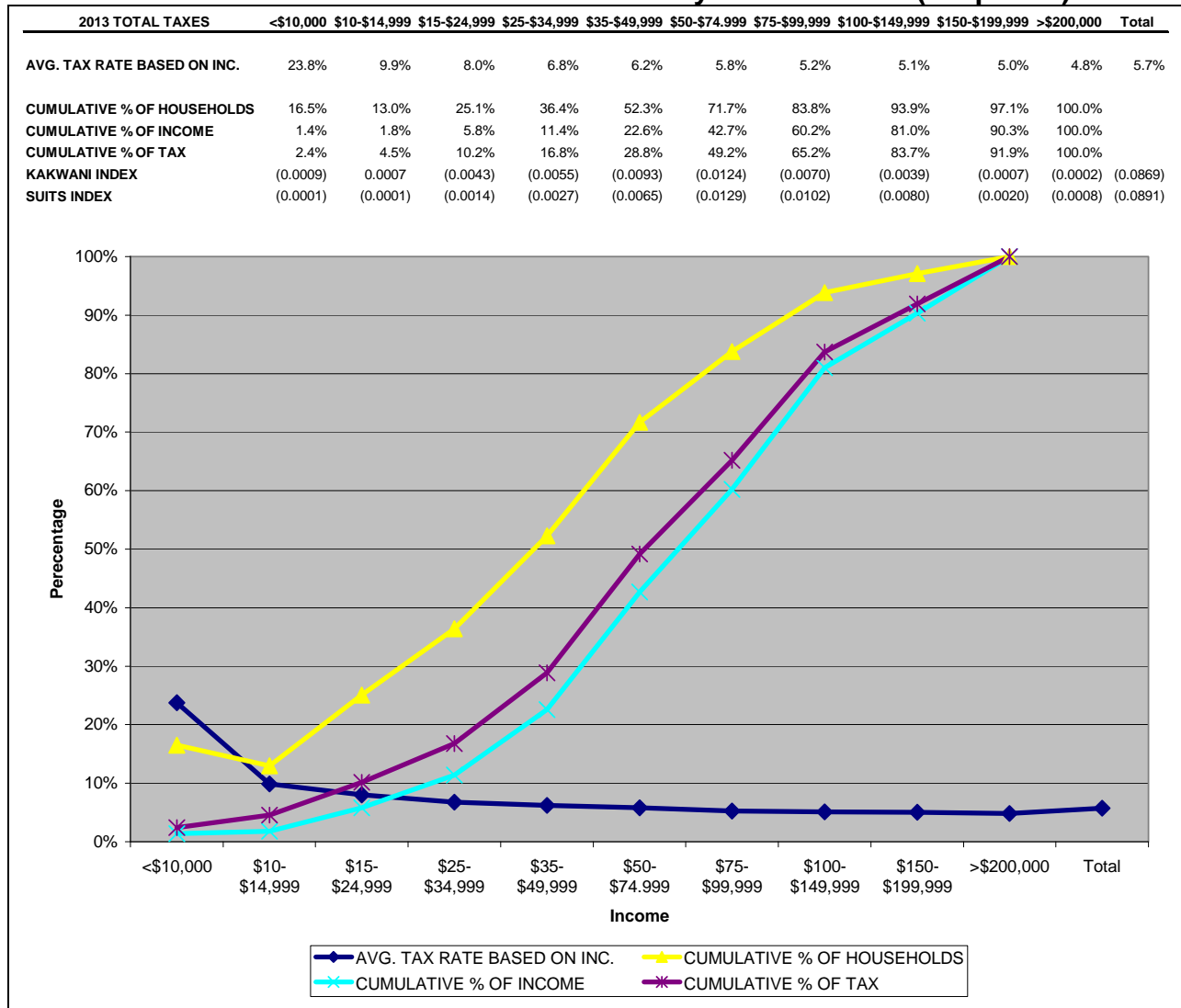
Exhibit 23: Combined Tax Incidence by Income Class (Existing)



Both the Suits Index (–0.0772) and the Kakwani Index (–0.0763) indicate total Kansas state and local individual income, residential property, and retail sales taxes are slightly regressive. The Minnesota Tax Incidence Study (2005) reported a Suits Index of –0.018 for total state and local taxes while the Wisconsin Tax Incidence Study (2004) reported a Suits Index of 0.006 and a Kakwani Index of 0.013 for total state and local taxes.

Combined individual income, residential property, and retail sales taxes in Kansas are proportional to slightly regressive under income tax rate rollback provisions. Exhibit 34 presents the distribution of combined Kansas individual income, residential property, and retail sales taxes by income grouping. Out of the ten income groupings the highest effective tax rate paid is by households that earn less than \$10,000 (23.8 percent) while the lowest effective rate paid is for households with \$200,000 or more of income (4.8 percent). Again it should be kept in mind that the ETRs are computed as a percentage of Kansas adjusted gross income. The average effective tax rate for the state as a whole is 5.7 percent.

Exhibit 34: Combined Tax Incidence by Income Class (Proposed)



Both the Suits Index (-0.0891) and the Kakwani Index (-0.0896) indicate total Kansas state and local individual income, residential property, and retail sales taxes are slightly regressive. These indices indicate that the incidence of combined individual income, residential property, and retail sales taxes are slightly more regressive under income tax rollback provisions than under the existing individual income tax rate structure. The overall incidence of the combined taxes under the proposed individual income tax rates is more regressive because of the reduced amount of progressive income tax receipts available balance the regressive residential property and retail sales taxes.

Tax Incidence Implications

Because the income tax is the only one of the three major state and local revenue sources that is progressively distributed based on income it must by definition bear the burden of balancing the regressivity of the residential property and retail sales taxes.

According to the Center for Budget and Policy Priorities (Levitis and Johnson, 2006) in nearly half of the states with an income tax a family of four owes the tax even if its income falls below the poverty line. In 19 of the 42 states that levy an income tax the income level at which families begin owing taxes

for tax year 2005 is below the poverty line for a two-parent family of four. The National Center for Children in Poverty (Dinan, Fass, and Cauthen, 2004) found that over 26 million American children live in low-income families. Nearly 60 percent of these children are not officially poor but live in families with incomes between one and two times the federal poverty level. Research suggests that most families need income of at least double the poverty level—nearly \$38,000 a year for a family of four—to make ends meet. The income tax system is the most efficient means to reduce the tax burden on lower income households since it is the only one of the three major state and local taxes that directly takes income into consideration. Some alternatives for reducing the income tax burden on lower income households include:

- Indexing of brackets, deductions, and credits;
- Increasing credit allowances for child and dependent care expenses;
- Increasing the earned income tax credit;

Some options for reducing the property tax burden on lower income households include:

- Increasing the homestead refund;
- Combining the school finance exemption with the homestead refund and relating it to household income;
- Reduce reliance on the property tax for school finance

Selectively exempting a specified value from residential property taxation such as with the school finance exemption applies to all residences irrespective of income. If the objective is to specifically reduce the tax burden on lower income households the tax reduction must be specifically based on income.

Some alternatives for reducing the retail sales tax burden on lower income households include:

- Increasing the food sales tax refund;
- Closing sales tax exemptions and exclusions;
- Broaden the sales tax base to include services;
- Broaden the sales tax base to include remote sales;

Selectively exempting or excluding specific items from the tax base make those items artificially less expensive and more preferable relative to other taxed items. In addition exemptions and exclusions apply to all purchasers irrespective of income. If the objective is to specifically reduce the tax burden on lower income households the tax reduction must be specifically based on income.

However, it must be kept in mind that while these changes may decrease the tax burden on lower income households these changes may also reduce state revenues.

The purpose of the study was to measure the distribution of taxes across Kansas households. The study does not seek to make policy recommendations. However it is hoped that the findings of the study will be used to inform the policy making process.

Budgetary Impact of a Reduction in State Spending on Human Services

No budget was enacted during the regular legislative session. During the omnibus session in early May, the Legislature reduced the Governor's proposed FY 2012 expenditures by \$11.3 million. Much of that reduction was the result of across the board type cuts applied to many state agencies' operating budgets (). Exhibit 35 presents fiscal year 2012 approved expenditures from the state general fund.

Exhibit 35:

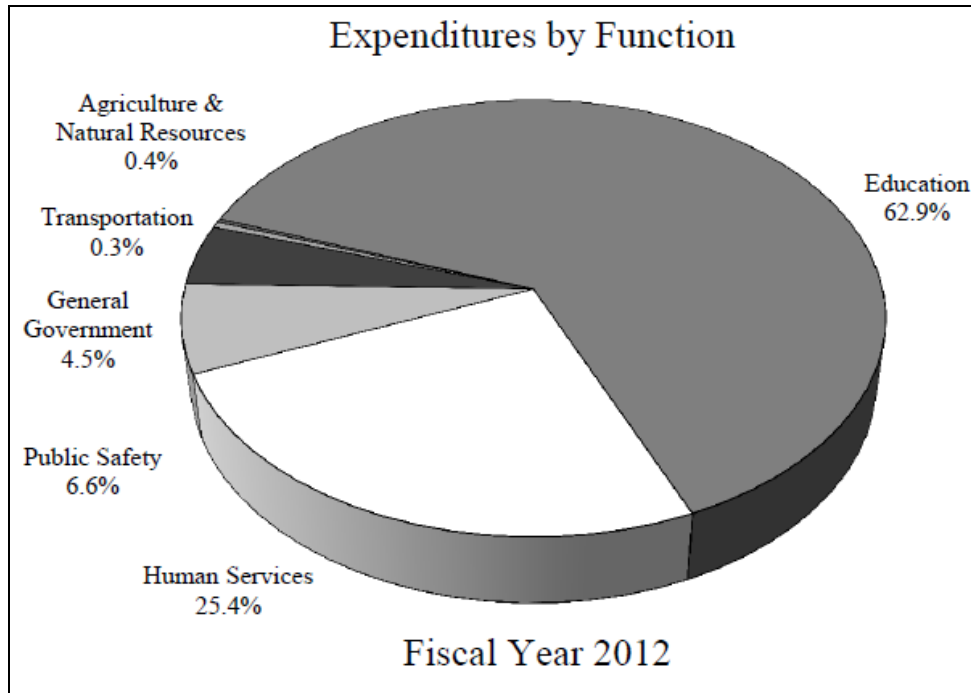
FY 2012 Approved Expenditures from the State General Fund					
<i>(Dollars in Millions)</i>					
	<u>State Operations</u>	<u>Local Aid</u>	<u>Other Assistance, Grants & Benefits</u>	<u>Capital Improvements</u>	<u>Total</u>
General Government	242.4	--	22.7	11.3	276.5
Human Services	244.5	14.7	1,307.2	0.1	1,566.4
Education	605.4	3,143.3	31.9	5.7	3,786.2
Public Safety	326.7	40.4	29.2	5.1	401.3
Ag & Natural Resources	25.1	--	--	1.3	26.4
Transportation	8.2	--	--	7.9	16.2
Total	\$1,452.3	\$3,198.3	\$1,391.0	\$31.3	\$6,072.9

Totals may not add because of rounding.

Source: State of Kansas (2011), *Comparison Report, The Governor's Budget Report with Legislative Authorizations, FY 2012*

Also for FY 2012, a 1.193 percent across the board reduction was applied to most operating budgets (excluding debt service and caseloads). In total, these reductions came to \$84.7 million, including \$45.0 million from the State General Fund (*Comparison Report, The Governor's Budget Report with Legislative Authorizations, FY 2012, 2011*). Exhibit 36 presents fiscal year 2012 approved expenditures from the general fund by function.

Exhibit 36:



Source: State of Kansas (2011), *Comparison Report, The Governor's Budget Report with Legislative Authorizations, FY 2012*

The Human Services function provides services to individuals needing assistance from the following agencies: the Department of Social and Rehabilitation Services, the state hospitals for mental health and developmental disabilities, the Department on Aging, the Commission on Veterans Affairs, the Department of Labor, the Kansas Guardianship Program, and the Division of Health in the Department of Health and Environment. Appendix E presents fiscal year 2012 general fund expenditures for human service agencies.

The Consensus Revenue Estimating Group has estimated that state general fund receipts for fiscal year 2013 will be \$6.3 billion. The Kansas Legislative Research Department estimates that income tax rate rollback provisions proposed by House Substitute for Senate Bill Number 1 as Amended by the House Committee of the Whole will reduce state general fund receipts by \$603.5 million in fiscal year 2013. This would amount to a 9.6 percent decrease in state general fund receipts below receipts under existing income tax rates. Assuming an across the board spending reduction, human services expenditures would be reduced by \$147.3 million. This would include reductions of \$69.3 million for overall Social and Rehabilitation Services, \$56.9 million for the Division of Health in the Department of Health and Environment, and \$20.2 million for the Department of Aging. Exhibit 37 presents the budgetary impact of a state spending reduction on human services.

Exhibit 37: Budgetary Impact of State Spending Reduction on Human Services

Human Services	FY2012 Approved	FY2013 Reduction
Social & Rehabilitation Services	\$638,911,501	(\$61,287,327)
Kansas Neurological Institute	10,458,460	(1,003,224)
Larned State Hospital	43,480,359	(4,170,836)
Osawatomie State Hospital	14,458,658	(1,386,941)
Parsons State Hospital & Training Center	10,358,250	(993,611)
Rainbow Mental Health Facility	4,529,785	(434,518)
Subtotal--SRS	\$722,197,013	(\$69,276,456)
Kansas Health Policy Authority	--	--
Department on Aging	210,544,985	(20,196,443)
Health & Environment--Health	593,438,700	(56,925,367)
Department of Labor	406,823	(39,024)
Commission on Veterans Affairs	7,682,999	(736,989)
Kansas Guardianship Program	1,148,577	(110,177)
Total--Human Services	\$1,535,419,097	(\$147,284,456)

Source: State of Kansas (2011), *Comparison Report, The Governor's Budget Report with Legislative Authorizations, FY 2012*

Conclusion

The total effect of a \$541.9 million reduction in individual income taxes on state output is \$590.0 million, including a direct effect of \$369.2 million, an indirect effect of \$112.9 million, and an induced effect of \$108.0 million. The total effect on state value added is \$339.4 million, including a direct effect of \$216.3 million, an indirect effect of \$60.1 million, and an induced effect of \$62.3 million. The total effect on state labor income is \$185.2 million, including a direct effect of \$114.7 million, an indirect effect of \$36.7 million, and an induced effect of \$33.8 million. The total effect on state-wide

employment is a gain of 4,903 jobs, including a direct effect of 3,235 jobs gained, and indirect effect of 770 jobs gained, and an induced effect of 899 jobs gained.

The total effect of a \$61.6 million reduction in corporation taxes on state output is \$93.3 million, including a direct effect of \$60.5 million, an indirect effect of \$17.9 million, and an induced effect of \$14.9 million. The total effect on state value added is \$46.3 million, including a direct effect of \$28.1 million, an indirect effect of \$9.5 million, and an induced effect of \$8.7 million. The total effect on state labor income is \$27.0 million, including a direct effect of \$16.8 million, an indirect effect of \$5.4 million, and an induced effect of \$4.9 million. The total effect on state-wide employment is a gain of 582 jobs, including a direct effect of 347 jobs gained, and indirect effect of 105 jobs gained, and an induced effect of 131 jobs gained.

The total effect of a \$603.5 million reduction on state output is \$741.5 million, including a direct effect of \$456.9 million, an indirect effect of \$64.8 million, and an induced effect of \$219.5 million. The total effect on state value added is \$516.0 million, including a direct effect of \$355.5 million, an indirect effect of \$33.9 million, and an induced effect of \$126.6 million. The total effect on state labor income is \$378.4 million, including a direct effect of \$289.0 million, an indirect effect of \$0.7 million, and an induced effect of \$68.7 million. The total effect on state-wide employment is a loss of 8,927 jobs, including a direct effect of 6,578 jobs lost, and indirect effect of 440 jobs lost, and an induced effect of 1,909 jobs lost.

The cumulative impact of \$603.5 million in tax and state government spending reductions on state output is a net loss of \$58.1 million, including a direct effect of -\$27.2 million, an indirect effect of \$66.0 million, and an induced effect of -\$58.1 million. The total effect on state value added is a net loss of \$130.3 million, including a direct effect of -\$111.1 million, an indirect effect of \$36.4 million, and an induced effect of -\$55.6 million. The total effect on state labor income is a net loss of \$166.1 million, including a direct effect of -\$157.5 million, an indirect effect of \$21.4 million, and an induced effect of -\$166.1 million. The total effect on state-wide employment is a net loss of 3,441 jobs, including a direct effect of 2,996 jobs lost, an indirect effect of 434 jobs gained, and an induced effect of 879 jobs lost. As such, for every job created by a reduction in income tax rates, 1.63 jobs would be lost by an equal reduction in state spending. Similarly, for every dollar of labor income generated by a reduction in income tax rates, \$1.78 would be lost by an equal reduction in state spending. Likewise, for every dollar of value added generated by a reduction in income tax rates, \$1.34 would be lost by an equal reduction in state spending. Finally, for every dollar of total output generated by a reduction in income taxes, \$1.09 would be lost by an equal reduction in state spending.

There are at least two reasons why a reduction in state spending would have a greater negative impact than an equal reduction in state taxes. First, a high percentage of government expenditures initially stay within the state's economy, going either to employees (state residents) in the form of salaries or to local businesses for the purchase of goods and services. In contrast, though most spending by Kansas residents takes place within Kansas, much of those monies quickly leave the state's economy, particularly since so few manufactured goods are built within the state.

Second, a tax reduction disperses the benefits throughout the state, both geographically and across residents. The effect on any individual and on any business is minor. In contrast, the spending reduction scenario severely affects a small number of state residents and businesses—state employees and those private-sector businesses that serve state employees and state government directly. The likelihood of a business failing under this scenario is much greater than in the tax increase scenario. A business failure will have a ripple effect across the economy.

Combined individual income, residential property, and retail sales taxes in Kansas are proportional to slightly regressive under existing individual income tax rates. Out of the ten income groupings the highest effective tax rate paid is by households that earn less than \$10,000 (24.5 percent) while the lowest effective rate paid is for households with \$200,000 or more of income (5.3 percent). The average effective tax rate for the state as a whole is 6.1 percent. Both the Suits Index (-0.0772) and the Kakwani Index (-0.0763) indicate total Kansas state and local individual income, residential property, and retail sales taxes are slightly regressive.

Combined individual income, residential property, and retail sales taxes in Kansas are proportional to slightly regressive under income tax rate rollback provisions. Out of the ten income groupings the highest effective tax rate paid is by households that earn less than \$10,000 (23.8 percent) while the lowest effective rate paid is for households with \$200,000 or more of income (4.8 percent). The average effective tax rate for the state as a whole is 5.7 percent.

Both the Suits Index (-0.0891) and the Kakwani Index (-0.0896) indicate total Kansas state and local individual income, residential property, and retail sales taxes are slightly regressive. These indices indicate that the incidence of combined individual income, residential property, and retail sales taxes are slightly more regressive under income tax rollback provisions than under the existing individual income tax rate structure. The overall incidence of the combined taxes under the proposed individual income tax rates is more regressive because of the reduced amount of progressive income tax receipts available balance the regressive residential property and retail sales taxes.

A \$603.5 reduction in state general fund receipts resulting from proposed income tax rate reductions would be 9.6 percent below receipts under existing income tax rates. Assuming an across the board spending reduction, human services expenditures would be reduced by \$147.3 million. This would include reductions of \$69.3 million for overall Social and Rehabilitation Services, \$56.9 million for the Division of Health in the Department of Health and Environment, and \$20.2 million for the Department of Aging.

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Appendix A: Revenue Loss Estimates Based on Alternative Rate Scenarios*

Exhibit A: Revenue Loss Estimates Based on Alternative Rate Scenarios

	Percentage Rate			Percentage Reduction		Alternative Rate Reductions			
	2011	2012	2013	2012	2013	5%	10%	15%	20%
Individual									
Bracket 1	3.500%	3.058%	2.605%	-12.6%	-14.8%				
Bracket 2	6.250%	5.461%	4.652%	-12.6%	-14.8%				
Bracket 3	6.450%	5.635%	4.801%	-12.6%	-14.8%				
Receipts (millions)	\$2,709,717	\$2,900,000	\$3,065,000	(\$121,500)	(\$541,900)	(\$182,951)	(\$365,901)	(\$548,852)	(\$731,803)
Corporation									
Bracket 1	4.000%	3.500%	3.500%	-12.5%	0.0%				
Bracket 2	7.000%	6.116%	5.210%	-12.6%	-14.8%				
Receipts (millions)	\$224,865	\$225,000	\$240,000	(\$14,000)	(\$61,600)	(\$20,794)	(\$41,587)	(\$62,381)	(\$83,175)
Total	\$2,934,582	\$3,125,000	\$3,305,000	(\$135,500)	(\$603,500)	(\$203,744)	(\$407,489)	(\$611,233)	(\$814,977)

* Note that 2012 estimates cannot be directly compared to 2013 estimates because the 2012 estimates assume that the proposed tax rate changes would only be in effect for part of the year. The 2013 estimates assume that the rate changes would be in effect for the entire year.

Appendix B: Individual Income Tax Incidence Model

The Kansas individual income tax accounted for \$3.0 billion of revenue in fiscal year 2010. Income tax rates presently range from 3.5 percent to 6.45 percent on a tax base that conforms closely to the base for the federal individual income tax (*Kansas Tax Facts, Eighth Edition, 2010*).

For the purposes of this study hypothetical individual income tax liabilities were computed for five household characteristics and 10 income groupings. Data on household characteristics for each county were obtained from the 2009 American Community Survey, Selected Social Characteristics. The household characteristics used were:

- Married with children,
- Married without children,
- Single with children,
- Single without children, and
- Nonfamily households.

Data on income groupings for each county were obtained from the 2009 American Community Survey, Selected Economic Characteristics. The income groupings used were:

- <\$10,000,
- \$10,000-\$14,999,
- \$15,000-\$24,999,
- \$25,000-\$34,999,
- \$35,000-\$49,999,
- \$50,000-\$74,999,
- \$75,000-\$99,999,
- \$100,000-\$149,999,
- \$150,000-\$199,999, and
- ≥\$200,000.

From the household characteristics and income grouping data a matrix was constructed to estimate the number and percentage of taxpayers with each combination of characteristics. Exhibit B-1 shows the estimated number and percentage of taxpayers with each combination of characteristics for the state of Kansas.

Exhibit B-1: Characteristics of Individual Income Taxpayers

2013 INCOME TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-	
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
NUMBER OF HOUSEHOLDS										
Married with children	16,539	13,725	28,384	26,342	37,141	45,365	28,313	23,538	7,517	6,831
Married without children	22,927	19,026	39,347	36,516	51,485	62,885	39,248	32,629	10,421	9,469
Single with children	7,274	6,036	12,483	11,585	16,334	19,951	12,452	10,352	3,306	3,004
Single without children	4,371	3,627	7,501	6,961	9,815	11,988	7,482	6,220	1,986	1,805
Nonfamily households	27,092	22,481	46,493	43,149	60,837	74,308	46,376	38,556	12,313	11,189
Total	78,203	64,895	134,208	124,553	175,611	214,497	133,870	111,296	35,544	32,299
PERCENTAGE OF HOUSEHOLDS										
Married with children	1.5%	1.2%	2.6%	2.4%	3.4%	4.1%	2.6%	2.1%	0.7%	0.6%
Married without children	2.1%	1.7%	3.6%	3.3%	4.7%	5.7%	3.6%	3.0%	0.9%	0.9%
Single with children	0.7%	0.5%	1.1%	1.0%	1.5%	1.8%	1.1%	0.9%	0.3%	0.3%
Single without children	0.4%	0.3%	0.7%	0.6%	0.9%	1.1%	0.7%	0.6%	0.2%	0.2%
Nonfamily households	2.5%	2.0%	4.2%	3.9%	5.5%	6.7%	4.2%	3.5%	1.1%	1.0%
Total	7.1%	5.9%	12.1%	11.3%	15.9%	19.4%	12.1%	10.1%	3.2%	2.9%

Next the total value of income for each combination of characteristics was estimated based on the midpoint of each income grouping. From this the proportion of income for each combination of characteristics was derived. Finally the total value of income attributed to each combination of characteristics was adjusted based on the total value of 2013 Kansas Personal Income from Consensus Revenue Estimating Group estimates (2011). Exhibit B-2 shows the estimated distribution of income for each combination of characteristics for the state of Kansas.

Exhibit B-2: Distribution of Income by Household Type

2013 INCOME TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-	
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
PERCENTAGE OF INCOME										
Married with children	0.1%	0.3%	0.8%	1.2%	2.4%	4.2%	3.7%	4.4%	2.0%	2.0%
Married without children	0.2%	0.4%	1.2%	1.6%	3.3%	5.9%	5.1%	6.1%	2.7%	2.8%
Single with children	0.1%	0.1%	0.4%	0.5%	1.0%	1.9%	1.6%	1.9%	0.9%	0.9%
Single without children	0.0%	0.1%	0.2%	0.3%	0.6%	1.1%	1.0%	1.2%	0.5%	0.5%
Nonfamily households	0.2%	0.4%	1.4%	1.9%	3.9%	7.0%	6.1%	7.2%	3.2%	3.4%
Total	0.6%	1.2%	4.0%	5.6%	11.2%	20.1%	17.5%	20.8%	9.3%	9.7%

The base of the Kansas individual income tax is comprised of Federal Adjusted Gross Income less deductions and exemptions. Kansas Adjusted Gross Income is defined as the Federal Adjusted Gross Income after certain additions and subtractions. The additions include income that is taxable under state law but exempt under federal law, e.g., state and local government bond interest, contributions to public employees' retirement systems, and federal net operating loss carry forward. The subtractions remove income that is exempt under state law but taxable under federal law. The subtractions include income that is exempt under state law but is taxable under federal law, e.g., interest on U.S. government obligations, state or local income tax refunds, Kansas net operating loss carry forward, and exempt retirement benefits.

Individual income tax liability per household was estimated in a similar fashion. First taxable income was estimated for each combination of characteristics based on 2011 Kansas Individual Income Tax and Sales Refund, Form K-40. Kansas Adjusted Gross Income was taken from the above computations. A standard deduction and personal exemptions were also subtracted from the Kansas Adjusted Gross Income to arrive at taxable income. The standard deduction is \$3,000 for single filers and married filers filing separately, \$4,500 for heads of households, and \$6,000 for married filers filing jointly. The standard deduction is higher for filers who are age 65 or older and/or blind. Kansas adjusted gross income was also reduced by personal exemptions equal to \$2,250 for each tax filer, spouse, and dependent. For taxpayers with children it was assumed that such taxpayers had two children. Exhibit B-3 shows taxable income imputed to each combination of household and income characteristics.

Exhibit B-3: Imputed Taxable Income

2013 KANSAS INCOME TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
TAXABLE INCOME										
Married with children	(10,000)	(2,500)	5,000	15,000	27,500	47,500	72,500	110,000	160,000	185,000
Married without children	(5,500)	2,000	9,500	19,500	32,000	52,000	77,000	114,500	164,500	189,500
Single with children	(8,500)	(1,000)	6,500	16,500	29,000	49,000	74,000	111,500	161,500	186,500
Single without children	(250)	7,250	14,750	24,750	37,250	57,250	82,250	119,750	169,750	194,750
Nonfamily households	(250)	7,250	14,750	24,750	37,250	57,250	82,250	119,750	169,750	194,750

Exhibit B-4 shows 2011 Kansas Individual Income Tax computation schedules.

Exhibit B-4: 2011 Individual Income Tax Computation Schedules

TAX COMPUTATION SCHEDULES							
SCHEDULE I – Married Filing Joint							
Taxable Income If line 7 of your Form K-40 is:	(a) Enter amount from line 7	(b) Subtraction amount:	(c) Subtract (b) from (a)	(d) Multiplication amount:	(e) Multiply (c) by (d).	(f) Addition amount:	Tax Add (e) and (f). Enter total here and line 8, Form K-40.
\$0 – \$30,000	\$	\$0	\$	3.50% (.0350)	\$	\$0	\$
\$30,001 – \$60,000	\$	\$30,000	\$	6.25% (.0625)	\$	\$1,050.00	\$
\$60,001 and over	\$	\$60,000	\$	6.45% (.0645)	\$	\$2,925.00	\$
SCHEDULE II – Single, Head of Household, or Married Filing Separate							
Taxable Income If line 7 of your Form K-40 is:	(a) Enter amount from line 7	(b) Subtraction amount:	(c) Subtract (b) from (a)	(d) Multiplication amount:	(e) Multiply (c) by (d).	(f) Addition amount:	Tax Add (e) and (f). Enter total here and line 8, Form K-40.
\$0 – \$15,000	\$	\$0	\$	3.50% (.035)	\$	\$0	\$
\$15,001 – \$30,000	\$	\$15,000	\$	6.25% (.0625)	\$	\$ 525.00	\$
\$30,001 and over	\$	\$30,000	\$	6.45% (.0645)	\$	\$1,462.50	\$

Source: 2011 Kansas Individual Income Tax, Form K-40

Gross taxes per household were computed for each combination of characteristics based on 2011 Kansas Individual Income Tax and Sales Refund Tax, Form K-40, Schedules I and II. Kansas' tax rates are graduated ranging from 3.5 percent to 6.45 percent. The top rate applies to those with income exceeding \$30,000 for single filers and \$60,000 for married joint filers.

In addition gross taxes were reduced by nonrefundable credits. These credits are nonrefundable to the extent that they cannot reduce the total tax liability less than \$0. A nonrefundable credit is available for child and dependent care expenses. The value of the credit is equal to 25 percent of the federal child and dependent care expenses credit from Internal Revenue Service Form 2441. The federal credit is a percentage based on adjusted gross income and the amount of work-related child and dependent care expenses paid to a care provider. The maximum dollar limit of dependent care expenses that can be claimed is \$3,000 for one qualifying person or \$6,000 for two or more persons. Exhibit B-5 shows the percentage that applies to the federal credit based on adjusted gross income.

Exhibit B-5: Federal Child and Dependent Care Expenses Credit Schedule

If line 7 is:			If line 7 is:		
Over	But not over	Decimal amount is	Over	But not over	Decimal amount is
	\$0—15,000	.35		\$29,000—31,000	.27
	15,000—17,000	.34		31,000—33,000	.26
	17,000—19,000	.33		33,000—35,000	.25
	19,000—21,000	.32		35,000—37,000	.24
	21,000—23,000	.31		37,000—39,000	.23
	23,000—25,000	.30		39,000—41,000	.22
	25,000—27,000	.29		41,000—43,000	.21
	27,000—29,000	.28		43,000—No limit	.20

Source: 2011 Internal Revenue Service Form 2441.

Exhibit B-6 shows the imputed value of child/dependent care credits. Again it was assumed that taxpayers qualifying for the credit had two qualifying children.

Exhibit B-6: Imputed Child and Dependent Care Credits

2013 KANSAS INCOME TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
CHILD/DEPENDENT CARE CREDIT										
Married with children	438	525	480	405	315	300	300	300	300	300
Married without children	-	-	-	-	-	-	-	-	-	-
Single with children	438	525	480	405	315	300	300	300	300	300
Single without children	-	-	-	-	-	-	-	-	-	-
Nonfamily households	-	-	-	-	-	-	-	-	-	-

In addition to nonrefundable credits there are several refundable credits provided to particular types of claimants. These include the earned income tax credit, the homestead refund, and the food sales tax refund. A refundable credit may exceed the value of the taxpayer's tax liability.

The earned income tax credit (EIC) is designed to provide tax relief to low-income earners for excess income taxes. To qualify a taxpayer must work and have earned income. Earned income includes taxable wages, salaries and tips; net earnings from self-employment; and gross income received as a statutory employee. To claim the credit using a child the child must be a "qualifying child" by meeting all relationship, age, and residency tests. Income and family size determine the amount of the EITC. However taxpayers without children also may qualify for the credit. Each year the limits on income and credit amount changes with the cost of living. The credit begins to phase out at certain income levels. For a taxpayer with two or more children in 2011 the maximum federal credit was \$5,751 with three or more qualifying children, \$5,112 with two qualifying children, \$3,094 with one qualifying child, and \$464 with no qualifying children. To have been eligible for a full or partial credit in 2011 a taxpayer must have had an adjusted gross income of less than:

- \$43,998 (\$49,078 married filing jointly) with three or more qualifying children
- \$40,964 (\$46,044 married filing jointly) with two qualifying children
- \$36,052 (\$41,132 married filing jointly) with one qualifying child
- \$13,660 (\$18,740 married filing jointly) with no qualifying children

The Kansas earned income credit is a percentage of the federal earned income tax credit. The state EIC is equal to 18 percent of the federal credit. Again it was assumed that taxpayers qualifying for the credit had two qualifying children. Exhibit B-7 shows the imputed value of the earned income credit.

Exhibit B-7: Imputed Earned Income Credits

2013 KANSAS INCOME TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-	
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
EARNED INCOME CREDIT										
Married with children	342	852	856	549	102	-	-	-	-	-
Married without children	65	77	-	-	-	-	-	-	-	-
Single with children	342	852	728	370	-	-	-	-	-	-
Single without children	65	12	-	-	-	-	-	-	-	-
Nonfamily households	65	12	-	-	-	-	-	-	-	-

In 1970 a system of income tax credits or refunds was established for low-income homeowners who were age 65 or older or disabled (KSA Ch. 79, Art. 45). The current program authorizes direct refunds of or credits against property tax for low-income homeowners or renters who are age 55 or older, disabled, or who have dependent children under age 18. Renters may claim as property tax paid 20 percent of rent paid for occupancy.

The homestead refund is designed to provide tax relief for property taxes. The credit is based on property taxes or its rent equivalent and household income. The credit is available to households with income less than \$31,200. In addition the claimant must be over 55 years old, or is blind or disabled, or has a dependent child under 18 who lived with the claimant all year. "Household income" is generally the total of all taxable and nontaxable income received by all household members. The amount of the refund is based on a sliding percentage based on income. The maximum homestead refund is \$700. Exhibit B-8 shows the relationship between household income and the percentage of the refund.

Exhibit B-8: Homestead Refund Schedule

HOMESTEAD REFUND PERCENTAGE TABLE — For Line 14			
If the amount on line 10, Form K-40H is between:	Enter this percent on line 14:	If the amount on line 10, Form K-40H is between:	Enter this percent on line 14:
\$ 0 and \$ 6,000	100%	\$ 17,001 and \$ 18,000	50%
\$ 6,001 and \$ 7,000	96%	\$ 18,001 and \$ 19,000	45%
\$ 7,001 and \$ 8,000	92%	\$ 19,001 and \$ 20,000	40%
\$ 8,001 and \$ 9,000	88%	\$ 20,001 and \$ 21,000	35%
\$ 9,001 and \$ 10,000	84%	\$ 21,001 and \$ 22,000	30%
\$ 10,001 and \$ 11,000	80%	\$ 22,001 and \$ 23,000	25%
\$ 11,001 and \$ 12,000	76%	\$ 23,001 and \$ 24,000	20%
\$ 12,001 and \$ 13,000	72%	\$ 24,001 and \$ 25,000	15%
\$ 13,001 and \$ 14,000	68%	\$ 25,001 and \$ 26,000	10%
\$ 14,001 and \$ 15,000	64%	\$ 26,001 and \$ 31,200	5%
\$ 15,001 and \$ 16,000	60%	\$ 31,201 and over	0%
\$ 16,001 and \$ 17,000	55%		

Source: 2011 Kansas Homestead Claim, Form K-40H

Exhibit B-9 shows the imputed value of the Kansas Homestead Refund.

Exhibit B-9: Imputed Homestead Refund

2013 KANSAS INCOME TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-	
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
HOMESTEAD REFUND										
Married with children	700	504	280	35	-	-	-	-	-	-
Married without children	-	-	-	-	-	-	-	-	-	-
Single with children	700	504	280	35	-	-	-	-	-	-
Single without children	-	-	-	-	-	-	-	-	-	-
Nonfamily households	-	-	-	-	-	-	-	-	-	-

The food sales tax refund offers a refund of the sales tax paid on food. To qualify the claimant must be 55 years of age or older, or be blind or disabled, or have a dependent child under 18 who lived with the claimant all year whom the claimant claimed as a personal exemption, and have qualifying income of \$35,000 or less. For claimants with less than \$17,500 of qualifying income the amount of the refund is equal to the number of exemptions times \$90. For claimants with qualifying income between \$17,501 and \$35,000, the amount of the refund is equal to the number of exemptions times \$45. The refunds may be claimed as refundable income tax credits. Exhibit B-10 shows the imputed value of the food

sales tax refund. Again it was assumed that taxpayers qualifying for the credit had two qualifying children.

Exhibit B-10: Imputed Food Sales Tax Refund

2013 KANSAS INCOME TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-	
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000
Married with children	364	184	184	184	-	-	-	-	-	-
Married without children	-	-	-	-	-	-	-	-	-	-
Single with children	273	108	108	108	-	-	-	-	-	-
Single without children	-	-	-	-	-	-	-	-	-	-
Nonfamily households	-	-	-	-	-	-	-	-	-	-

It was assumed that all taxpayers that qualify for the listed deductions and credits use them. Because of the limitations of the data used in this model it was not possible to include all deductions and credits which taxpayers may be eligible. However the listed deductions and credits are the most common and significant ones used by taxpayers to reduce individual income tax liability in Kansas.

Once average tax liabilities per household were estimated for each combination of taxpayer characteristics total taxes were estimated based on the number of taxpayers with the respective combinations of characteristics. From this the percentage of taxes paid by taxpayers with each of the combinations of characteristics was determined. Total individual income tax liabilities estimated by the Consensus Revenue Estimating Group were then allocated based on household composition and income class.

Appendix C: Residential Property Tax Incidence Model

The Kansas residential property tax includes both state and local components. The base of state property tax levies includes the assessed valuation of all taxable tangible property as of January 1 of each year. The state portion includes both a state building fund levy and a mandatory school district general fund levy. The state building fund levy includes a 1.0 mill levy to support the Educational Building Fund and a 0.5 mill levy to support the State Institutions Building Fund. A mill is \$1 of property tax for each \$1,000 of assessed valuation (*Kansas Tax Facts, Eighth Edition, 2010*).

The base for the mandatory school district general fund levy is assessed valuation of all taxable tangible property as of January 1 of each year. In addition to the general property tax exemptions KSA 2000 Supp. 79-201x provides an exemption—from this levy only—for the first \$20,000 of the appraised valuation of property used for residential purposes. The present rate for the mandatory school levy is 20 mills (*Kansas Tax Facts, Eighth Edition, 2010*).

The base of local property taxes includes the assessed valuation of taxable real and tangible personal property. Rates vary markedly among the numerous local taxing units (counties, cities, townships, school and community college districts, special purpose districts) in accordance with the ad valorem requirements of their locally-adopted budgets. Kansas residential property taxes accounted for \$1.9 billion of revenue in fiscal year 2010. This amounts to 16.4 percent of all state and local taxes (*Kansas Tax Facts, Eighth Edition, 2010*).

For the purposes of this study hypothetical residential property tax liabilities were computed for five household characteristics and 10 income groupings. Data on residential housing characteristics for each county were obtained from the 2009 American Community Survey, Selected Housing Characteristics. Housing units were separated into owner-occupied units and rental units. Owner-occupied units were disaggregated based on value of the property while rental units were disaggregated based on monthly rental costs:

- Owner-occupied units
 - Less than \$50,000
 - \$50,000 to \$99,999
 - \$100,000 to \$149,999
 - \$150,000 to \$199,999
 - \$200,000 to \$299,999
 - \$300,000 to \$499,999
 - \$500,000 to \$999,999
 - \$1,000,000 or more
- Renter-occupied units
 - Less than \$200
 - \$200 to \$299
 - \$300 to \$499
 - \$500 to \$749
 - \$750 to \$999

- \$1,000 to \$1,499
- \$1,500 or more
- No cash rent

Data on income groupings for each county were obtained from the 2009 American Community Survey, Selected Economic Characteristics. The income groupings used were:

- <\$10,000,
- \$10,000-\$14,999,
- \$15,000-\$24,999,
- \$25,000-\$34,999,
- \$35,000-\$49,999,
- \$50,000-\$74,999,
- \$75,000-\$99,999,
- \$100,000-\$149,999,
- \$150,000-\$199,999, and
- ≥\$200,000.

From the residential housing characteristics and income grouping data a matrix was constructed to estimate the number and percentage of taxpayers with each combination of characteristics. Exhibit C-1 shows the estimated number and percentage of taxpayers with each combination of characteristics for the state of Kansas as a whole. According to this data 67.8 percent of Kansas households occupy owner-occupied units while 32.2 percent of households occupy renter-occupied units.

Exhibit C-1: Characteristics of Residential Property Taxpayers

2013 PROPERTY TAXES			\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS		<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
NUMBER OF UNITS												
Owner-occupied units	67.8%	53,020	43,997	90,990	84,444	119,061	145,425	90,761	75,456	24,098	21,898	749,151
Less than \$50,000	10.3%	8,053	6,682	13,820	12,825	18,083	22,087	13,785	11,460	3,660	3,326	113,781
\$50,000 to \$99,999	16.4%	12,864	10,675	22,077	20,489	28,887	35,284	22,021	18,308	5,847	5,313	181,765
\$100,000 to \$149,999	13.4%	10,459	8,679	17,949	16,658	23,486	28,687	17,904	14,885	4,754	4,320	147,780
\$150,000 to \$199,999	11.6%	9,058	7,517	15,545	14,427	20,341	24,845	15,506	12,891	4,117	3,741	127,987
\$200,000 to \$299,999	9.8%	7,675	6,369	13,171	12,223	17,234	21,050	13,137	10,922	3,488	3,170	108,438
\$300,000 to \$499,999	4.6%	3,576	2,967	6,136	5,695	8,029	9,807	6,121	5,089	1,625	1,477	50,523
\$500,000 to \$999,999	1.5%	1,135	942	1,948	1,808	2,549	3,113	1,943	1,615	516	469	16,036
\$1,000,000 or more	0.3%	201	167	345	320	452	551	344	286	91	83	2,841
Renter-occupied units	32.2%	25,183	20,898	43,218	40,109	56,550	69,072	43,109	35,840	11,446	10,401	355,825
Less than \$200	0.7%	518	430	890	826	1,164	1,422	888	738	236	214	7,326
\$200 to \$299	1.2%	966	802	1,658	1,539	2,169	2,650	1,654	1,375	439	399	13,649
\$300 to \$499	5.7%	4,495	3,730	7,715	7,160	10,095	12,330	7,695	6,398	2,043	1,857	63,518
\$500 to \$749	10.8%	8,483	7,040	14,559	13,511	19,050	23,268	14,522	12,073	3,856	3,504	119,867
\$750 to \$999	6.6%	5,200	4,315	8,924	8,282	11,677	14,263	8,901	7,400	2,363	2,148	73,473
\$1,000 to \$1,499	3.9%	3,031	2,515	5,201	4,827	6,806	8,313	5,188	4,313	1,378	1,252	42,824
\$1,500 or more	1.1%	839	696	1,440	1,336	1,884	2,301	1,436	1,194	381	347	11,856
No cash rent	2.1%	1,650	1,369	2,831	2,628	3,705	4,525	2,824	2,348	750	681	23,312
Total	100.0%	78,203	64,895	134,208	124,553	175,611	214,497	133,870	111,296	35,544	32,299	1,104,976
PERCENTAGE OF UNITS												
Owner-occupied units	67.8%	4.8%	4.0%	8.2%	7.6%	10.8%	13.2%	8.2%	6.8%	2.2%	2.0%	67.8%
Less than \$50,000	10.3%	0.7%	0.6%	1.3%	1.2%	1.6%	2.0%	1.2%	1.0%	0.3%	0.3%	10.3%
\$50,000 to \$99,999	16.4%	1.2%	1.0%	2.0%	1.9%	2.6%	3.2%	2.0%	1.7%	0.5%	0.5%	16.4%
\$100,000 to \$149,999	13.4%	0.9%	0.8%	1.6%	1.5%	2.1%	2.6%	1.6%	1.3%	0.4%	0.4%	13.4%
\$150,000 to \$199,999	11.6%	0.8%	0.7%	1.4%	1.3%	1.8%	2.2%	1.4%	1.2%	0.4%	0.3%	11.6%
\$200,000 to \$299,999	9.8%	0.7%	0.6%	1.2%	1.1%	1.6%	1.9%	1.2%	1.0%	0.3%	0.3%	9.8%
\$300,000 to \$499,999	4.6%	0.3%	0.3%	0.6%	0.5%	0.7%	0.9%	0.6%	0.5%	0.1%	0.1%	4.6%
\$500,000 to \$999,999	1.5%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.2%	0.1%	0.0%	0.0%	1.5%
\$1,000,000 or more	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
Renter-occupied units	32.2%	2.3%	1.9%	3.9%	3.6%	5.1%	6.3%	3.9%	3.2%	1.0%	0.9%	32.2%
Less than \$200	0.7%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.7%
\$200 to \$299	1.2%	0.1%	0.1%	0.2%	0.1%	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	1.2%
\$300 to \$499	5.7%	0.4%	0.3%	0.7%	0.6%	0.9%	1.1%	0.7%	0.6%	0.2%	0.2%	5.7%
\$500 to \$749	10.8%	0.8%	0.6%	1.3%	1.2%	1.7%	2.1%	1.3%	1.1%	0.3%	0.3%	10.8%
\$750 to \$999	6.6%	0.5%	0.4%	0.8%	0.7%	1.1%	1.3%	0.8%	0.7%	0.2%	0.2%	6.6%
\$1,000 to \$1,499	3.9%	0.3%	0.2%	0.5%	0.4%	0.6%	0.8%	0.5%	0.4%	0.1%	0.1%	3.9%
\$1,500 or more	1.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	1.1%
No cash rent	2.1%	0.1%	0.1%	0.3%	0.2%	0.3%	0.4%	0.3%	0.2%	0.1%	0.1%	2.1%
Total	100.0%	7.1%	5.9%	12.1%	11.3%	15.9%	19.4%	12.1%	10.1%	3.2%	2.9%	100.0%

Next the total value of income for each combination of characteristics was estimated based on the midpoint of each income grouping. From this the proportion of income for each combination of characteristics was derived. Finally the total value of income attributed to each combination of characteristics was adjusted based on the total value of 2013 Kansas Personal Income estimated by the Consensus Revenue Estimating Group (2011). Exhibit C-2 shows the estimated distribution of income for each combination of characteristics for the state of Kansas.

Exhibit C-2: Distribution of Income by Occupancy Type

2013 PROPERTY TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
NUMBER OF UNITS											
PERCENTAGE OF INCOME											
Owner-occupied units	0.4%	0.8%	2.7%	3.8%	7.6%	13.6%	11.9%	14.1%	6.3%	6.6%	67.8%
Less than \$50,000	0.1%	0.1%	0.4%	0.6%	1.2%	2.1%	1.8%	2.1%	1.0%	1.0%	10.3%
\$50,000 to \$99,999	0.1%	0.2%	0.7%	0.9%	1.8%	3.3%	2.9%	3.4%	1.5%	1.6%	16.4%
\$100,000 to \$149,999	0.1%	0.2%	0.5%	0.7%	1.5%	2.7%	2.3%	2.8%	1.2%	1.3%	13.4%
\$150,000 to \$199,999	0.1%	0.1%	0.5%	0.6%	1.3%	2.3%	2.0%	2.4%	1.1%	1.1%	11.6%
\$200,000 to \$299,999	0.1%	0.1%	0.4%	0.5%	1.1%	2.0%	1.7%	2.0%	0.9%	0.9%	9.8%
\$300,000 to \$499,999	0.0%	0.1%	0.2%	0.3%	0.5%	0.9%	0.8%	1.0%	0.4%	0.4%	4.6%
\$500,000 to \$999,999	0.0%	0.0%	0.1%	0.1%	0.2%	0.3%	0.3%	0.3%	0.1%	0.1%	1.5%
\$1,000,000 or more	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.3%
Renter-occupied units	0.2%	0.4%	1.3%	1.8%	3.6%	6.5%	5.6%	6.7%	3.0%	3.1%	32.2%
Less than \$200	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.7%
\$200 to \$299	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.2%	0.3%	0.1%	0.1%	1.2%
\$300 to \$499	0.0%	0.1%	0.2%	0.3%	0.6%	1.2%	1.0%	1.2%	0.5%	0.6%	5.7%
\$500 to \$749	0.1%	0.1%	0.4%	0.6%	1.2%	2.2%	1.9%	2.3%	1.0%	1.0%	10.8%
\$750 to \$999	0.0%	0.1%	0.3%	0.4%	0.7%	1.3%	1.2%	1.4%	0.6%	0.6%	6.6%
\$1,000 to \$1,499	0.0%	0.0%	0.2%	0.2%	0.4%	0.8%	0.7%	0.8%	0.4%	0.4%	3.9%
\$1,500 or more	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%	0.1%	0.1%	1.1%
No cash rent	0.0%	0.0%	0.1%	0.1%	0.2%	0.4%	0.4%	0.4%	0.2%	0.2%	2.1%
Total	0.6%	1.2%	4.0%	5.6%	11.2%	20.1%	17.5%	20.8%	9.3%	9.7%	100.0%

Residential property tax liability per household was estimated in a similar fashion. First the taxable value of owner-occupied properties was estimated for each combination of characteristics based on the 2009 American Community Survey, Selected Housing Characteristics. An adjustment was included to take into consideration the exemption from the mandatory statewide school district general fund levy for the first \$20,000 of the appraised valuation of property used for residential purposes. An assessment ratio of 11.5 percent was applied to obtain assessed values of owner-occupied residential properties.

A similar procedure was used to derive the taxable value of renter-occupied properties. The taxable value of renter-occupied properties was estimated for each combination of characteristics based on the 2009 American Community Survey, Selected Housing Characteristics. To convert the rental value of the properties into taxable values the rental value of the properties were capitalized using a 6.0 percent annual capitalization rate and a 30 year amortization. An adjustment was included to take into consideration the exemption from the mandatory statewide school district general fund levy for the first \$20,000 of the appraised valuation of property used for residential purposes. Again an assessment ratio of 11.5 percent was applied to estimate the assessed values of renter-occupied residential properties.

Property taxes per household were computed for each combination of characteristics based on the 2009 American Community Survey, Selected Housing Characteristics and the average statewide property tax levy per \$1,000 of assessed valuation for 2010 taken from the Kansas Department of Revenue *Annual Statistical Report* (2010). Exhibit C-3 shows imputed residential property taxes per household.

Exhibit C-3: Imputed Residential Property Taxes per Household

2013 PROPERTY TAXES	
KANSAS	Total
TAXES PER UNIT	
Owner-occupied units	
Less than \$50,000	326
\$50,000 to \$99,999	1,069
\$100,000 to \$149,999	1,812
\$150,000 to \$199,999	2,555
\$200,000 to \$299,999	3,670
\$300,000 to \$499,999	5,899
\$500,000 to \$999,999	11,102
\$1,000,000 or more	14,817
Renter-occupied units	
Less than \$200	202
\$200 to \$299	574
\$300 to \$499	946
\$500 to \$749	1,503
\$750 to \$999	2,123
\$1,000 to \$1,499	3,053
\$1,500 or more	3,673
No cash rent	-
Average County Levy	129.25

Once average tax liabilities per household were estimated total taxes were estimated based on respective combinations of residential and income characteristics. From this the percentage of taxes paid by taxpayers with each of the combinations of characteristics was determined. Based on this total residential property tax liabilities obtained from the 2010 Kansas Department of Revenue Annual Report were allocated based on property and income characteristics. After average tax liabilities per household were estimated for each combination of taxpayer characteristics total taxes were estimated based on the number of taxpayers with the respective combination of characteristics. Then the percentage of taxes paid by taxpayers with each of the combinations of characteristics was determined. Total individual income tax liabilities obtained from the Kansas Department of Revenue *Annual Statistical Report* (2010) were allocated based on property characteristics and income class.

Appendix D: Retail Sales Tax Incidence Model

The Kansas retail sales tax includes both state and local components. Kansas state and local retail sales taxes accounted for \$2.6 billion of revenue in fiscal year 2010. This amounts to 22.3 percent of all state and local taxes (*Kansas Tax Facts, Eighth Edition, 2010*).

The base for state retail sales taxes includes gross receipts from retail sales of tangible personal property and certain services. The present rate for state sales taxes is 6.30 percent on most taxable transactions (*Kansas Tax Facts, Eighth Edition, 2010*).

The base for local sales taxes includes the same application and exemptions as state sales tax with the exception of most residential utility services which are subject to local taxes but exempt from the state tax. Cities and counties may levy a tax up to a normal maximum of 2.0 percent subject to several exceptions. Sales taxes of up to 1.0 percent may be used for general purposes but the additional authority (up to 1.0 percent) normally must be used only for the financing of “health care services.” A city may impose a tax earmarked for health care only if the county has no such tax. Moreover any such city tax expires immediately upon the imposition of a county health care sales tax. The Washburn University Board of Regents also has authority to impose a tax of up to 0.65 percent throughout Shawnee County (*Kansas Tax Facts, Eighth Edition, 2010*).

For the purposes of this study hypothetical retail sales tax liabilities were computed for five household characteristics and 10 income groupings. Data on consumer expenditures were obtained from the 2010 Consumer Expenditure (CE) Survey conducted by the U.S. Bureau of Labor Statistics. The CE Survey consists of two surveys—the quarterly Interview survey and the Diary survey—that provide information on the buying habits of American consumers including data on their expenditures, income, and consumer unit characteristics. The surveys target the total non-institutionalized population of the United States. The data are collected in independent quarterly Interview and weekly Diary surveys of approximately 7,100 sample households. Each survey has its own independent sample and each collects data on household income and socioeconomic characteristics. The Interview survey includes monthly out-of-pocket expenditures such as housing, apparel, transportation, health care, insurance, and entertainment. The Diary survey includes weekly expenditures of frequently purchased items such as food and beverages, tobacco, personal care products, and nonprescription drugs and supplies. The major categories of items incorporated in the CE Survey include:

- Food
 - Food at home
 - Cereals and bakery products
 - Meats, poultry, fish, and eggs
 - Dairy products
 - Fruits and vegetables
 - Other food at home
 - Food away from home
- Alcoholic beverages
- Housing

- Shelter
- Utilities, fuels, & public services
- Household operations
- Housekeeping supplies
- Household furnishings & equip.
- Apparel and services
- Transportation
 - Vehicle purchases (net outlay)
 - Other vehicle expenses
- Health care
- Entertainment
 - Fees and admissions
 - TVs, radios, & sound equip.
 - Pets, toys, & playground equip.
 - Other entertainment supplies, equip., & services
- Personal care products & services
- Reading
- Tobacco products & smoking supplies
- Miscellaneous

Most of these major categories are also broken down into more detailed subgroupings.

Data on income groupings for each county were obtained from the 2009 American Community Survey, Selected Economic Characteristics. The income groupings used were:

- <\$10,000,
- \$10,000-\$14,999,
- \$15,000-\$24,999,
- \$25,000-\$34,999,
- \$35,000-\$49,999,
- \$50,000-\$74,999,
- \$75,000-\$99,999,
- \$100,000-\$149,999,
- \$150,000-\$199,999, and
- ≥\$200,000.

From the average annual household expenditures and income grouping data a matrix was constructed to estimate the number and percentage of taxpayers with each combination of characteristics. Exhibit D shows the estimated average annual household expenditures by type and income class for the state of Kansas. Based on this data an average Kansas household spends \$48,109 annually including \$6,129 on food, \$16,557 on housing, \$1,700 on apparel, \$15,808 on transportation, \$3,157 on health care, and \$2,504 on entertainment.

Exhibit D: Average Annual Household Expenditures by Type and Income

2013 SALES TAXES	\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-			
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
AVERAGE ANNUAL EXPENDITURE:	\$19,523	\$19,909	27,047	32,357	38,086	52,495	59,995	82,206	123,064	123,064	48,109
Food	\$3,195	\$3,133	3,850	4,446	5,199	6,642	7,399	9,918	13,317	13,317	6,129
Food at home	\$2,114	\$2,244	2,664	2,917	3,215	3,779	4,204	5,410	6,688	6,688	3,624
Cereals and bakery products	\$296	\$307	378	413	435	539	604	737	911	911	502
Cereals and cereal products	\$102	\$95	128	140	144	171	191	242	288	288	165
Bakery products	\$194	\$212	250	274	292	368	413	496	622	622	337
Meats, poultry, fish, and eggs	\$478	\$504	600	634	713	819	873	1,145	1,391	1,391	784
Beef	\$123	\$127	159	165	198	236	243	344	355	355	217
Pork	\$93	\$98	120	127	144	164	171	200	224	224	149
Other meats	\$69	\$75	88	92	102	135	139	161	223	223	117
Poultry	\$88	\$100	114	117	127	136	152	184	244	244	138
Fish and seafood	\$73	\$70	82	91	100	102	118	197	272	272	117
Eggs	\$34	\$34	39	42	43	46	50	60	74	74	46
Dairy products	\$225	\$221	275	301	327	401	448	572	739	739	380
Fresh milk and cream	\$89	\$91	115	120	126	147	163	196	235	235	141
Other dairy products	\$137	\$130	161	181	201	254	285	375	504	504	240
Fruits and vegetables	\$382	\$412	494	558	587	685	773	1,060	1,366	1,366	679
Fresh fruits	\$121	\$132	169	187	185	236	276	376	524	524	232
Fresh vegetables	\$123	\$128	151	172	186	208	236	323	430	430	210
Processed fruits	\$67	\$67	80	90	100	117	125	184	210	210	113
Processed vegetables	\$72	\$85	95	110	118	125	137	178	201	201	124
Other food at home	\$734	\$800	918	1,011	1,153	1,336	1,507	1,898	2,282	2,282	1,278
Sugar and other sweets	\$81	\$82	99	105	115	140	160	192	227	227	132
Fats and oils	\$63	\$67	81	85	95	102	114	146	176	176	103
Miscellaneous foods	\$378	\$415	474	511	590	703	796	1,008	1,220	1,220	667
Nonalcoholic beverages	\$203	\$226	252	287	321	341	375	470	528	528	333
Food prepared by consumer	\$9	\$10	13	23	32	50	63	83	131	131	43
Food away from home	\$1,081	\$889	1,186	1,529	1,985	2,863	3,196	4,508	6,628	6,628	2,505
Alcoholic beverages	\$185	\$128	167	239	317	450	487	722	1,288	1,288	412
Housing	\$8,132	\$8,347	10,548	11,927	13,578	17,655	19,776	25,525	39,787	39,787	16,557
Shelter	\$5,045	\$4,914	6,051	6,885	7,932	10,248	11,540	15,057	24,557	24,557	9,812
Owned dwellings	\$1,530	\$1,679	2,466	3,311	4,397	6,894	8,383	11,997	19,253	19,253	6,277
Mortgage interest and charge	\$707	\$597	933	1,406	2,123	3,808	4,819	6,951	10,741	10,741	3,351
Property taxes	\$499	\$596	858	1,093	1,317	1,935	2,355	3,330	5,339	5,339	1,814
Maintenance, repairs, insuran	\$325	\$485	674	813	957	1,152	1,210	1,717	3,172	3,172	1,112
Rented dwellings	\$3,292	\$3,122	3,397	3,316	3,255	2,830	2,497	1,831	2,132	2,132	2,900
Other lodging	\$223	\$114	189	259	281	525	660	1,230	3,171	3,171	635
Utilities, fuels, & public services	\$1,877	\$2,225	2,906	3,178	3,426	4,045	4,354	4,951	5,952	5,952	3,660
Natural gas	\$196	\$243	343	374	400	466	516	636	864	864	440
Electricity	\$839	\$963	1,196	1,284	1,348	1,545	1,629	1,775	2,121	2,121	1,413
Fuel oil and other fuels	\$62	\$78	126	117	117	132	151	190	285	285	140
Telephone services	\$548	\$652	888	1,004	1,126	1,343	1,454	1,642	1,831	1,831	1,178
Water and other public services	\$233	\$288	355	401	435	560	605	709	851	851	489
Household operations	\$328	\$378	472	551	664	1,037	1,258	1,850	3,338	3,338	1,007
Personal services	\$99	\$94	103	127	166	336	467	756	1,273	1,273	340
Other household expenses	\$229	\$284	370	424	498	702	791	1,094	2,065	2,065	667
Housekeeping supplies	\$315	\$343	396	433	492	705	798	1,002	1,334	1,334	612
Laundry and cleaning supplies	\$111	\$101	108	119	133	168	187	223	240	240	150
Other household products	\$133	\$175	211	228	260	398	436	561	757	757	329
Postage and stationery	\$72	\$68	78	86	100	140	176	219	337	337	132
Household furnishings & equip.	\$569	\$487	723	880	1,064	1,621	1,828	2,666	4,607	4,607	1,467
Household textiles	\$47	\$49	59	58	65	118	155	176	290	290	102
Furniture	\$144	\$113	192	202	246	387	417	582	1,258	1,258	355
Floor coverings	\$5	\$4	11	10	22	33	31	87	165	165	36
Major appliances	\$48	\$62	102	135	173	271	301	321	545	545	209
Small appliances, miscellaneou	\$42	\$40	56	89	99	109	110	184	310	310	107
Miscellaneous household equip	\$285	\$221	305	387	462	704	815	1,317	2,039	2,039	657
Apparel and services	\$808	\$606	1,023	1,196	1,317	1,695	1,875	3,387	4,514	4,514	1,700
Men and boys	\$154	\$103	215	247	263	390	483	782	1,117	1,117	382
Men, 16 and over	\$100	\$73	166	190	198	302	389	674	914	914	304
Boys, 2 to 15	\$54	\$30	49	59	65	89	94	108	202	202	78
Women and girls	\$331	\$224	367	474	533	703	718	1,163	1,838	1,838	663
Women, 16 and over	\$264	\$186	294	398	456	607	588	981	1,633	1,633	562
Girls, 2 to 15	\$67	\$37	73	76	79	96	129	182	205	205	101
Children under 2	\$55	\$50	65	79	89	96	106	132	166	166	91
Footwear	\$181	\$140	233	264	279	286	307	498	621	621	303
Other apparel products and servic	\$89	\$89	144	133	154	221	262	814	773	773	261

Exhibit D (Continued)

2013 SALES TAXES		\$10,000-	\$15,000-	\$25,000-	\$35,000-	\$50,000-	\$75,000-	\$100,000-	\$150,000-		
KANSAS	<\$10,000	\$14,999	\$24,999	\$34,999	\$49,999	\$74,999	\$99,999	\$149,999	\$199,999	>\$200,000	Total
Transportation	\$2,425	\$2,606	4,355	5,556	6,664	9,244	10,549	13,762	15,808	15,808	7,677
Vehicle purchases (net outlay)	\$516	\$526	1,233	1,863	2,215	3,306	3,970	5,303	5,313	5,313	2,588
Cars and trucks, new	\$229	\$77	386	676	992	1,554	1,892	2,952	3,144	3,144	1,219
Cars and trucks, used	\$395	\$449	840	1,140	1,156	1,683	1,952	2,324	2,118	2,118	1,318
Other vehicles	\$12	\$14	15	48	68	68	127	28	53	54	51
Gasoline and motor oil	\$888	\$979	1,403	1,716	2,016	2,571	2,793	3,240	3,291	3,291	2,132
Other vehicle expenses	\$874	\$972	1,517	1,730	2,154	2,921	3,269	4,202	5,169	5,169	2,464
Vehicle finance charges	\$36	\$45	92	147	208	345	392	435	468	468	243
Maintenance and repairs	\$281	\$353	521	572	698	879	1,026	1,287	1,694	1,694	787
Vehicle insurance	\$435	\$462	722	780	961	1,231	1,285	1,663	1,618	1,618	1,010
Vehicle rental, leases, licenses,	\$124	\$112	182	231	287	466	565	819	1,388	1,388	423
Public transportation	\$148	\$129	203	247	280	448	519	1,019	2,035	2,035	493
Health care	\$1,143	\$1,673	2,352	2,794	2,933	3,595	3,894	4,521	5,594	5,594	3,157
Health insurance	\$653	\$973	1,396	1,671	1,775	2,129	2,242	2,436	3,041	3,041	1,831
Medical services	\$274	\$231	446	574	573	808	941	1,242	1,583	1,583	722
Drugs	\$176	\$413	430	449	481	527	555	650	697	697	485
Medical supplies	\$40	\$55	81	100	104	132	158	195	272	272	119
Entertainment	\$944	\$981	1,288	1,543	1,810	2,723	3,048	4,710	7,032	7,032	2,504
Fees and admissions	\$146	\$109	150	228	319	555	686	1,210	2,566	2,566	581
TVs, radios, & sound equip.	\$472	\$526	667	746	856	1,088	1,185	1,421	1,697	1,697	954
Pets, toys, & playground equip.	\$255	\$232	361	412	477	740	809	1,153	1,264	1,264	606
Other entertainment sply., equip.,	\$72	\$114	111	158	159	341	369	927	1,505	1,505	364
Personal care products & services	\$254	\$248	364	403	450	594	701	1,048	1,395	1,395	582
Reading	\$45	\$42	60	72	78	101	114	166	280	280	100
Education	\$912	\$474	389	422	464	691	888	2,044	5,473	5,473	1,074
Tobacco products & smoking sply.	\$327	\$314	360	389	417	409	401	273	236	236	362
Miscellaneous	\$328	\$428	404	499	715	1,066	1,080	1,022	2,376	2,376	849
Cash contributions	\$513	\$512	821	1,026	1,311	1,756	2,063	2,517	5,132	5,132	1,633
Personal insurance and pensions	\$315	\$417	1,071	1,849	2,836	5,878	7,723	12,594	20,832	20,832	5,373
Life and other personal insurance	\$72	\$83	129	163	202	334	400	574	1,228	1,228	318
Pensions and Social Security	\$243	\$333	942	1,687	2,635	5,544	7,323	12,021	19,603	19,603	5,054

Next the total value of income for each combination of characteristics was estimated based on the midpoint of each income grouping. From this the proportion of income for each combination of characteristics was derived. Finally the total value of income attributed to each combination of characteristics was adjusted based on the total value of 2013 Kansas Personal Income estimate from the Consensus Revenue Estimating Group (2011).

Retail sales tax liability per household was estimated in a similar fashion. First the taxability of each category of consumer expenditure was established based on Kansas law in 2012. From this average taxable expenditures per household were established for each income class.

Retail sales taxes per household were computed for each income class based on estimated taxable expenditures based on the CE Survey and average countywide sales tax rates for 2011 computed from the Kansas Department of Revenue *Sales Tax Reports* (2011). These average tax rate was computed based on a weighted average of retail sales across the state.

Once average tax liabilities per household were estimated total taxes were estimated based on respective combination of consumption categories and income classes. From this the percentage of taxes paid by taxpayers with each of the combinations of characteristics was determined. Once average tax liabilities per household were estimated for each combination of taxpayer characteristics total taxes were estimated based on the number of taxpayers with the respective combination of characteristics. From this the percentage of taxes paid by taxpayers with each of the combinations of characteristics was determined. Total retail sales tax estimates from the Consensus Revenue Estimating Group (2011) were then allocated based on property characteristics and income class.

Appendix E: Expenditures of Human Service Agencies

Schedule 2.2--Expenditures from the State General Fund by Agency

	FY 2012 Governor's Recommendation	Governor's Allotments & Amendments	Legislative Changes	Governor's Vetoes	FY 2012 Approved Budget
General Government					
Department of Administration	77,282,205	--	(443,587)	--	76,838,618
Kansas Human Rights Commission	--	1,189,084	51,020	--	1,240,104
Board of Indigents Defense Services	20,656,379	--	431,228	--	21,087,607
Kansas Public Employees Retirement System	3,210,092	--	--	--	3,210,092
Department of Commerce	15,000,000	--	--	--	15,000,000
Department of Revenue	16,607,719	--	(588,273)	--	16,019,446
Court of Tax Appeals	653,756	--	306,750	--	960,506
Governmental Ethics Commission	180,656	--	226,359	--	407,015
Office of the Governor	6,762,611	--	(99,712)	--	6,662,899
Office of the Lieutenant Governor	185,773	--	(4,955)	--	180,818
Attorney General	2,793,668	(1,189,084)	(37,463)	--	1,567,121
Legislative Coordinating Council	697,024	--	51,492	--	748,516
Legislature	16,211,014	--	(115,748)	--	16,095,266
Legislative Research Department	3,303,783	--	240,621	--	3,544,404
Legislative Division of Post Audit	2,059,139	--	(41,146)	--	2,017,993
Revisor of Statutes	3,053,798	--	(8,680)	--	3,045,118
Judiciary	107,795,833	--	(5,842,595)	--	101,953,238
Total--General Government	\$ 276,453,450	\$ --	\$ (5,874,689)	\$ --	\$ 270,578,761
Human Services					
Social & Rehabilitation Services	659,788,129	(7,240,000)	(13,636,628)	--	638,911,501
Kansas Neurological Institute	10,490,181	--	(31,721)	--	10,458,460
Larned State Hospital	44,465,747	--	(985,388)	--	43,480,359
Osawatomie State Hospital	14,784,970	--	(326,312)	--	14,458,658
Parsons State Hospital & Training Center	10,700,783	--	(342,533)	--	10,358,250
Rainbow Mental Health Facility	4,621,758	--	(91,973)	--	4,529,785
Subtotal--SRS	\$ 744,851,568	\$ (7,240,000)	\$ (15,414,555)	\$ --	\$ 722,197,013
Kansas Health Policy Authority	--	--	--	--	--
Department on Aging	211,120,608	--	(575,623)	--	210,544,985
Health & Environment--Health	601,032,942	--	(7,594,242)	--	593,438,700
Department of Labor	425,989	--	(19,166)	--	406,823
Commission on Veterans Affairs	7,878,879	--	(195,880)	--	7,682,999
Kansas Guardianship Program	1,113,847	--	34,730	--	1,148,577
Total--Human Services	\$ 1,566,423,833	\$ (7,240,000)	\$ (23,764,736)	\$ --	\$ 1,535,419,097
Education					
Department of Education	3,010,888,775	--	37,502,561	--	3,048,391,336
School for the Blind	5,359,923	--	(129,429)	--	5,230,494
School for the Deaf	8,658,861	--	(172,032)	--	8,486,829
Subtotal--Department of Education	\$ 3,024,907,559	\$ --	\$ 37,201,100	\$ --	\$ 3,062,108,659
Board of Regents	173,795,364	--	(4,636,766)	--	169,158,598
Emporia State University	31,505,676	--	(594,277)	--	30,911,399
Fort Hays State University	33,918,200	--	(644,777)	--	33,273,423
Kansas State University	104,667,630	--	(1,947,722)	--	102,719,908
Kansas State University--ESARP	49,050,123	--	(771,342)	--	48,278,781
KSU--Veterinary Medical Center	10,417,710	--	(166,251)	--	10,251,459
Pittsburg State University	34,568,256	--	129,131	--	34,697,387
University of Kansas	140,045,576	--	(2,083,406)	--	137,962,170
University of Kansas Medical Center	105,783,797	--	(1,648,634)	--	104,135,163
Wichita State University	67,930,375	--	(1,180,169)	--	66,750,206
Subtotal--Regents	\$ 751,682,707	\$ --	\$ (13,544,213)	\$ --	\$ 738,138,494