Making Nebraska More Economically Competitive:An Evaluation of Governor Pillen's Tax Reform Plan

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Preface

The objective of this study is to evaluate the impact of Governor Pillen's tax reform package, titled The Nebraska Plan, on the State of Nebraska using a dynamic statistical model. Most analyses of the Governor's plan use static models that do not account for the plan's impact on economic growth. Furthermore, critics of his plan fail to acknowledge the Nebraska Constitution's requirement for the State to provide financial support for K-12 education.

This tax reform package proposes the first major reform of property taxes in the state by:

1. Placing hard caps on county and municipality property tax collections, either at 0% (during deflation) or matching the consumer price index, unless voters agree to override the caps. Exemptions would be made for growth and public safety needs.
2. Funding more than 80% of local K-12 property tax burdens by the state, approximately $2.6 billion.
3. Reducing school tax rates from a maximum of about $1.05 per $100 of valuations to 15 cents, 7.5 cents, and 0 cents over a three-year period.
4. Replacing the reduced property taxes with a cut in sales tax exemptions.
5. Raising sales taxes on cigarettes, candy, soda drinks, and gambling revenues.

This study estimates the economic effects, both negative and positive, of such an extensive tax change using a dynamic model that captures economy-wide effects. The model considers taxpayers' adjustments to the new tax structure. The current study finds that replacing property taxes with a sales or consumption tax would increase the after-tax reward for saving, thereby motivating investment and economic growth.

Due to time constraints, the Research Team did not attempt to examine the impact of specific elements of the property tax cut or the sales tax increase. These effects would largely be driven by the consumption tax eliminating the existing "double taxation" feature of the current law, which affects savings. Double taxation occurs when the same source of income or assets is taxed twice, both at the corporate and personal levels.

This study was completed independently by the authors as a public service to the citizens of the state. The Research Team especially thanks Mr. Lee Will, Director of theDepartment of Administrative Services - Budget Division , for providing the requested data. However, the Research Team bears responsibility for all conclusions, any errors, or misstatements contained in this report.

Making Nebraska More Economically Competitive: An Evaluation of Governor Pillen's Tax Reform Plan

Executive Summary

<u>Study overview</u>: Contrary to Nebraska's Constitution, local taxpayers are the primary source for K-12 funding via property taxes. This study concludes that Nebraska's heavy reliance on local taxpayers via property taxes, not only violates the Constitution, but it also slows economic growth. It was found that Nebraska's sales tax burden is significantly below both the average U.S. state and bordering states. On the other hand, Nebraska's property tax burden is significantly above the average U.S. state and the six states sharing a border with Nebraska. That is, relatively speaking, Nebraska is not property tax competitive with its neighbors or with the average U.S. state.

Due to a more negative impact of property taxes on economic growth, seven states are attempting to significantly reduce or even eliminate property taxes in 2024.

The overall conclusion of this study is that the Governor's plan to reduce property taxes and increase sales taxes aligns state education support policy with the state Constitution. Additionally, it boosts the state's economic growth and annual employment.

The overall conclusion of this study is that the Governor's plan to reduce property taxes and increase sales taxes aligns state education support policy with the state Constitution.

<u>Details of the Impact</u>. Based on the dynamic statistical model used in this study, it is concluded that passage of Governor Pillen's tax reform package[1] will produce the following three-year impacts:[2]

- Generate an increase in overall economic activity of $25.4 billion.
- Produce an upturn in wages & salaries of $8.2 billion.
- Boost $1.3 billion in self-employment income.
- Support an Increase the annual level of jobs of 41,273.
- Lift state and local tax revenues by $1.7 billion.

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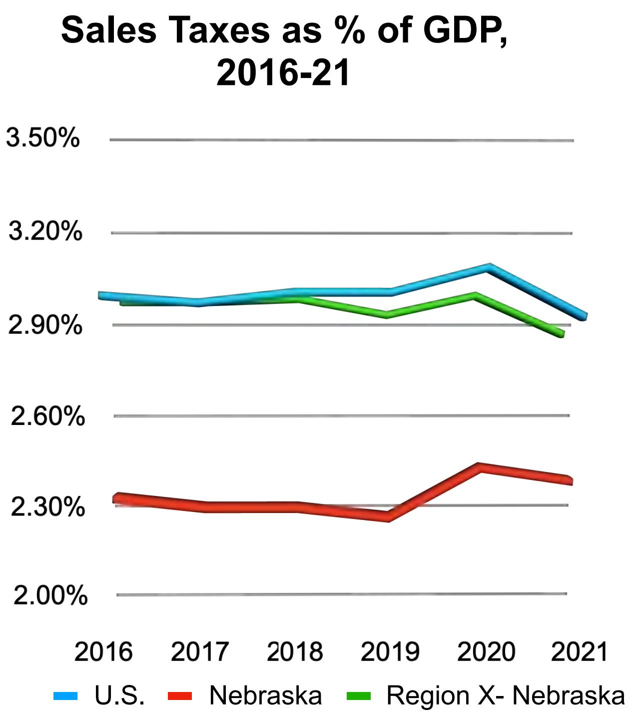
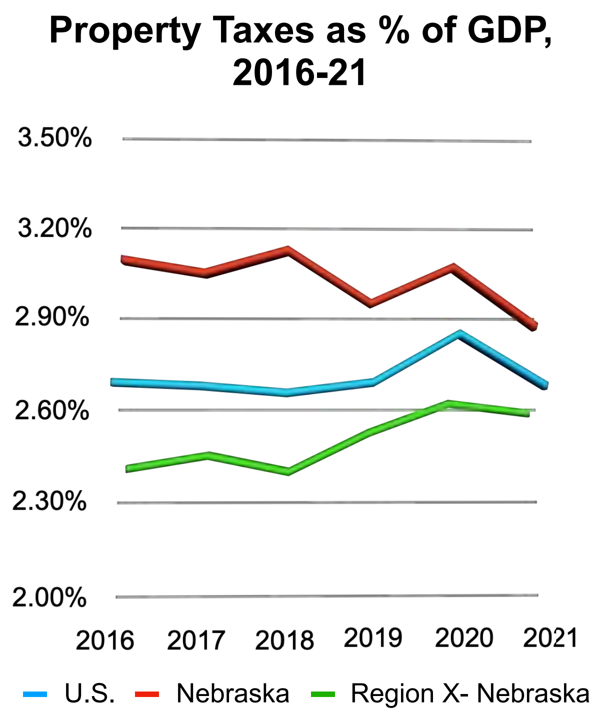
[1] This study does not evaluate the specific elements of the reduction in sales tax exemptions, but does instead assumes a boost sales and excise taxes of $3.3 billion over three years.

[2] The analysis contained in this study examines the three year-impact of a cut in property taxes of $8.0 billion, and an increase in sales and excise taxes of $3.3 billion.

The Impact of Tax Reform in Graphs

Figure EX1: Sales and Property Taxes as a Percent of GDP, 2015-21[3]

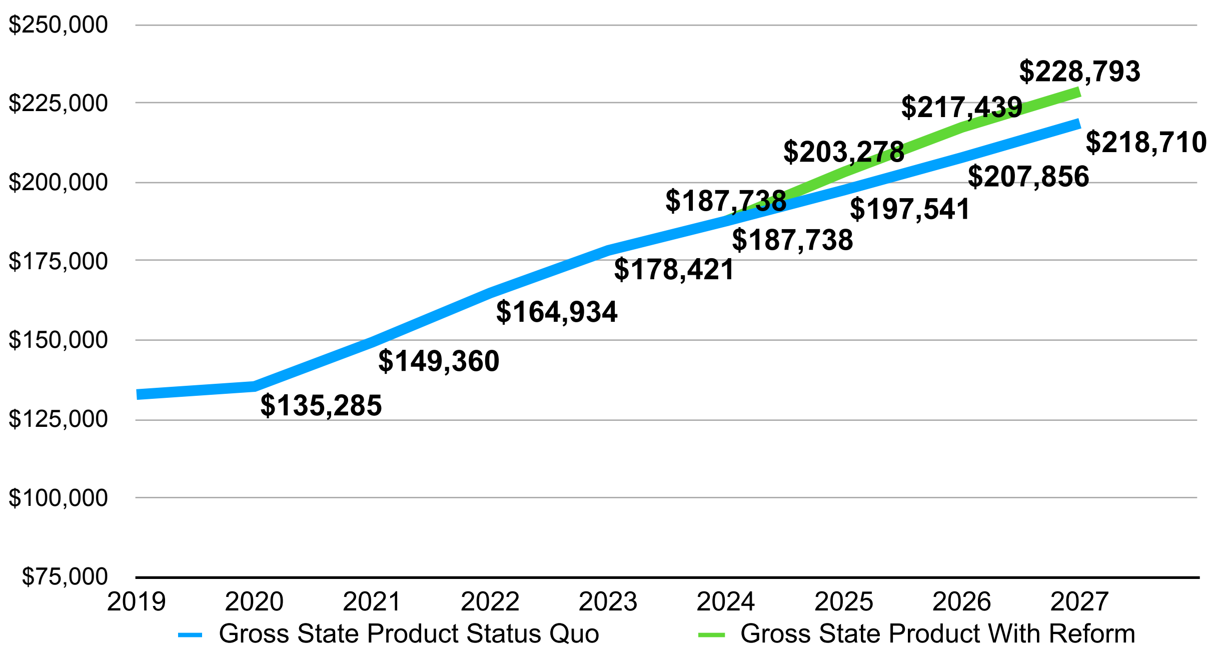




It is concluded that passage of Governor Pillen's tax reform package will produce a three-year impact of generate an increase in overall economic activity of $25.4 billion.

[3] 2021 U.S. Census tax data were the latest available at the time of this study, Summer, 2024

Figure EX2: Projected Gross State Product Growth with Tax Reform Versus Status Quo – 2019 to 2027 (Millions of 2024 Dollars)Figure



EX3: State-Wide Employment, Projected Growth with Tax Reform – 2019 to 2027 (Number of Jobs)

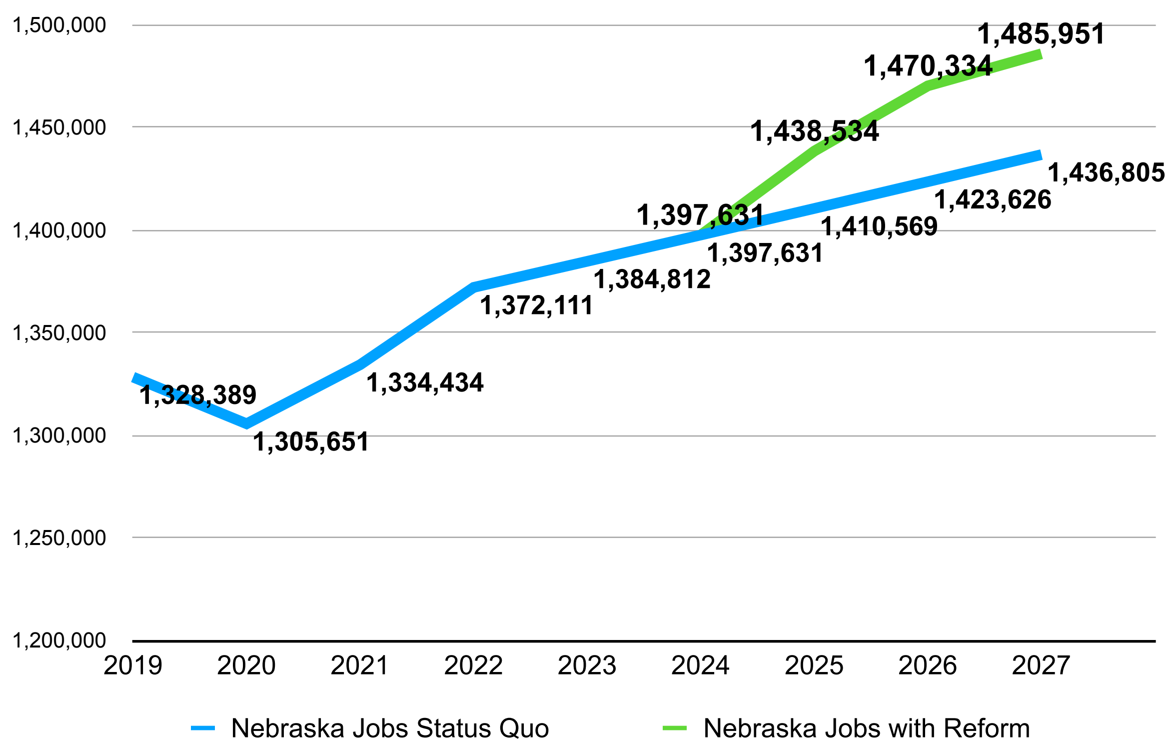
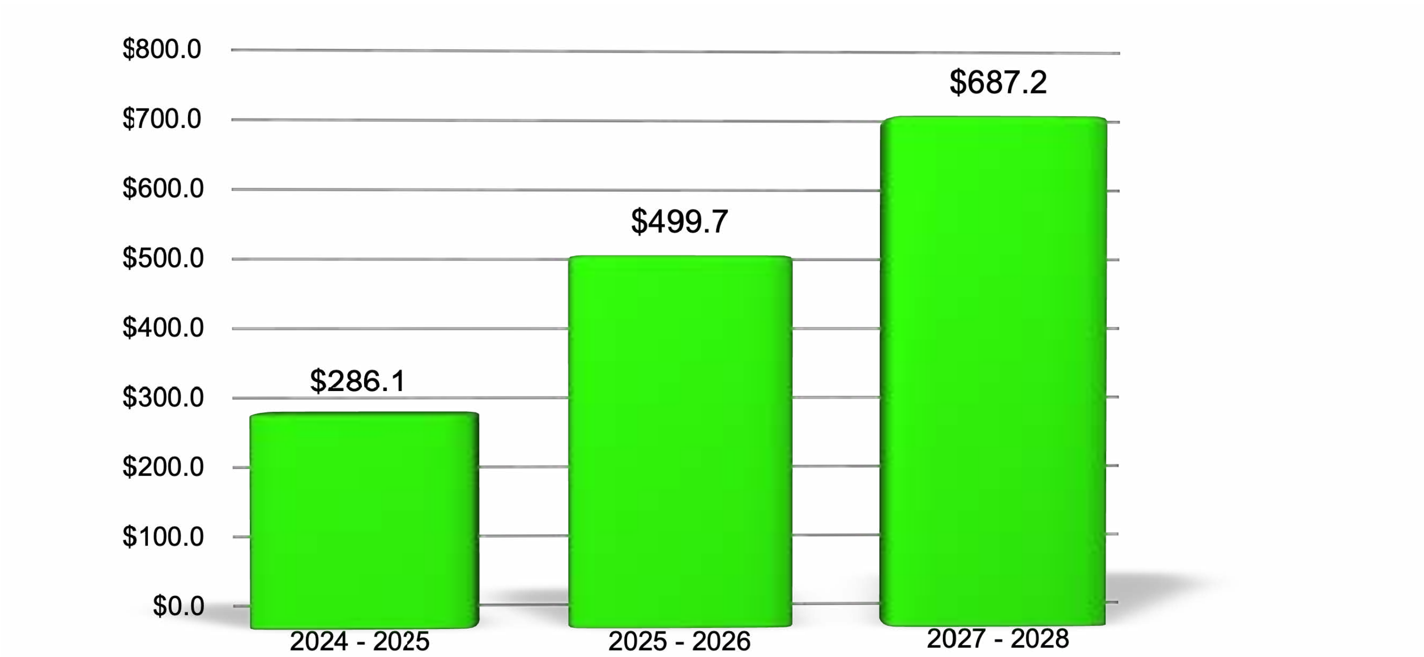


Figure EX4: Additional State & Local Tax Collection with Reform, 2024-25 to 2025-27 (in Millions of 2024 Dollars)



Section 1: Introduction and Overview

The Nebraska Constitution makes it clear that it is the state's responsibility to fund K-12 education.

> VII-1. Legislature; free instruction in common schools; provide. The Legislature shall provide for the free instruction in the common schools of this state of all persons between the ages of five and twenty-one years. The Legislature may provide for the education of other persons in educational institutions owned and controlled by the state or a political subdivision thereof. (Constitution of Nebraska, Article VII Education).[4]

To-date, the State of Nebraska has been woefully inadequate in providing for financially supporting K-12 education. The latest data indicate that many school systems did not receive equalization aid, only 84 of the state's 244 districts received equalization aid. The inclusion of foundation aid changes the calculation. Thus, equalization aid's share of total aid distributed in 2024-25 will drop. According to the Farm Bureau, equalization aid amounts to $501 million, or 43% of the total. Foundation aid, alternatively, amounts to $468 million and accounts for 40% of the total.Aid is likely to decline in the 2024/2025 school year.[5]

Figure 1.1 shows the share of K-12 schooling provided by federal, state and local sources. Local sources produced 57.4% of K-12 education compared to 45% for all 50 and the District of Columbia. Figure 1.2 shows growth rates for 2014-15 to 2021-22 for Nebraska's state aid, property taxes to support K-12 spending, and Nebraska K-12 spending. As the figure indicates, there has been much more volatility in spending than state aid or in property taxes supporting K-12 spending.

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[4] https://nebraskalegislature.gov/FloorDocs/Current/PDF/Constitution/constitution.pdf (page 41).

[5] Farm Bureau. https://www.nefb.org/04/16/2024/more-state-dollars-heading-to-schools/#:~:text=The%20foundation%20aid%20was%20part,percent%20of%20total%20TEEOSA%20aid

Figure 1.1: K-12 Funding Sources, 2019-20[6]

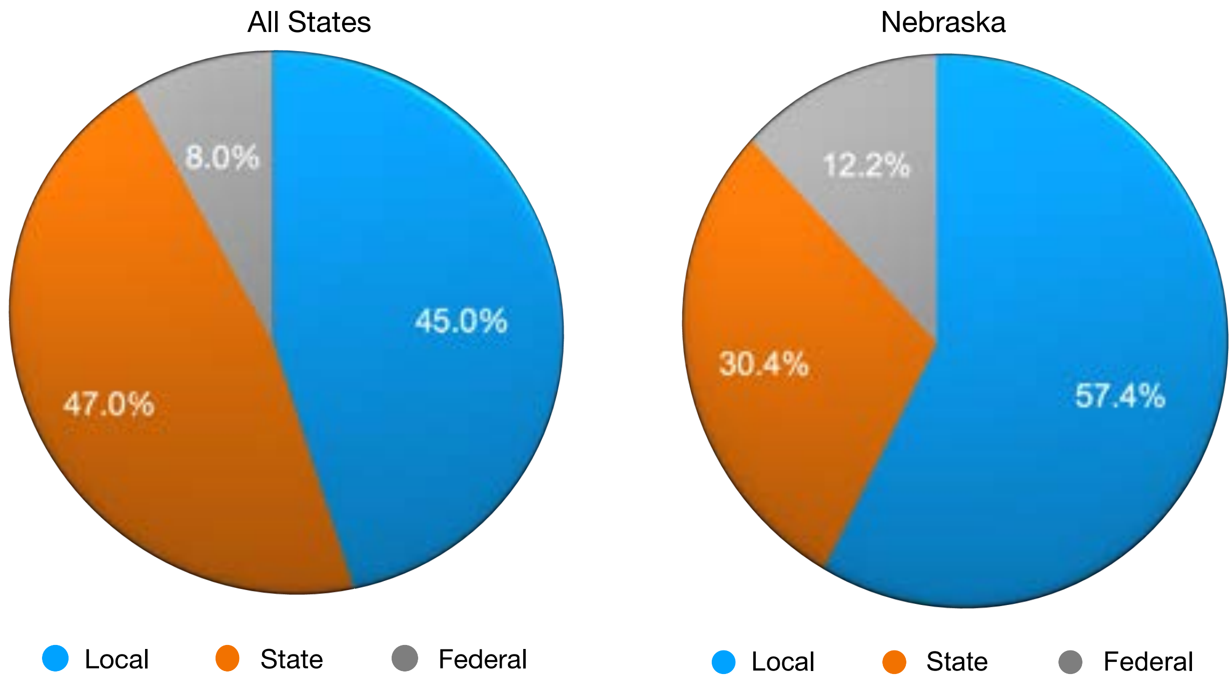

Figure 1.2: Growth in Nebraska K-12 Spending, State Aid, & Property Taxes, 2014-15 to 2021-22

[6] Source: National Center for Education Statistics: https://nces.ed.gov/programs/coe/indicator/cma/public-school-revenue

States across the nation have been taking action to reduce property taxes and replace them with other taxes, primarily consumption or sales taxes. Sales taxes are generally considered to have some advantages over other forms of taxation:

- Simplicity: Sales taxes can be easier to administer and collect compared to income taxes, which involve more complex calculations and assessments.
- Encouragement of Saving: By taxing spending rather than saving, consumption taxes can incentivize individuals to save more and spend less, which can lead to increased investment and economic growth.
- Reduced Tax Evasion: Since consumption taxes are usually collected at the point of sale, they can be more difficult to evade compared to income taxes, which can be more easily hidden or underreported.
- Reduced Distortion of Work Incentives: Income taxes can potentially discourage work, as higher taxes on income can reduce the incentive to earn more. Consumption taxes are not directly tied to income, so they may have less of an impact on work incentives.

States like Texas, Wyoming, and more recently Florida, which do not have a state income tax, have been leaders in the reducing property tax burdens. Two states, Michigan and North Dakota, are currently seeing efforts to abolish property taxes entirely. Michigan's AxMiTax and North Dakota's "End Unfair Property Tax" are both sponsoring ballot measures this year to eradicate property taxes. North Dakota’s measure seeks to limit property taxes to the payment on bonds to support spending. Under North Dakota’s measure, the state government would be required to replace property tax revenue to local governments in an amount equal to the amount of tax revenue levied on personal property, minus taxes levied for the purpose of paying for bonds, as of 2024.[7]

Michigan voters attempted to approve a constitutional amendment to do away with property taxes. The initiative failed to receive sufficient signatures to make it to this November’s ballot. Organizers have vowed to pursue initiatives via the legislature or to attempt a new voter initiative.[8] Florida and Colorado will each see measures to limit property taxes based on inflation and home values. Florida’s measure would reduce the taxable value of a property, while also providing annual adjustments for inflation. In Colorado, an additional measure would cap property tax revenue growth at four percent. Colorado Secretary of State recently announced that the initiative had met the threshold to be added to the November ballot.

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[7] https://ballotpedia.org/North_Dakota_Prohibit_Property_Taxes_Initiative_(2024)#cite_note-Text-1

[8] https://www.bridgemi.com/michigan-government/proposal-ax-property-taxes-fails-make-michigan-ballot-its-not-alone

These groups express the belief that their respective states are spending too much and don't need to collect property taxes. Proponents of these ballot measures suggest that states and localities should replace property taxes entirely with other forms of revenue such as increased sales taxes.[9]

The next section of this study addresses the issue of the economic impacts of alternative taxes. In this case, the impacts of sales taxes versus property taxes will be addressed.

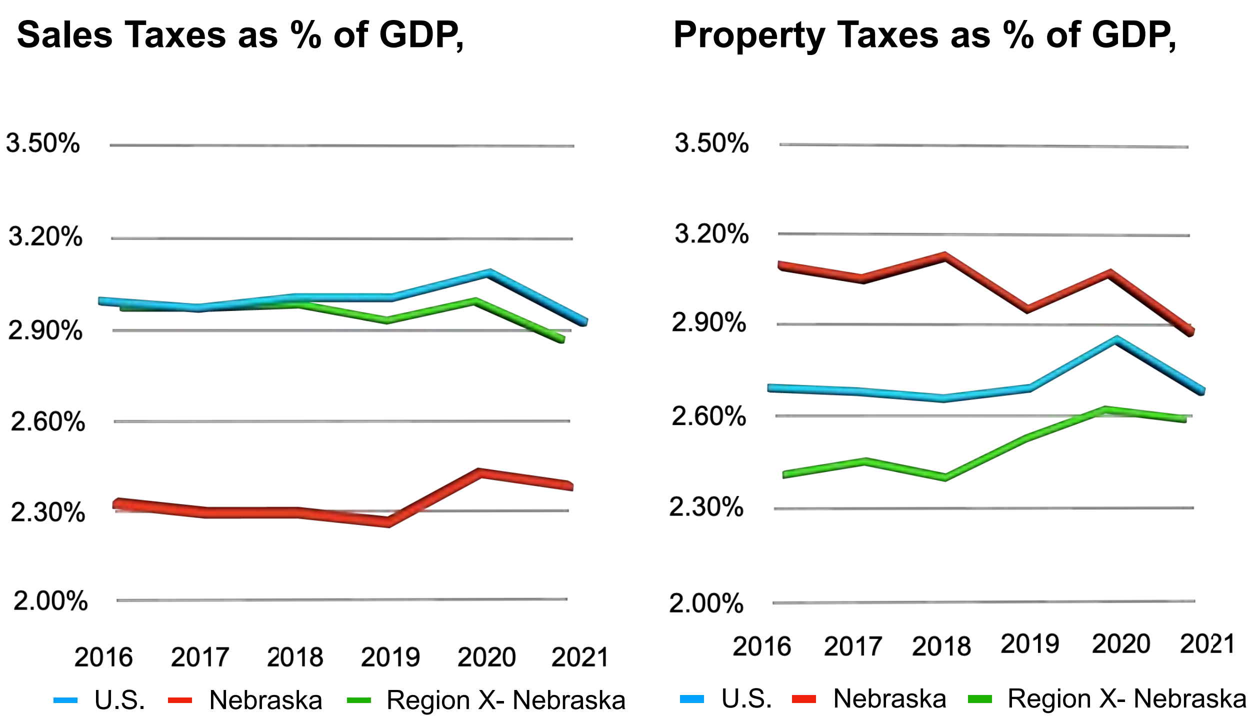
[9] Governing, July 8, 2024. https://www.governing.com/finance/voters-in-several-states-can-cut-or-abolish-property-taxes-this-fall

Section 2: The Need for Tax Reform in Nebraska: Nebraska's Lack of Property Tax Competitiveness

Introduction

Governor Pillen has proposed reducing property taxes while either cutting sales tax exemptions or increasing sales taxes to balance the state and local tax burden. This action would put Nebraska more in-line with neighboring states and the U.S.[10] Figure 2.1 compares Nebraska to the U.S. and bordering or neighboring states in terms of 2016-21 sales and property tax burdens relative to the economy. As presented for each year, Nebraska's sales tax burden is significantly below both the average U.S. state and neighboring states. In contrast, Nebraska's property tax burden is significantly above the average U.S. state and neighboring states.

Figure 2.1: Sales and Property Tax Burdens as a Share of Gross Domestic Product for Nebraska, Bordering States and the U.S., 2016-21[11]



[10] For this study, the region is defined as states that border Nebraska which are Colorado, Iowa, Kansas, Missouri, South Dakota, and Wyoming. Region X-Nebraska is the region excluding Nebraska

[11] At the date of this study, 2021 was the latest tax data for all U.S. states from the U.S. Census Bureau.

How does Nebraska's lack of property tax competitiveness impact the state's business climate and economic growth? The remainder of this study examines how the Governor's Nebraska Reform Plan affects economic growth and the state's business competitiveness. That is, how does reducing the state's property tax burden and raising the sales tax load affect economic growth as measured by the expansion in Nebraska's gross domestic product.[12]

Nebraska's Tax Competitiveness

Table 2.1 compares Nebraska to its neighbors in terms of business climate rankings.[13] Next using the Tax Foundation's Business Tax Climate indices for Nebraska and its neighbors. As listed, Nebraska ranked 6th among its neighbors, and 29th in the nation in terms of business tax climate indices. Only Iowa ranked more poorly at 7th in the region and ranking 38th in the nation. Unfortunately for Nebraska, the rankings do not reflect Iowa's recent 2023 changes to its tax code that improve its competitiveness, and likely moved Nebraska to 7th place.

In 2023, Iowa passed a comprehensive tax reform package that will transform the state's highly progressive income tax into a flat tax of 3.9% with the corporate income tax declining to 5.5%, among other reforms. These changes will usher in a consolidation of the income tax to four brackets with a top marginal rate of 6.0% heading toward a flat rate tax in 2026.[14] These changes, which accelerate and build upon two previous rounds of tax reform, will dramatically improve Iowa's ranking (National Tax Foundation, page 6).

The data in Table 2.1 and Table 2.2 support Governor Pillen's Reform Plan to cut property taxes by shifting the burden to sales taxes. This action would likely increase Nebraska's business climate from 29 to a ranking more in-line with bordering states.

[12] The study will additionally quantify the impacts in terms of jobs, and tax collections.

[13] "The Index deals with such questions by comparing the states on more than 120 variables in the five major areas of taxation (corporate taxes, individual income taxes, sales taxes, unemployment insurance taxes, and property taxes) and then adding the results to yield a final, overall ranking. This approach rewards states on particularly strong aspects of their tax systems (or penalizes them on particularly weak aspects), while measuring the general competitiveness of their overall tax systems. The result is a score that can be compared to other states' scores. Ultimately, both Alaska and Indiana score well." Tax Foundation, page 9.

[14] Iowa's income tax rates are not directly comparable to other states since Iowa allows for the deduction of federal income taxes on state returns

Gross domestic product growth. Data in Table 2.1 support the proposition that Nebraska's overall ranking could be upgraded by shifting taxes from property to sales. That is, Nebraska's sales tax ranking at 9^{th} in the nation and 2^{nd} to Wyoming could improve the overall ranking by moving taxes from property to sales. But how would this likely impact Nebraska's economic growth?

Table 2.1: Business Tax Climate Indices, 2023, Nebraska and Its Neighbors

National Business Tax Climate Index Ranking					
	Overall 2023 (1)	Corporate Income (2)	Individual Income (3)	Sales (4)	Property (5)
Wyoming	#1	#1 (tied)	#1 (tied)	#6	#34
South Dakota	#2	#1 (tied)	#1 (tied)	#34	#14
Missouri	#11	#3	#21	#26	#7
Colorado	#21	#7	#14	#40	#36
Kansas	#25	#21	#22	#25	#17
Nebraska	#29	#30	#32	#9	#39
Iowa	#38	#34	#40	#15	#40
Source: Tax Foundation: 2023 State Business Tax Climate Index, page 3.					

Table 2.2 profiles states in terms of each's tax burden and GDP growth. As expected, the 10 states with the highest GDP growth, had the lowest overall tax burden (column 2). Conversely, the 10 states with the slowest GDP growth had the highest tax burden. Central to the issue advanced by this study, the top growing states had the highest sales tax burden, and lowest property tax burden.

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Table 2.2: Competitiveness Ranking and GDP Growth, 2018-23						
Average tax ranking in terms of (lower value indicates a lower burden):						
	Average GDP Growth (1)	Overall Taxes (2)	Corporate Income (3)	Individual Income (4)	Sales (5)	Property (6)
Top 10 GDP Growth	44.4%	15.8	26.4	11.8	31.9	20.7
2nd 10 GDP Growth	36.3%	24.2	18.5	27.3	26.2	22.4
3rd 10 GDP Growth	32.0%	25.4	25.0	27.4	23.0	23.2
4th 10 GDP Growth	28.5%	30.7	31.2	31.1	20.3	32.5
Bottom 10 GDP Growth	23.5%	32.9	26.5	31.0	27.3	30.5
Source: Authors based on data from Tax Foundation and U.S. Bureau of Economic Analysis						

Population growth. Historically, the states in the West North Central Census Region,[15] including Nebraska, have not fared well in terms of population growth. The data in Table 2.3 is less compelling in terms of population growth. That is, while the top decile of population gainers had the lowest overall tax burden, these states did not have the highest sales tax burden nor lowest property tax burden. In terms of population growth during this period, Nebraska ranked 20th in the nation.

Table 2.3: Competitiveness Ranking and Population Growth, 2018-23						
Average tax ranking in terms of (lower value indicates a lower burden):						
	Average Population Growth (1)	Overall Taxes (2)	Corporate Income (3)	Individual Income (4)	Sales (5)	Property (6)
Top 10 Population Growth	1.3%	19.1	24.0	21.5	26.0	22.3
2nd 10 Population Growth	0.7%	20.4	16.8	21.7	33.3	21.0
3rd 10 Population Growth	0.4%	25.0	24.1	24.9	21.2	25.6
4th 10 Population Growth	0.2%	34.1	32.7	32.3	21.9	33.4
Bottom 10 Population Growth	-0.2%	30.6	29.7	28.5	26.4	27.4
Source: Authors based on data from Tax Foundation and U.S. Bureau of Economic Analysis						

[15] The West North Central Census Region includes the states of Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

Net-migration rate. Historically, Nebraska has not performed well against other U.S. states in terms of population growth via migration. Table 2.4 compares states by decile in terms of net in-migration rates and tax burden rankings. Nebraska is in the bottom 10 in terms of in-migration rates (i.e. population out-migration exceeded in-migration). Ranking the states in terms of net in-migration rates, the top performing states had the lowest property tax burden, as expected, while states in the bottom decile had the highest property tax burden as hypothesized. The top 10 states had the second highest sales tax burden to only the poorest performers.

Table 2.4: Competitiveness Ranking and Migration, 2018-23

	Average tax ranking in terms of:				
	Overall (1)	Corporate (2)	Individual (3)	Sales (4)	Property (5)
Top 10 net in-migration Growth	17.1	21.4	18.4	27.2	17.4
2nd 10 net in-migration Growth	18.4	27.8	20.0	24.0	27.7
3rd 10 net in-migration Growth	28.0	20.4	30.1	25.8	24.7
4th 10 net in-migration Growth	29.5	28.6	25.3	24.5	26.4
Bottom 10 net in-migration Growth	36.3	29.0	34.1	29.2	34.7

Note: net in-migration equals number of in-migrants minus number of out-migrants
Source: Authors based on: Tax Foundation and U.S. Bureau of Economic Analysis

Table 2.5 ranks the economic performance and sales/property tax burden of states in the region. As presented, Nebraska and Colorado had the highest GDP growth in the region at a national ranking of 9th and 10th, respectively. But in the region, only Wyoming depended less heavily on sales taxes than Nebraska, and only Iowa relied more greatly than Nebraska.

Table 2.5: The Ranking of the States by GDP, Population and Net in-Migration Rates, 2018-23

National ranking			State	Growth 2018-23			National tax ranking	
GDP	Population	Migration		GDP	Population	Migration	Sales	Property
10	18	18	Colorado	39.8%	0.6%	2.6%	40	36
34	34	33	Iowa	30.0%	0.2%	0.2%	15	40
27	38	41	Kansas	31.1%	0.1%	-0.8%	25	17
24	30	24	Missouri	32.7%	0.3%	1.0%	26	7
9	20	36	Nebraska	40.5%	0.5%	-0.1%	9	39
13	11	14	South Dakota	38.5%	1.0%	3.2%	34	14
36	24	27	Wyoming	28.1%	0.4%	0.6%	6	34

Source: Authors calculation based on data from the Tax Foundation, Census Bureau, and U.S. Bureau of Economic Analysis

Ranking the states in terms of net in-migration rates, the top performing states had the lowest property tax burden, as expected, while states in the bottom decile had the highest property tax burden as hypothesized.

Correlation coefficients. Table 2.6 lists correlation coefficients between each tax category and 1) population growth, 2) net migration rate, and 3) GDP growth. As presented, sales taxes (column 4) have little or no relationship between each of the growth factors. In fact, sales taxes had a positive, though small, association with net in-migration (+0.05) and GDP growth (+0.14). However, the relationship between property taxes (column 5) and each of the factors is negative and much larger. That is, the results in Table 2.6 indicate that the relationship between the growth factors and property taxes is negative, or as property taxes increase, growth declines. On the other hand, as sales taxes increase, growth is unaffected.

Table 2.6: Correlation Coefficients, 2018-23

	Correlation coefficients		
2018 Burden	GDP Growth (1)	Population Growth (2)	Migration Rate (3)
Total tax burden	-0.43	-0.40	-0.49
Individual income tax burden	-0.45	-0.30	-0.37
Property tax burden	-0.30	-0.19	-0.35
Corporate income tax burden	-0.09	-0.25	-0.15
Sales tax burden	0.07	0.02	-0.13

Note: Correlation coefficients range between -1.0 and +1.0 indicating the degree to which two factors move together (+ correlation coefficients) or in oppositive directions (- correlation coefficients). A correlation coefficient of zero (0) indicates no association or relationship.

Source: U.S. Bureau of Economic Analysis and U.S. Census Bureau

Summary

The preceding analysis generally supports the hypothesis that shifting tax burdens from property to sales has historically enhanced economic performance. Sales taxes consistently showed a less detrimental effect on growth compared to property taxes. However, the relationships discussed here are univariate, meaning they do not account for the interactions between different tax burdens. To provide measurable individual impacts on growth, the next section will use a dynamic multivariate statistical model.

Section 3: Statistical Modeling of the Proposed Tax Reform

The investigation finds the proposed tax reform will provide a net increase to the state's economy. The analysis uses the following two-step method to investigate the proposed tax reform:

1. Investigators developed a panel data model using least squares regression to analyze employment, capital, and fiscal policies across the 50 states and Washington, D.C. The model also takes into account regional variations in tax structures to provide a more accurate analysis. The model appears in Appendix A1.
2. Investigators then used the IMPLAN multiplier system to assess the impact on employment, wage and salary earnings, self-employment income, and state and local tax revenues.

Table 3.1 presents the tax reform's incremental economic impact on state GDP using the model presented in Appendix A. Gross State Product will increase by $25.4 billion for the three fiscal years ending in 2026-2027. Wage and salary earnings will increase by $8.2 billion and self-employment income will increase by $1.3 billion. Over 41,000 jobs will be supported by the tax reform (annual average). State and local tax revenue will receive a $21.7 billion lift.

Table 3.1: Incremental Economic Impact of Tax Reform

Category	FY 2024-2025	FY 2025-2026	FY 2026-2027	3-Year total
Gross State Product	$5,737,187,230	$9,582,184,013	$10,082,553,604	$25,401,924,847
Wage and salary earnings	$1,752,136,980	$3,058,086,952	$3,362,576,343	$8,172,800,275
Self-employment income	$286,317,833	$499,723,959	$549,480,767	$1,335,522,559
Jobs (annual average)	27,965	46,707	49,146	41,273
State & local tax revenue	$358,073,947	$624,963,275	$687,189,983	$1,670,227,205

Source: Goss and Associates.

Figure 3.1 profiles expected Nebraska GDP with and without the tax reform. As indicated, the expected increase in Nebraska GDP for 2027 due to the tax reforms is $10.1 billion.

Figure 3.1: Nebraska GDP With and Without Tax Reform, 2019-2027 (in Millions of 2024 Dollars)

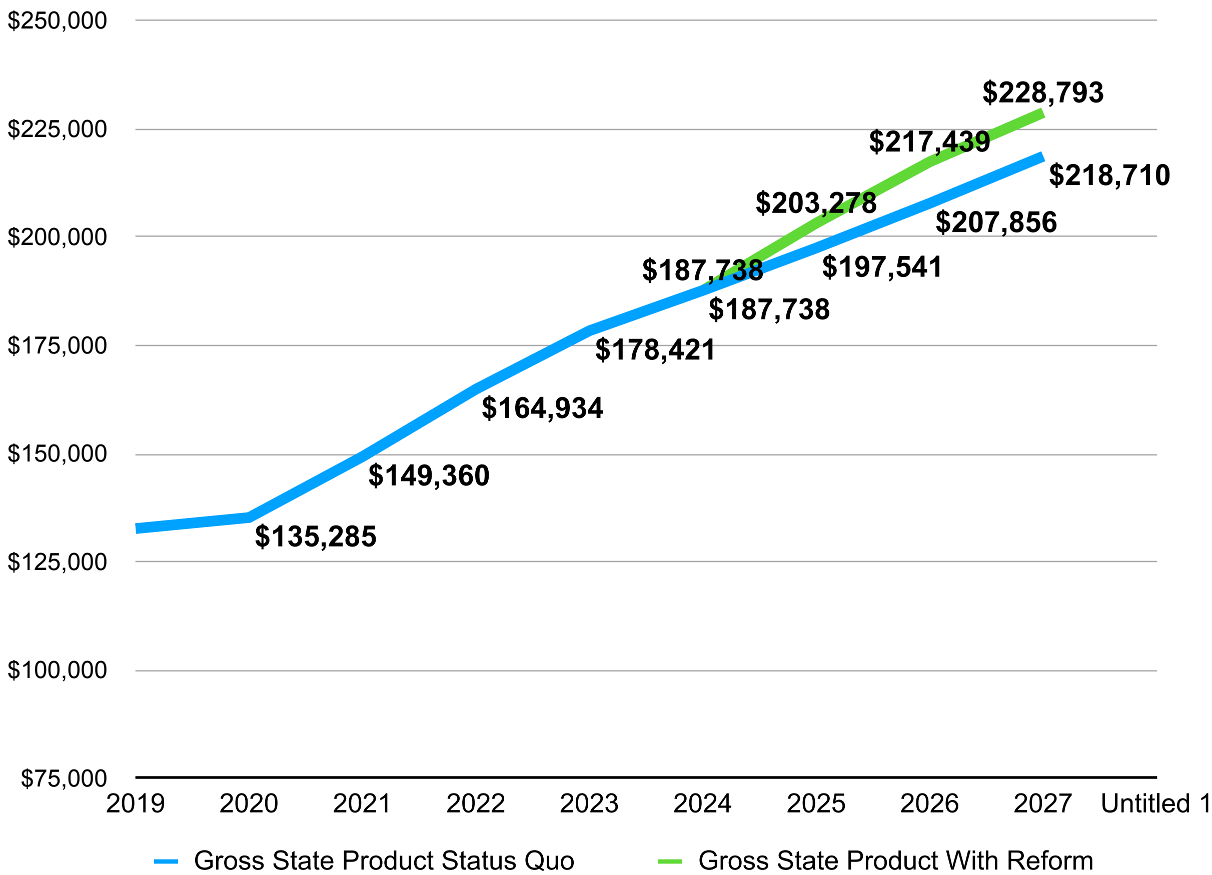
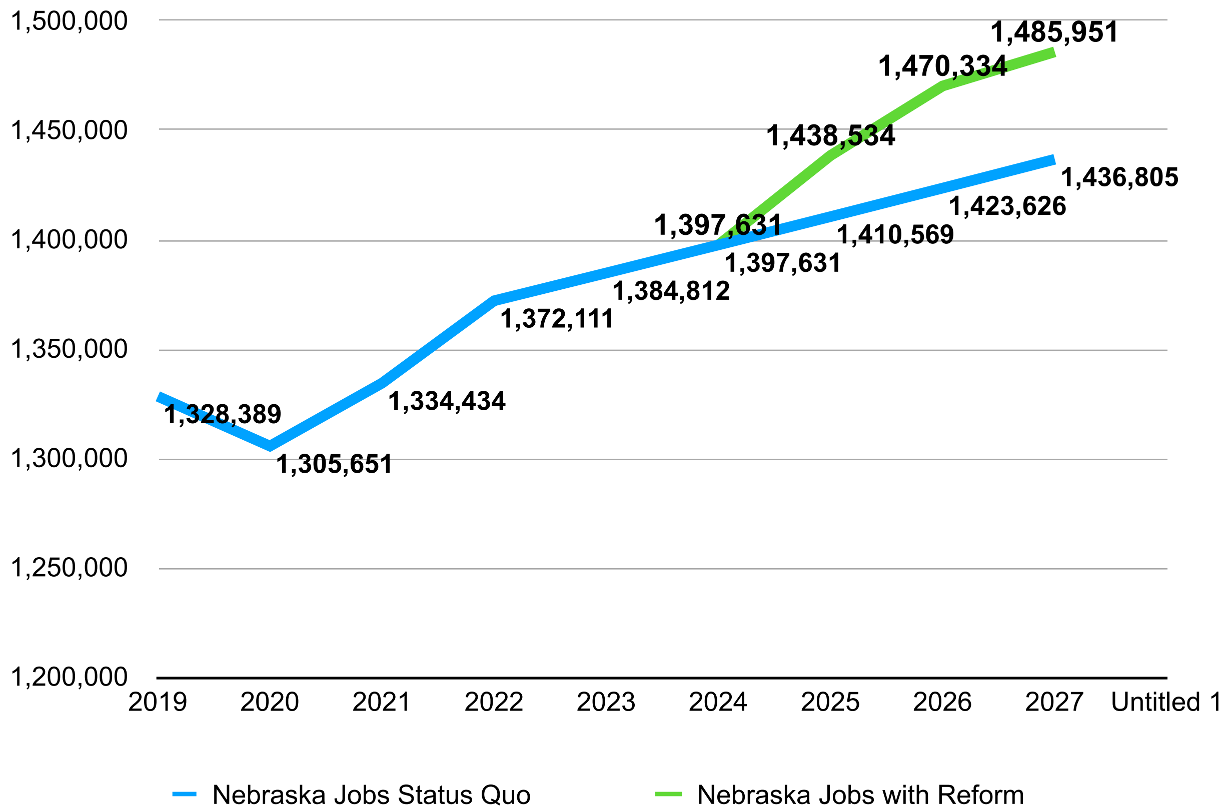


Figure 3.2 Nebraska Employment With and Without Tax Reform Between 2019-2027



For the three fiscal years ending in 2026-2027, state tax revenue will be boosted by $1.2 billion and local tax revenue will increase by $520.2 million. The table reflects the 50% reduction in property tax and modification to sales tax exemptions, sin taxes and taxes on selected services.

Table 3.2: State and Local Tax Revenue, Incremental Impact (3-Year Total, Ending FY 2026-2027)

Category	State	Local	Total
Property tax revenue	$0	$312,103,086	$312,103,086
Sales and use tax revenue	$576,108,437	$110,266,387	$686,374,825
Individual Income tax revenue	$458,298,665	$0	$458,298,665
Corporate income tax revenue	$83,622,771	$0	$83,622,771
Other taxes, fees, and charges	$31,975,806	$97,852,052	$129,827,858
Total tax revenue	$1,150,005,680	$520,221,525	$1,670,227,205

Source: Goss and Associates.

Conclusions

It was found that Nebraska's sales tax burden is significantly below both the average U.S. state and bordering states. In contrast, Nebraska's property tax burden is significantly above the average U.S. state and the six states sharing a border with Nebraska. That is, relatively speaking, Nebraska is not property tax competitive with its neighbors or with the average U.S. state.

Due to a more negative impact of property taxes on economic growth, seven states are attempting to significantly reduce or even eliminate property taxes in 2024. The overall conclusion of this study is that the Governor's plan to reduce property taxes and increase sales taxes aligns state education support policy with the state Constitution. Additionally, it boosts the state's economic growth and annual employment.

Nebraska is not property tax competitive with its neighbors or with the average U.S. state.
Due to a more negative impact of property taxes on economic growth, seven states are attempting to significantly reduce or even eliminate property taxes in 2024.

Appendices

Appendix A: Regression Results

Table A1: Model of Factors on Gross Domestic Product (Cobb-Douglas Model)				
Dependent variable Log(GDP)				
Method: Panel of Least Squares				
Date: 09/10/23				
Sample: 2016- 2023				
Periods included 6				
Total panel (balanced) observations : 306				
Variable	Coefficient	Standard Error	T-Value	Probability
Constant	-53.35	6.57	-8.13	0.00%
LOG(EMPLOYMENT)	0.49	0.05	9.09	0.00%
LOG(CAPITAL)	0.57	0.06	10.34	0.00%
CORPORATEINCOME Taxes	18.70	4.47	4.18	0.00%
INDIVIDUALINCOME Taxes	-2.26	0.59	-3.85	0.01%
PROPERTY Taxes	-8.15	0.94	-8.66	0.00%
SALES Taxes	-4.06	0.64	-6.35	0.00%
YEAR	0.03	0.00	7.79	0.00%
ENC	-0.05	0.03	-1.74	8.33%
ESC	-0.26	0.03	-8.75	0.00%
MIDDLEATLANTIC	0.11	0.03	3.33	0.10%
MOUNTAIN	-0.18	0.02	-7.72	0.00%
NEWENGLAND	0.17	0.03	4.85	0.00%
SOUTHATLANTIC	-0.09	0.02	-4.01	0.01%
WSC	-0.21	0.03	-7.84	0.00%
WNC	-0.06	0.02	-2.51	1.26%
R-squared	0.992	Mean dependent variable		12.35538
Adjusted R-squared	0.992	S.D. dependent variable		1.048426
S.E. of regression	0.093	Akaike info criterion		-1.84043
Sum squared residuals	2.562	Schwarz criterion		-1.64573
Log likelihood	297.586	Hannan-Quinn criteria		-1.76257
F-statistic	2510.783	Durbin-Watson stat		0.053069
Sources: Authors based on U.S. Census data (Cobb-Douglas Model)				

Definition of Variables

The results listed in Table A1 are produced with a Cobb-Douglas production function. It is the most straightforward because of its linear structure in logarithms. A convenient feature of the Cobb–Douglas is that the regression parameter estimates are also elasticities. The Cobb–Douglas has some advantages due to its computational simplicity, since it diminishes the potential for multicollinearity because of a lack of interaction terms.

Table A2: Definition of Variables in the Statistical Model

Variable name	Definition
Constant	Intercept of the linear model
LOG(EMPLOYMENT)	Logarithm of Employment in each of the 50 states & D.C.
LOG(CAPITAL)	Logarithm of Capital in each of the 50 states & D.C.
CORPORATEINCOME Taxes	Corporate income tax collections for each of the 50 states & D.C.
INDIVIDUALINCOME Taxes	Personal income tax collections for each of the 50 states & D.C.
PROPERTY Taxes	Property tax collections for each of the 50 states & D.C.
SALES Taxes	Sales tax collections for each of the 50 states & D.C.
YEAR	Year is the six periods of time for which the data covers.
ENC	A binary variable equal to 1 for all states in the East North Central U.S. Census region; Equal to 0 otherwise.
ESC	A binary variable equal to 1 for all states in the East South Central U.S. Census region; Equal to 0 otherwise.
MIDDLEATLANTIC	A binary variable equal to 1 for all states in the Middle Atlantic U.S. Census region; Equal to 0 otherwise.
MOUNTAIN	A binary variable equal to 1 for all states in the Mountain States U.S. Census region; Equal to 0 otherwise.
NEWENGLAND	A binary variable equal to 1 for all states in the New England U.S. Census region; Equal to 0 otherwise.
SOUTHATLANTIC	A binary variable equal to 1 for all states in the South Atlantic U.S. Census region; Equal to 0 otherwise.
WSC	A binary variable equal to 1 for all states in the West South Central U.S. Census region; Equal to 0 otherwise.
WNC	A binary variable equal to 1 for all states in the West North Central U.S. Census region; Equal to 0 otherwise.

Statistical Robustness of Statistical Results

The dynamic statistical model is used to estimate the impact of tax burdens on economic growth. The empirical results in several important outcomes:

- The statistical confidence for each of the primary variables is 99%, meaning there is a 99% certainty that these variables have a significant impact on GDP.
- The statistical confidence on each of the primary variables is 99%. That is, one is 99% confident that the variable has a statistical impact on GDP .
- Each of the tax variables, except corporate, has the expected negative impact on GDP.
- In a Cobb-Douglas model, one expects the sum of the coefficients for labor and capital to equal approximately 1.0. In this case the sum is 1.06.
- The model explains 99% of the variation in GDP.

Appendix B: Past Consultancies, 2022-24
Funded research contracts (2022-24):

1. Spring 2024. "Driving Economic Growth in Kearney & Nebraska: The Impact of the Good Life District, Produced for the City of Kearney, NE.
2. Spring 2024. "The Economic Impact of an Ethanol Carbon Capture System on Nebraska" Produced for Nebraska Renewable Energy, Omaha, NE.
3. Spring 2024. "The Impact of the Bellevue Expansion on the Good Life District, 2025-35," Produced for the City of Bellevue.
4. Spring 2024. "The Antler View Good Life District and Its Impact on the State of Nebraska, 2025-35," produced for Quantum, Inc.
5. Winter 2023. "An NHL Hockey Team to Omaha: The Economic Impacts on the Franchise & the Economy" Produced for Rod Yates, Gretna, NE
6. Winter 2023. "Tourism & New Industries: Taxpayer Impacts of Nebraska Crossing District Expansion" Produced for Nebraska Crossing, Gretna, NE
7. Winter 2023. "Making Waves: Economic Impact of the Bellevue Development District" Produced for the City of Bellevue, Bellevue, NE
8. Fall 2023. "Fueling Prosperity: The Positive Economic Ripple Effects of Increasing Wages for Nebraska's Direct Care Workforce" Produced for Nebraska Association of Service Providers, Omaha, NE
9. Fall 2023. "Iowa's Insurance Industry a U.S. – Updated Post Covid Report" Produced for Iowa Insurance Association, Des Moines, IA
10. Summer 2023. "Elite Casino Resorts, Iowa's Gold Standard for Keeping Dollars in the State." Produced for Elite Casino Inc. Riverside, IA.
11. Summer 2023. "Iowa Association of Electric Cooperatives: Powering Iowa with Rural and Urban Economic Progress." Produced for Iowa Association of Electric Cooperatives, Des Moines, IA.
12. Spring 2023. "The Economic Impact of Nebraska's Independent Colleges on the State and Local Economies." Produced for the Independent Colleges of Nebraska, Omaha.
13. Spring 2023. "Economic Impact Statement of Decommissioning & Replacing Kimball's Strategic Deterrent." Produced for the City of Kimball, Kimball, NE.
14. Fall 2022. "The Economic Impact of a Carbon Capture Pipeline on Illinois, 2024-36." Produced for Wolf Carbon Solutions, Denver, CO.
15. Fall 2022. "The Economic Impact of a Carbon Capture Pipeline on Iowa, 2024-36." Produced for Wolf Carbon Solutions, Denver, CO.
16. Summer 2022. "Iowa an Energy Juggernaut: The Impact of Wind and Solar on the State's Economy." Produced for the Conservative Energy Forum of Iowa, Des Moines, Iowa.
17. Summer 2022. "The Economic Impact of Cattlemen's Heritage Beef Procession Plant on the State of Iowa." Produced for Ten Corporation Inc., Marcus IA.
18. Spring 2022. "The Economic Impact of West Liberty Foods' Proposed Facility, June 2023 to Dec. 2038." Produced for West Liberty Foods, West Liberty, IA.
19. Spring 2022. "The Economic Impact of a Landfill RNG System on Winnebago County, Illinois." Produced for EcoEngineers, Des Moines, IA.
20. Spring 2022. "The Economic Impact of Fort Payne's Taxpayer Support of Food City, 2024 – 37, Produced for Scruggs, Dodd & Brisendine Attorneys, PA, Fort Payne, AL.

Appendix C: Biographies of Authors

Ernie Goss is the MacAllister Chair in Regional Economics at Creighton University and is was initial director for Creighton's Institute for Economic Inquiry. He is also principal of the Goss Institute in Denver, CO. Goss received his Ph.D. in economics from The University of Tennessee in 1983 and is a former faculty research fellow at NASA's Marshall Space Flight Center. He was a visiting scholar with the Congressional Budget Office for 2003-2004 and has testified before committees of the U.S. Congress, Iowa, Kansas, and Nebraska Legislatures.

He has published more than 100 research studies focusing primarily on economic forecasting and on the statistical analysis of business and economic data. His book Changing Attitudes Toward Economic Reform During the Yeltsin Era was published by Praeger Press in 2003, and his book Governing Fortune: Casino Gambling in America was published by the University of Michigan Press in March 2007.

He is the editor of Economic Trends, an economics newsletter published monthly with more than 11,000 subscribers, produces a monthly business conditions index for the nine-state Mid-American region, and conducts a survey of bank CEOs in 10 U.S. states. Survey and index results are cited each month in approximately 100 newspapers; citations have included the New York Times, Wall Street Journal, Investors Business Daily, The Christian Science Monitor, Chicago Sun Times, and other national and regional newspapers and magazines. Each month 75-100 radio stations carry his Regional Economic Report.

Scott Strain is a senior research economist at Goss & Associates. He has worked as an economist and statistician for more than 20 years providing forecasts and analysis across a wide range of industries. Scott served as an industry economist, working in new product development regarding both quantitative and qualitative research. Scott was Senior Director of Research for an economic development agency, providing economic impact and tax incentive analysis to both private businesses and government entities. He served on the business advisory committee that worked with Nebraska state senators and the director of the state's Economic Development Department to develop the Nebraska Advantage Act – a comprehensive package of business incentives that has helped to add more than $6 billion in new capital investment and over 13,000 new jobs in the state of Nebraska since the Act's inception in 2006.

Monique Devillier is a Research Associate at Goss & Associates. She has a Bachelors of Liberal Studies from the University of Iowa. She was a small business owner in Omaha, Nebraska. She has worked for Higgins Law as a project coordinator, legal assistant as well as an office manager for PSC Construction. Monique was one of the original co-founders of a non-profit in Blair, Nebraska (Friends of the Jeanette Hunt Animal Shelter) and served on the board for more than nine years. She was Sergeant-at-Arms for the 21-22 year at Suburban Rotary, where she has been a member for more than eight years and recently served on the board.