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The Short-term Effects of the Kansas Income Tax Cuts on Employment Growth

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Abstract

The state of Kansas made dramatic changes to the structure of its personal income tax by eliminating taxation of business income and lowering marginal tax rates on other personal income sources. Proponents of the legislation maintain that the tax reductions will stimulate employment growth. Using a difference-in-differences approach, we estimate the impact of the tax changes on private-sector employment in the state of Kansas, relative to its border states, using data on the number of establishment employees and proprietors. We apply multistate county fixed effect model and county-border matching approaches to identify tax effects. Our findings indicate that two years post enactment, the tax law changes have not yielded a net increase in private-sector employment.

Keywords

income tax, pass-through income, employment growth, county-border match

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Unincorporated business profits, also known as pass-through income, are the net earnings of an unincorporated business after all expenses including salary and wages are paid.[1] In US states with a personal income tax, unincorporated business profits are taxed as personal income (Fisher 2007). In tax year 2013, Kansas became the only state in the United States to exempt unincorporated business profit from personal income taxation while still taxing other forms of personal income. Wage and salary income earned from an unincorporated business is not exempt from taxation in Kansas, only pass-through income is exempt. For example, if a law firm pays a firm partner a salary based on billable hours, he or she pays income tax on his or her income. If instead he or she receives income as the residual claimant on the earnings of the firm, then his or her income is untaxed.

The business income exemption is part of a larger set of income tax cuts and tax base changes enacted in Kansas beginning in 2013 that taken as a whole constitute the largest tax cut in the state's history and have drawn national attention as a test case for supply-side economics (e.g., see King and Peters 2013). Job creation is the rationale put forward for passage of the Kansas income tax cuts (Kansas Department of Commerce 2012).[2] Proponents of the legislation predict large, positive indirect effects of the policy change through the expansion of existing firms, creation of new firms, and migration of firms from higher tax locales. Opponents maintain that the tax changes will not achieve the intended growth effects (e.g., Johnson and Mazerov 2012). The national discussion of the Kansas tax cuts makes investigation of the state's policy change an important empirical task.

There are reasons to expect that the exemption may not yield an increase in private-sector employment. First, the Kansas tax policy change creates a new opportunity for tax avoidance behavior through income shifting. For example, a Kansas business owner may reduce her taxable salary income from her business and offset the reduction with an increase in her untaxed business income. The change in policy therefore could simply be associated with the way in which an owner is compensated, resulting in a loss in income tax revenue and no growth in employment. Similarly, a wage employee may change her employment status to a contract employee, operate as a sole proprietor, and avoid paying income tax in Kansas. In this instance, the policy results in the loss of an establishment employee, a gain in a sole proprietor, and a loss in tax revenue, but zero net change in total private-sector employment.

Second, businesses tend to incorporate once they become profitable (Cullen and Gordon 2007). This is in part due to income tax loss offset provisions. A business owner earning a negative profit can reduce her tax

burden by using the losses to offset other personal income, and in the presence of a high likelihood of negative earnings, remaining unincorporated can lower a business owner's overall income tax burden. In contrast, a profitable firm may be able to reduce its federal tax burden through incorporation since the top federal marginal tax rate (MTR) exceeds the top federal corporate income tax rate and its state tax burden in states where the same is true. At the time of enactment, the exemption of unincorporated business profits therefore likely applies disproportionately to businesses that do not earn a profit (after paying wages of owners and other employees).[3] These firms would not be expected to increase employment in response to the exemption. If the exemption increases the business owner's net tax burden (by eliminating the ability to use loss offsets), it is conceivable that the exemption may have an adverse effect on a business and therefore private employment.

Third, proponents maintain that the tax cuts will encourage business owners to relocate their businesses to Kansas to take advantage of the tax cuts. While Kansas is typically considered a rural state, its population is concentrated in border counties, which may facilitate a business' move from a neighboring state into Kansas.[4] However, if state income tax cuts are perceived as leading to decreases in public investments such as roadways and education that contribute to firm profitability, the tax cuts may fail to generate business migration into Kansas.

In this article, we examine the effect of the tax policy changes on private-sector employment in Kansas by comparing employment outcomes in Kansas with employment outcomes in neighboring states before and after the tax policy change. Specifically, we apply a difference-in-differences approach to examine private-sector employment growth in Kansas counties relative to neighboring state counties before and after the tax policy change. We make use of the most recently available panel data, allowing us to measure the number of establishment jobs and number of sole proprietors before and two years after enactment of the tax law changes. We apply two methods to determine possible tax-induced private employment effects: a county fixed effect model and a county-border matching approach. As a preview of our findings, we find that eight quarters into the tax change, controlling for tax structure and unobserved heterogeneity, the tax base changes, which are dominated by the business income exemption, have not had positive employment effects neither on private-sector establishment employment nor the number of proprietors. In some specifications, we in fact detect a negative effect of the tax base changes on establishment employment levels. The remainder of this article is organized as follows.

The second section provides background on the tax structure of Kansas and its neighboring states. The third section provides a literature review. The fourth section presents the data and econometric approach. The empirical results are reported in the fifth section. And the sixth section concludes.

Tax Structure and Tax Changes in Kansas

In May 2012, the governor of Kansas signed into law tax legislation (HB 2117) that enacted large personal income tax cuts by reducing MTRs considerably across all income levels and eliminating the taxation of pass-through income (Kansas Legislative Research Department 2012; Dickinson, Mazza, and Keenan 2012; Robyn 2012). The provisions take effect in tax year 2013. A follow-up measure (HB 2059) signed into law a year later mandates additional future reductions in Kansas marginal income tax rates. The combined effects of the two measures also alter the state's income tax base by increasing the standard deduction and eliminating various tax deductions and credits. Affecting lower income households, the homestead credit for renters is removed and the earned income tax credit is reduced. All itemized deductions, including the popular mortgage interest deduction and except charitable giving, are gradually reduced to achieve a 50 percent reduction by tax year 2017. The largest change in the tax base comes from the exemption of business income, which narrows the tax base. Moreover, arguably, of the tax base changes, only the exemption has a direct impact on firms' tax burden. An additional revenue offset was implemented by not decreasing the state statutory sales tax rate by an amount previously scheduled.[5]

In most states with an income tax, residents with out-of-state income pay personal income taxes to the state in which they are employed, according to the state of employment's income tax structure. Fifteen US states have so-called personal income tax reciprocity agreements (as detailed in Rohlin, Rosenthal, and Ross 2014) wherein individuals pay income taxes on income from all sources (including out of state earnings) to their states of residence not their states of employment. Neither Kansas nor its neighboring states have such an agreement. Instead, Kansas taxes residents on all of their income, and nonresidents are taxed on their Kansas source income (Dickenson, Mazza and Keenan 2012). Residents may file for a nonrefundable credit toward taxes paid on income earned in and to another state. Generally speaking, the credit is nonrefundable, and on balance, as such, the taxpayer pays the higher of the two states' tax bills. This is also the case for Kansas's neighboring states. A detailed description of the case of Missouri's taxation of nonresident income is provided in a Supplemental Online Appendix

Table 1. Area Tax Rates, 2004–2014.

2004 and Subsequent Years Having a Rate Change					
Sales tax rate					
Year	CO	KS	MO	NE	OK
2004	2.90	5.30	4.23	5.50	4.50
2011	2.90	6.30	4.23	5.50	4.50
2013	2.90	6.15	4.23	5.50	4.50
Corporation income tax top marginal rate					
Year	CO	KS	MO	NE	OK
2004	4.63	7.35	6.25	7.81	6.00
2009	4.63	7.05	6.25	7.81	6.00
2011	4.63	7.00	6.25	7.81	6.00
Personal income tax top marginal rate					
Year	CO	KS	MO	NE	OK
2004	4.63	6.45	6.00	6.84	7.00
2005	4.63	6.45	6.00	6.84	6.65
2008	4.63	6.45	6.00	6.84	5.65
2009	4.63	6.45	6.00	6.84	5.50
2012	4.63	6.45	6.00	6.84	5.25
2013	4.63	4.90	6.00	6.84	5.25
2014	4.63	4.80	6.00	6.84	5.25

Source: Tax Foundation, 2013.

(SOA) available from the journal website. In sum, in nonreciprocal states such as Kansas, working in another state does not reduce one's tax burden below what he or she would pay if the income were earned in his or her state of residence. This is true no matter the form of personal income that is subject to tax. In short, for a business owner to get the Kansas tax break, he or she must be a resident of Kansas.

Table 1 reports January 1 tax rates and rate changes for Kansas and its neighbors. Of the five states, one can see that Nebraska has the highest top corporate MTR and individual income tax MTR, followed by Kansas in each category. There is little variation in tax rates during this time period, with Colorado, Nebraska, and Missouri keeping rates constant and only Kansas and Oklahoma implementing rate changes.

Literature Review

The relationship between state income taxation and the overall level of business activity has been examined in a number of papers. Wasylenko (1997) provides an extensive review of earlier studies and concludes that the evidence points to a negative but small impact of state taxation of income on measures of state economic growth. This finding is supported by Borchers, Deskins, and Ross (2016), who review recent papers and investigate the tax policy effects on a broad set of measures of small business and large business activities in a state-panel framework. They find that higher state tax rates and corporation income tax rates are associated with slower small business growth. However, they find that large business activity does not appear to be influenced by state tax policies. In an examination of state self-employment rates, Bruce and Deskins (2012) do not detect large impacts on self-employment outcomes; some tax code features have small effects, such as adverse effects of a higher MTR but a positive effect of a more progressive income tax structure.

The impact of state tax policies may vary by age of firm. High marginal income tax rates may be positively associated with business creation since entrepreneurs tend to experience negative profit in the early life cycle of a firm, and loss offset provisions in the federal and state income tax codes allow the entrepreneur to thereby diversify some of the risk of the investment. Gains are taxed, but losses are deductible, and therefore volatility of returns is reduced (Domar and Musgrave 1944). A recent confirmation of this effect is given by Cullen and Gordon (2007), who note that businesses tend to incorporate once positive profits are achieved, but in the start-up phase, high personal income MTRs encourage entrepreneurialism. The policy implication for states is to use personal income taxation with loss offset to generate revenue and encourage entrepreneurial activity and keep corporate tax rates low.

Rohlin, Rosenthal, and Ross (2014) identify tax avoidance behavior through the use of a cross-border approach and variation in income tax reciprocity agreements to identify the extent to which cross-border tax differences affect the location of new business establishments. Under a reciprocity agreement, an entrepreneur who resides across the border pays taxes to her state of residence, not to the state in which her business is located. Rohlin, Rosenthal, and Ross find that when reciprocity agreements are in force, states with relatively high MTRs have greater business creation than when reciprocity agreements are not in place. An adverse effect of sales and corporate taxes on new establishment location for both types of states is found. A state

that relies more on personal income taxation may therefore attract entrepreneurs across the border through the use of a reciprocity agreement in the event that the overall resulting tax mix is least burdensome in that location.[6]

A number of other studies apply border matching techniques to correct for unobserved heterogeneity and address endogenous taxation concerns. In an analysis of English manufacturing establishments, Duranton, Gobillion, and Overman (2011) examine property taxes and employment growth. Mikesell and Ross (2014) use US state-level tax variation and a county-border matching approach to examine the incidence of the manufacturing machinery and equipment tax. In a careful analysis that accounts for certain types of endogenous tax affects using spatial differencing, they find no evidence of a negative effect of the tax on manufacturing employment or wages. Thompson and Rohlin (2012) use border counties and variation in state sales tax rates to examine the impact of sale taxes. They find a negative effect of sales taxes on retail employment for establishments on the border of a lower tax state.[7]

Data and Empirical Methods

To examine establishment employment effects, we use quarterly data on private employment from 2004 quarter 1 to 2014 quarter 4 from the Quarterly Workforce Indicator (QWI) data collected by the US Census through the Longitudinal Employer-household Dynamics Survey. The QWI data pertain to all jobs covered under states' unemployment insurance (UI) programs and are collected through states' UI wage reporting systems. The QWI data do not include self-employed individuals as a general rule, as they are not required to participate in UI programs. Also, although the Kansas policy change provides a tax break to unincorporated businesses, the QWI private-sector employment data include employment by both incorporated and unincorporated businesses. Thus, in the raw data, we are not able to isolate unincorporated employment effects. However, in the econometric analysis, we control for the corporate tax rate and, as noted in the second section, since there have been no corporate tax law changes in any of the states we consider since 2011, the difference-in-differences approach captures the tax law changes that apply only to the change in the Kansas personal income tax. We select QWI data pertaining to Kansas and its bordering states, Colorado, Missouri, Nebraska, and Oklahoma, and all of the counties within each of these states.

Because the QWI do not include data on self-employed, we augment our analysis using data from US Bureau of Economic Analysis (BEA) on the

number of sole proprietors. These data are available at the county level; however, they are annual data and are not available on a quarterly basis. We examine these data from 2010 to 2014, which is the most recent year the data are available. Since 2010, four of the five states including Kansas have consistently positive annual growth in the number of sole proprietors (this is shown in Figure S1, which is reported in the SOA). State corporate income tax rates, individual income tax rates, and sales tax rates are available from the Tax Foundation. The tax rates are reported as of the start of the calendar year. County population is reported annually by the BEA through 2014 at present. We use linear interpolation to populate the quarterly data for the QWI models.

We use two samples of data to examine the tax change impacts on Kansas establishment employment. We use a county panel that includes all counties in Kansas and its four neighboring states. We also examine a second sample of just border county pairs, in which we match each Kansas border county with the corresponding adjacent county from the neighboring state as described below. For the county panel, we estimate the following specification for county i in state j at time t:

$$Y_{ijt} = \beta_0 + \beta_1 \text{KSpost2012}_{jt} + \beta_2 \text{Pop}_{ijt} + \beta_3 \text{Corp}_{jt} + \beta_4 \text{MTR}_{jt} + \beta_5 \text{Sales}_{jt} + \phi_i + \lambda_t + \varepsilon_{ijt}, \quad (1)$$

where Y_{ijt} denotes the employment measure of interest, measured as the number of establishment jobs or number of proprietors, in county i and state j at time t. KSpost2012_{jt} represents a dummy variable that is equal to 1 when state j equals Kansas and year equals 2013 or 2014 and 0 otherwise. Pop denotes county population. We control for three state-level tax rates. Corp_{jt} is the top corporate MTR, MTR_{jt} is the top individual MTR, and Sales_{jt} is the state sales tax rate in state j at time t. ϕ_i is a county fixed effect to control for time invariant county and state unobserved heterogeneity. λ_t is a quarter-year fixed effect to control for quarter and year effects that may impact county employment levels in all states. We also control for state-time trends to capture state unobserved heterogeneity that may be changing over time.

KSpost2012_{jt} is the difference-in-differences estimator. It measures the impact of the policy change on private-sector employment in Kansas counties relative to the counties in its neighboring states. Since we control for each state's tax structure, in terms of the top corporate and income tax rates and sales tax rate, the policy variable KSpost2012 captures the change in the tax base, with the central tax base change being the elimination of taxation of pass-through income in the state of Kansas. If β_1 is statistically

significant and positive, then we infer that eliminating unincorporated business taxes is associated with an increase in the private-sector employment levels in Kansas, all else equal. We estimate equation (1) using establishment employment data from 2004 to 2014 in order to gage possible effects leveraging the variation in the tax structure over this time period. We also estimate equation (1) for both employment measures using only the postrecessionary time period. An advantage of estimating the model on the postrecessionary time period is the average employment outcomes across states is more reflective of current fundamentals that drive employment differences than a prepolicy average based on data that date back to 2004. A disadvantage of using a prepolicy period that incorporates only three years is the lack of variation in the tax rates; without variation, the standard errors of the coefficient estimates are enlarged making it difficult to precisely estimate tax effects. Thus, we report both time horizons to examine the establishment employment effects. We estimate model 1 allowing for different function forms, and since the policy variable is at the state level and the analysis covers all counties in five states over time, we cluster the standard errors at the state level.

A couple of issues arise in the interpretation of $KSpost2012_{jt}$. First, observed differences in employment outcomes across states may reflect underlying differences in the treatment and control groups rather than a treatment effect. We control for county fixed effects and state time trends as well as tax structure and county population to account for underlying differences. Second, if long-run trends differ between Kansas and the other states that serve as a control group, then we risk interpreting preexisting conditions in employment trends as a treatment effect. To check for this, we conduct a trend test using the quarterly data from 2004 to 2014 and regressing QWI quarterly county establishment employment on eleven year dummies, state fixed effects, and interactions of the Kansas state indicator and year dummies. If the coefficient estimates on the interaction terms are statistically significant, then Kansas employment deviates from the control group employment trend. The results are available upon request and show that the coefficient estimates on the interaction terms are statistically insignificant. Thus, we are more confident that any policy effect we detect from the Kansas tax base change is not due to differing long-term employment trends.

Third, the econometric specification does not control for the impact of a balanced budget tax cut. In the presence of a balanced budget requirement, in principle, each dollar reduction in income tax revenue is matched by a one-dollar decline in government spending. All else equal, a balanced-

budget tax cut is expected to create a contractionary economic effect in the short run, since some fraction of the tax cut is saved yet government spending is reduced dollar for dollar. In the longer run, a tax cut may be expected to produce increases in household and firm investment generating economic growth. Kansas has a balanced budget requirement; however, the reduction in tax revenues in Kansas has not been matched dollar for dollar with a reduction in expenditures, in part, due to the increase in the state sales tax rate (relative to the previously mandated level of 5.7 percent). In addition, the state of Kansas has delayed reductions in government spending by spending down the state rainy day fund and shifting funds from other commitments such as highway projects to stabilize expenditures in the general fund (i.e., Carpenter 2013). We provide evidence of this in Table S1, which is reported in the SOA: 8 percent growth in income tax revenue in 2012 is followed by negligible revenue growth in 2013 and plunging revenues in 2014. Yet, the 24 percent fall in income tax revenue in 2014 is met with a mere 2.5 percent decrease in general fund expenditure. Put differently, each dollar reduction in income tax revenue in 2014 corresponded to a 22 percent reduction in expenditures in 2014. This observation suggests that while not a clean measure, the policy variable will largely reflect the tax base change described without being polluted by a confounding contraction in government spending.

Fourth, if the policy induces an individual to move his or her business from a neighboring state to Kansas, this migration will show up in the data as an employment loss from the neighboring state and an employment gain for Kansas. Using the difference-in-differences approach means that this type of migration is "counted twice" (i.e., relocation of 100 jobs from Nebraska to Kansas would show up as +200 in a difference-in-differences estimate).[8] Double counting would bias the analysis toward finding an effect and increasing its size.[9] We do not have a way to adjust for double counting. If there is no migration from neighboring states, then our estimates are accurate. If migration accounts for all and any job gains, then our estimates are cut in half.

For the Kansas border county sample, we use a county differencing model in order to capture the changes observed in a Kansas county compared directly with its adjacent county match. This approach has been used to control for a heterogeneous response bias (Mikesell and Ross 2014) that can arise because of political economy considerations. An employer is willing to pay as much as the net present value of its expected tax break to secure a tax decrease. This cannot be observed. If it is time invariant, then it is controlled for with the county fixed effects. However, if it is time varying, it is captured in the error term. In the border differencing sample,

the county-specific control group is the adjacent county. As in Mikesell and Ross (2014), the identification strategy of using cross-state border county pairs differences out the potential bias as long as the cross-border match is a useful counterfactual.

Letting Y_{kmt} represent the neighboring state's matching county employment measure, we specify

$$Y_{kmt} = \gamma_0 + \gamma_2 \text{Pop}_{kmt} + \beta_3 \text{Corp}_{mt} + \beta_4 \text{MTR}_{mt} + \beta_5 \text{Sales}_{mt} + \phi_k + \lambda_t + \varepsilon_{kmt}, \quad (2)$$

where k represents the Kansas border matching county in the neighboring state m. Equation (1) is the treatment group specified for Kansas counties and equation (2) is the control group. By subtracting equation (2) from (1), we get:

$$\Delta Y_{pt} = \Pi_0 + \beta_1 \text{KSpost2012}_{jt} + \Pi_1 \Delta \text{Pop}_{pt} + \Pi_2 \Delta \text{Corp}_{pt} + \Pi_3 \Delta \text{MTR}_{pt} + \Pi_4 \Delta \text{Sales}_{pt} + \varepsilon_{pt}. \quad (3)$$

In this model, we use p to identify each unique cross-state adjacent county pair, and ΔCorp_{pt}, ΔMTR_{pt}, and ΔSales_{pt} are the respective tax rates in the Kansas counties minus the tax rates in their matching counties. Π denotes the difference in parameters across the border pair. For example, $\Pi_0 = (\beta_0 - \gamma_0)$. Note, in equation (3), we expect $(\phi_i - \phi_k)$ to be zero or very near zero, as it is representative of the common unobserved heterogeneity experienced by counties that are located adjacent to each other.

As noted, KSpost2012_{jt} as a control in equation (3) captures only the nontax rate changes of the policy change. This model should give us insight into how a Kansas county's private-sector employment numbers change when compared solely to a geographically associated cross-state county match. As in model 1, a positive and significant β_1 would indicate that Kansas counties on average experience an increase in employment post policy, relative to neighboring states, controlling for population and unobserved heterogeneity. When selecting border county pairs, counties do not always have a unique cross-border match; in some instances, more than one county could be matched to a Kansas county (pictured in Figure S2, reported in the SOA). We use a convex combination of the matching counties' characteristics that is border-distance weighted (weighted by percent of the border shared).[10] We estimate equation (3) over the time period 2010 to present for both employment outcome measures. Since matched counties may have contemporaneously correlated errors due to geographic proximity and exposure to local shocks, we cluster the standard errors on county.

Table 2. Sample Characteristics.

	Mean	Standard deviation	Minimum	Maximum
Panel A: All counties in five states panel data sample				
(a) Years 2004–2014				
Private employment	15,654	51,594	10	577,428
Population	42,287	106,346	428	1,010,712
Corporate top MTR	6.51	1.01	4.63	7.81
Individual top MTR	5.99	0.76	4.63	7.00
Sales tax rate	4.67	0.95	2.90	6.30
(b) Years 2010–2014				
Private employment	15,655	51,357	12	559,478
Population	43,531	109,941	451	1,001,972
Corporate top MTR	6.47	0.98	4.63	7.81
Individual top MTR	5.82	0.78	4.63	6.84
Sales tax rate	4.77	1.05	2.90	6.30
Number of proprietors	5,764	13,655	141	140,075
Panel B: Kansas county-border match sample 2010–2014				
Private employment	12,146	46,335	230	311,161
Population	29,750	89,110	1234	576,009
Individual top MTR	5.81	0.781	4.80	6.45
Sales tax rate	6.04	0.37	5.30	6.30
Number of proprietors	4,366	13,274	639	89,461

Note: Employment data are from the Quarterly Workforce Indicator collected by the US Census Bureau. Population and number or proprietors data are from the Bureau of Economic Analysis. Tax rates are available from the Tax Foundation. There are 19,976 county-quarter observations in Panel A(a) and 9,080 county-quarter observations in Panel A(b), except number of proprietors, which has 2,265 county-year observations. There are 800 county-quarter observations in Panel B, except number of proprietors, which has 200 county-year observations. MTR = marginal tax rate.

Empirical Results

Table 2 reports the sample characteristics for the two samples used in this study. Referring to table 2, one can see substantial variation at the county level in private employment and population levels. In both samples, the number of jobs in a county ranges from a low of ten to a high of roughly a half a million. The range on population is also substantial. County-level summary statistics by state at a point in time are reported in Table S2 in the SOA and reveal that private-sector county-average employment in 2013 is highest in Colorado and lowest in Nebraska. One sees the same pattern for population. On average, each of the states experienced an increase in the

Table 3. Determinants of County-level Employment: County Panel Data.

	All counties 2004–2014			All counties 2010–2014		
	Log linear	Per capita	Growth rate	Log linear	Per capita	Growth rate
	(1)	(2)	(3)	(4)	(5)	(6)
KS × post 2012	−.0534** (.0156)	−.0133*** (.0047)	.0028 (.0075)	−.0535 (.0341)	−.0074 (.0051)	.0116 (.0076)
Corp tax rate	−.0909* (.0532)	−.0131 (.0134)	.0094 (.0158)	—	—	—
MTR	−.0283*** (.0070)	−.0058** (.0022)	.0049 (.0032)	−.0365* (.0211)	−.0048 (.0031)	.0102** (.0051)
Sales tax rate	−.0099** (.0045)	−.0044* (.0008)	−.0076* (.0019)	.0040 (.0060)	−.0009 (.0011)	−.0077** (.0034)
Population	.011** (.004)	—	.00006 (.0004)	.014*** (.003)	—	.0006 (.0007)
County FE and constant	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-year FE	Yes	Yes	Yes	Yes	Yes	Yes
State time trends	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	19,976	19,976	19,522	9,080	9,080	8,172

Note: The dependent variable is Quarterly Workforce Indicator establishment employment, which does not include sole proprietors. Population is expressed in tens of thousands except in the per capita models. Corporate tax rate is omitted in models 4–6 due to the lack of variation and is captured by fixed effects. Standard errors are given in parentheses and clustered on state. Tax rates are expressed in percentage. MTR = marginal tax rate; FE = fixed effects.

*$p < .1$.

**$p < .05$.

***$p < .01$.

number of private-sector jobs in 2013, at the county level, with the average nominal increase the largest in Colorado.

Table 3 reports the empirical results for the multistate county panel sample. We specify private employment in logs, per capita, and as a growth rate, and we consider two time periods: a ten-year period, and a shorter, before-policy-change horizon that pertains only to the post–Great Recession period. Across models, the key variable of interest, KSpost2012, has a coefficient estimate that is nonpositive, and it is negative and significant in some models. The log-linear and per capita models display statistically significant similar results, showing average decreases of 5 percent in county employment, and thirteen jobs lost per 1,000 people, respectively, from the Kansas tax base change. Referring to the post–Great Recession models, columns 4 through 6, the coefficient estimate on KSpost2012 is not statistically significant in any of the other models.

Referring to table 3, the individual MTR and sales tax rate variables have inconsistent effects. Where the KSpost2012 variable is statistically significant, higher individual MTR and sales tax rate have negative effects on jobs. Referring to model 1, while the Kansas tax base change controlling for the individual MTR has an adverse effect on jobs, we see that lowering the top MTR and sales tax rate has a positive effect. The Kansas tax change lowered the top MTR on individual income by 1.65 percentage points and decreased the sale tax rate by 0.15 percentage points by 2014 as reported in table 1. Accounting for this in model 1, the combined effect of the features of the tax change equals a net loss of eighty-one jobs per county on average.[11] Referring to model 2, however, the net effect is only a net loss of three jobs per 1,000 people. According to the growth model and analysis on the postrecession time period, the tax base change of the policy has no statistically significant effect on employment. Referring to other results in table 3, only in model 1 are higher corporate income tax rates associated with a reduction in private-sector employment, and the magnitude of the effect is larger than the implied individual MTR effect in that model.

Using the county-panel model for the post–Great Recession period, we also examine the responsiveness of the number of proprietors in a county to the tax law changes. The effect of the tax base and MTR change on the number of proprietors is not statistically different than zero in any of the models. Consistent with Borcher, Deskin, and Ross (2016), the sales tax rate has an adverse effect in the growth model. Population and unobservable characteristics (state time trends and county fixed effects are not reported but are statistically significant) rather than tax structure (outside of the sales tax) explain differences in the number of proprietors across counties. These results are reported in Table S3 in the SOA.

Table 4. County-border Match Sample, 2010–2014.

	Establishment employment			Number of proprietors		
	Employment	Per capita	Growth rate	Proprietors	Per capita	Growth rate
	(1)	(2)	(3)	(4)	(5)	(6)
KS × post 2012	1,431.27 (1,241.47)	−.221 (.0567)	.0179 (.0412)	−270.52 336.99	−0.0150 (0.0324)	.0496 (.1150)
MTR	803.20 (797.57)	−.148 (.0350)	.0128 (.0224)	−213.56 206.27	−0.0118 (0.0199)	.0256 (.0712)
Sales tax rate	10.16 (217.06)	−.00003 (.0059)	.0143 (.0139)	−38.53 67.66	−0.0013 (0.0030)	—
Population	75.60* (3.40)	—	−.000005 (.00003)	—	23.68* (1.26)	−.00007 (.0001)
County FE and constant	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	800	800	760	200	200	160

Note: Standard errors are given in parentheses and clustered on county. Tax rates are expressed in percentage. The establishment data are quarterly data from the Quarterly Workforce Indicator. The number of proprietors are annual, county-level data from the Bureau of Economic Analysis and models control for county and year fixed effects. Population is expressed in thousands and the reported coefficient estimates are further multiplied by 100. Corporate tax rate is omitted due to lack of variation. Sales tax rate is omitted from the proprietor growth model due to lack of variation. MTR = marginal tax rate.

*$p < .1$.

**$p < .05$.

***$p < .01$.

Table 4 reports the empirical results for the county-border match sample. We consider the difference in private-sector employment between the matched counties, specifying the employment measures (total private establishment employment and number of proprietors) as log linear, in per capita terms, and as a growth rate. We examine only the shorter horizon that pertains to the post–Great Recession period. The results of table 4 largely confirm the results from the county panel data run on the shorter time horizon. We see that in no instance is the coefficient estimate on KSpost2012 positive and statistically significant. We observe that it is differences in population and unobservable characteristics (county fixed effects are statistically significant) rather than tax structure that explain the recent movements in these private employment measures.[12]

Conclusion

In 2013, Kansas became the first US state to have a personal income tax which excludes business income from taxation. The principle goal in this narrowing of the tax base is to achieve unincorporated business job growth. In this article, using the quarterly, county-level QWI data on number of establishment employees and annual BEA data on number of proprietors, we take a first look at the private-sector employment impacts of the Kansas income tax changes. Given available data, we are able to examine the impacts two years after enactment. While two years into the policy change is a short time period for examining tax-induced employment effects, an advantage of assessing immediate effects is that one can ask, are there impacts during the "hopeful" period when the popular press is reporting the novel "business friendly" features of the tax law change and before potential revenue losses and spending cuts occur (e.g., Abouhalkah 2014). We use two modeling approaches: a multistate county fixed effects model and a Kansas county-border matching model, and we examine long- and short-prepolicy change horizons.

Our central results are that the key component of the tax law change intended to spur economic growth, the exemption of business income from personal income taxation, has not had a positive effect on private-sector employment in Kansas relative to neighboring states and controlling for a number of factors. We observe neither an increase in the number of jobs at establishments nor an increase in the number of proprietors in Kansas relative to the outcomes in neighboring states, which did not experience a tax law change. In the models in which the tax effects are precisely measured, we find a small net loss in the number of establishment jobs from the

combined effects of the tax change (tax base change, reduction in the MTR, and the decrease in the statutory state sales tax rate), controlling for unobservable characteristics and population and using counties in neighboring states as the comparison group. Some workers could be leaving establishment employment in order to become self-employed. A switching from employer-based work to self-employment without new hires underscores an excess burden aspect of the policy: it may reallocate economic activity but not increase it. Nonetheless, the data are not consistent with that story: loss in an establishment job does not show up as an increase in self-employed in the models estimated. In sum, while the longer term effects are as yet unknown, we find no evidence that the policy change has yielded short-run employment gains in the two years since enactment. As data become available, future research ought to investigate the longer-term policy effects on employment as well as self-employment activity.

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Supplemental Material

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Notes

1. Most businesses in the United States are unincorporated and include certified public accountants, attorneys of law, medical practitioners, restaurants, farming operations, and real estate brokerages. Unincorporated businesses may take the form of limited liability company, sole proprietorships, S corps, or partnerships.
2. With passage of the first round of Kansas tax cuts, the governor of Kansas stated "Today's legislation will create tens of thousands of new jobs and help make Kansas the best place in America to start and grow a small business."

3. We thank a referee for pointing this out. He or she also noted that by decreasing the incentive for a profitable firm to incorporate, the exemption may delay incorporation.
4. Note that 70 percent of the Kansas population lives in a county with a centroid within 50 miles of a state border and fully half of the population lives within 50 miles of the Missouri border (Nicholson, Turner, and Alvarado 2016).
5. The state sales tax rate was previously scheduled to decrease to 5.7 percent. HB 2059 (a follow-up measure) mandated a smaller decrease to 6.15 percent instead of 5.7 percent. Therefore, while the Kansas sales tax rate decreased from year 2012 to 2013, as part of the tax policy change, the July 1, 2013, decrease to 6.15 percent was an increase relative to the 5.7 percent previously mandated to take effect.
6. Patrick (2014) also provides recent evidence on the responsiveness of business activity to tax structure by examining the effects of nontax incentives on private-sector employment growth. She finds little effect, which suggests that on average firms location decisions may be due to reasons other than tax incentive.
7. Other research pertaining to state tax structure includes the determinants of tax complexity (Slemrod 2015) and an extensive literature that examines state tax competition (i.e., Fletcher and Murray 2008).
8. We thank an anonymous referee for bringing this to our attention.
9. Double counting would increase statistical significance since each migration would be replicated in the sample, and the difference in differences is enlarged.
10. We also rerun models on a sample created by choosing one unique match for each county based on the maximum percent of the border shared, with population as a tiebreaker when geographic borders are approximately equal. The results are not sensitive to this alternative match technique.
11. Computed as $(15{,}654) \times [(-0.0543) + (-1.65) \times (-0.0283) + (-0.15) \times (-0.0099)]$.
12. We also check for a "total effect" of the policy by reestimating the employment models in tables 3 and 4 with the KSpost2012 policy variable included and all tax rate variables excluded (but including a population control where appropriate and fixed effects). The coefficient estimates on the variable KSpost2012 are qualitatively unchanged in the reestimated models. These results are available from the authors upon request.

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