

The Impact of State Taxes on Pass-Through Businesses: Evidence from the 2012 Kansas Income Tax Reform¹

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ABSTRACT

This paper examines the impact of a large-scale tax reform that took place in Kansas and, along with other changes, excluded certain forms of business income from individual taxation at the state level. In theory, lowering these firms' marginal tax rates could stimulate investment thereby boosting the overall state economy. On the other hand, business owners could simply relabel other sources of income to receive favorable tax treatment, in which case, the exemption would fail to generate any additional real business activity. We test these competing theories using a difference-in-difference model where bordering states serve as a control group for Kansas. We find that the Kansas reform had a small, positive effect on the propensity to report income from self-employment, but failed to generate significant changes to the amount of reported income. Furthermore, we find that the reform had little impact on other forms of business income that were also subject to the exemption. Finally, we attempt to disentangle whether the reform led primarily to a recharacterization of existing income or whether the reform induced a real economic response. We find some evidence that the reform led to a recharacterization of wage income to contract labor.

JEL Classification Codes: H24, I38

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1. Introduction

In 2013, Kansas enacted a large-scale tax reform that exempted certain businesses – those taxed at the individual level rather than at the corporate level – from state taxation. These businesses, known as pass-through entities, can take on various forms including S-corporations, partnerships, and self-employment.² Over the past 30 years, total income generated by pass-through entities has grown dramatically (Cooper et al. (2015), DeBacker et al. (2015)). As these businesses become more prevalent, it is of interest to policy makers to better understand how marginal tax rates influence decisions among pass-throughs and the Kansas reform provides a unique case-study to examine this question. We use variation generated by the reform to measure the effect of marginal tax rates on individuals' choices over the decision to earn business income and how much to earn.

Using administrative tax data at the federal level, we estimate a difference-in-differences model, where four bordering states, Colorado, Nebraska, Missouri, and Oklahoma, serve as a comparison group. We draw our data from the population of administrative tax data, which we condition to include only returns that were ever filed during the period of interest in Kansas or one of the four bordering states. From this group, we draw a 10% sample, which we use for our primary analysis. In addition, we create a dataset that includes the population of those who report Schedule C (self-employment) income in 2011 in one of our sample states. We use the Schedule C sample to look specifically at those who were business owners prior to the reform as their behavior could differ from newly entering businesses. For the self-employed group, we further measure the impact of the reform on

²Pass-through entities include sole proprietorships, partnerships, subchapter S corporations, farm proprietorships, and well as income derived from rents and royalty income that is reported on an individual's tax return.

investment and employment choices.

We find that the Kansas reform led to a small increase in the propensity to report income from self-employment; however, the reform also led to small decreases in the propensity to report income from other exempted businesses as well as wage income. We find that those who live in Kansas were more likely to receive income from contract labor in the post-reform period from the same firm who had paid wage income in the pre-reform period. Taken together, these results imply that although there may have been an increase in self-employment, at least some of the increase may be due to recharacterized wage income. Although we find no significant changes to the amounts of business income reported, we see decreases in wage income reported on the tax return.

Using our sub-sample of Schedule C filers, we look at how the changes in marginal tax rates impacted the decisions of existing business owners. We find that the amount of Schedule C income reported increases in response to the reform by roughly \$300, while wage income fell by roughly \$800. We use expenses reported on Form Schedule C to better understand how marginal tax rates influence investment and labor decisions of business owners. We find no significant effect of the reform on investment. Finally, the change in marginal tax rates led to a decrease in other expenses for certain sub-samples of business owners.

Our work contributes to a growing literature that examines the impact of state taxation on business activity. A recent study by Giroud and Rauh (2015) uses firm level data and estimates elasticities for both C-corporations, which are subject to the corporate tax code, and pass-through entities, which are subject to the personal tax code, with respect to state taxation. The authors estimate corporate tax elasticities of -0.4 for C-corporations for both the extensive (number of establishments) and intensive (employment at existing firms) margins. The authors find elasticities of employment on both margins of about -0.2

to -0.3 among pass-through businesses with at least 100 employees and with operations in at least two states. Our paper compliments this line of research by focusing on decisions of pass-through business owners using individual level data.

A number of papers look specifically at the self-employed and how marginal tax rates impact decisions on both the extensive margin (whether to be self-employed) and the intensive margin (how much to earn) of labor supply. In general, this line of literature finds mixed results. While Fairlie and Meyer (1999) and Moore (2004) fail to find consistent, significant impacts of marginal tax rates on the level of self-employment, other studies have found effects, but of both signs. For example, Long (1982), Moore (1983), Blau (1987), Schuetze (2000), and Parker (2003) all find that higher marginal tax rates lead to increases in levels of self-employment. This response is reconciled by the argument that taxpayers find it easier to evade taxes on self-employment income due to a lack of third-party reporting and therefore when taxes are higher they will chose to earn self-employment income. On the other hand, LaLumia (2009) finds that lower marginal tax rates due to the phase-in region of the Earned Income Tax Credit (EITC), which serves as an earnings supplement for low income workers, led to an increase in the probability of reporting positive self-employment income. For findings of either direction, the authors' results correspond to reported income and thus it is difficult to disentangle a real response from a reporting response. Our paper hopes to shed new light on detecting real responses by looking at whether we observe the same source of income recharacterized from wages to self-employment income.

Our study is related to a much larger literature devoted to estimating the elasticity of taxable income (ETI) with respect to the net of tax share (or one minus the marginal tax rate) and the responsiveness of self-employment to tax changes. Though early estimates suggest that the ETI was quite large, often in excess of one, the more recent literature, surveyed by Saez et al. (2012), has found estimates around 0.4 for taxable income and 0.1

for broader measures of income. Several studies examine the extent to which the amount of reported self-employment income changes when marginal tax rates change. Blow and Preston (2002) find a positive relationship between net of tax share and personal income using UK data from 1985-86 and 1995-96, though the implied elasticity is unclear. Wu (2005) estimates an elasticity of the rate of return to the net of tax share of 5 using data from the 1983-89 Surveys of Consumer Finances. Saez (2010) finds significant bunching of self-employment income around the first kink point in the EITC schedule, which would imply self-employment income elasticities around unity, though no bunching is found at other kink points in the EITC schedule, implying a much smaller elasticity. More closely related to this study, Heim (2010) estimates an elasticity of reported self-employment income to the net of tax share of 0.9 using a panel of tax returns that spans 1987-96, though some of this response may be due to changes in misreporting of self-employment income.³ We provide back-of-the-envelope calculation for a comparable parameter and find an elasticity of roughly 0.4.

The remainder of the paper is organized as follows. Section 2 gives detail and background on the Kansas tax reform. Section 4 describes the data we use to identify the effects of the tax reform on pass-through business activity. Section 5 presents the results on pass-through business income and formation, while Section 6 extends these results by focusing on existing business owners prior to the reform. Section 7 concludes.

³Clotfelter (1983) and Joulfaian and Rider (1998) estimate the impact of marginal tax rates on the under-reporting of self-employment income, and find that the elasticity of the share of non-reported business income to the net-of-tax share is around 0.4 to 0.6.

2. Background

2.1. The Kansas Tax Reform

The Kansas reform represents one of the largest changes to the tax treatment of pass-through businesses in the history of state income taxes.⁴ The pass-through exemption was first proposed as part of a broader tax agenda in early 2012. The tax plan went through weeks of debate and modifications via 15 amendments ((n.d.)), but the elimination of pass-through business income taxation remained in the final plan that took effect beginning January 1, 2013. The reform additionally expanded the standard deduction, and compressed the previous three income tax brackets, with marginal tax rates of 3.5%, 6.25%, and 6.45%, to two brackets with marginal tax rates of 3.0% and 4.9%. Despite the extensive changes made on the individual side, the tax treatment of C corporations, which are taxed under the corporate income tax code, was left unchanged. Figure 1 shows the share of total revenue in Kansas between fiscal years 2003 and 2014 by revenue source. The figure highlights the change that occurred in January 2013 (second quarter of fiscal year 2013) with a large drop in revenue generated by individual taxation.

Although the Kansas reform applied not just to Kansas residents, but also to non-residents doing business in Kansas, large differences occurred in marginal tax rates for residents on either side of the Kansas border. In particular, each of the neighboring states follows a system where income earned outside the filer's home state is subject to income tax in the home state, less a credit for state income taxes paid in the state where the income

⁴News coverage identified this event as being the first time Governor Brownback had revealed his plans for making over the state's tax code (e.g. Cooper (2012)). Although most understood Brownback to be generally oriented towards tax reduction, the degree and specifics of his proposal were generally discussed as though it were a surprise and regarded as ambitious. For a detailed discussion of the Kansas tax reform, see Dickson et al. (2012).

tax was earned.⁵ Furthermore, there were no significant tax reforms that were targeted at small businesses in the period of interest. The closest comparable policies were Nebraska's elimination of the AMT and expanded carry forward rules (from 5 to 20 years), and elimination on capital gains taxes for companies that establish a program for employee stock options in 2014. Also, Oklahoma also passed an income tax cut in 2014 that is to become effective in 2016. Thus, while business owners in states outside of Kansas may have some positive benefits from the Kansas reform, there is a discontinuous jump in those benefits for those residing just inside Kansas by 2013. The reform therefore provides an opportunity to compare the behavior of Kansas residents to the residents in neighboring states for identifying the causal effects of changes in marginal tax rates on income.

2.2. Testable Implications of the Reform

Given the large change in tax rate on business income in Kansas, we might expect to see both extensive and intensive margin responses. On the extensive margin, the tax changes might induce more filers to earn pass-through business income. This could occur among Kansas residents or the change might encourage people to move to Kansas in order to start a business. Furthermore, a business owner may move from a neighboring state to Kansas in response to the tax change. On the intensive margin, the reform could induce additional growth in existing businesses through increases in net pass-through income. In

⁵For out-of-state taxpayers whose credit for taxes paid in Kansas was not limited in their home state, the reform did not change the net amount of taxes owed across all states. For taxpayers whose credit was limited, the reform could have led to a decrease in the total amount of taxes owed, but the change may be less the amount of the reduction in Kansas taxes.

our analysis, we focus on changes in sole proprietorships, partnerships, and S corporations.⁶

We further expect that the change in tax rates would affect the incentive for small business owners in Kansas to expand through changes in employment and investment. For all observed responses, while a portion may be due to true behavioral changes, at least some of the response may be due to the way income or employment is reported or characterized. For example, with a lower marginal tax rate, small business owners may have an incentive to expand their business, which may result in higher net income. At the same time, lower marginal tax rates may reduce the benefits to noncompliance and result in increased reported income, even if actual income remains unchanged.

On the other hand, the reform is less likely to generate responses if the large tax change is viewed as a temporary change. For example, if the policy is thought to be fiscally unsustainable and will need to be financed with future tax increases, then the response to the tax changes might be much smaller than suggested above. In addition, costs to business formation, costs associated with adjusting employment or business investment, and moving costs may mitigate the responses observed in the data on both the intensive and extensive margins.

3. Empirical Specification

To estimate the effect of the Kansas reform, we start with a difference-in-differences model given by

$$Y_{i,t} = \beta_1 KS_{i,t} + \beta_2 Post_{i,t} + \beta_3 KS_{i,t} * Post_{i,t} + \varepsilon_{i,t}, \quad (1)$$

⁶Farm income is also exempted from state income taxes under the Kansas reform, but we do not study such income here.

where $Y_{i,t}$ is the outcome of interest, $KS_{i,t}$ is an indicator for an individual living in Kansas, $Post_{i,t}$ is an indicator for the post-treatment period, and $KS_{i,t} * Post_{i,t}$. The coefficient of interest, β_3 represents the difference in unconditional means between Kansas and the control states, pre- and post-treatment.

In addition, we estimate alternative versions of the baseline specification that includes control variables $X_{i,t}$, year fixed effects T_t , and state fixed effects $S_{i,t}$:

$$Y_{i,t} = \beta_1 KS_{i,t} + \beta_2 Post_{i,t} + \beta_3 KS_{i,t} * Post_{i,t} + \gamma_1 X_{i,t} + \gamma_2 S_{i,t} + \gamma_3 T_t + \varepsilon_{i,t} \quad (2)$$

Finally, we estimate a third model that include fixed effects as well as time-varying control variables on the right-hand side. The regression equation given by:

$$Y_{i,t} = \alpha + \beta_3 KS_{i,t} * Post_{i,t} \gamma X_{i,t} + \phi_i + \varepsilon_{i,t}, \quad (3)$$

includes fixed effects ϕ_i .

3.1. Pre-Treatment Trends

For our identification strategy to be valid, the bordering states must serve as a reasonable control for Kansas in the absence of the policy change, where the differences between Kansas and the other states would have remained the same as in the pre-treatment period. Figures 2 and 3, which use data from publicly available tabulations from tax returns, show that this common trend assumption is supported by the empirical evidence. In these figures, Kansas and its neighboring states followed similar trends in both the average amount of Schedule C income and the fraction of filers reporting Schedule C income between 1997 and 2012.

To further ensure that the neighboring states are appropriate controls, we also ran pre-trends tests, estimating the effect of a placebo reform in Kansas in the years 2005-2012

comparing Kansas to the surrounding states. These tests (not reported here) show that the trends in the fraction of taxpayers with Schedule C income and the amount of Schedule C income were not statistically significantly different in Kansas in the years leading up to and through the reform. In addition, we've considered the mix of production industries across these five states in Table 1 and found the shares of employment in each major sector to be similar across states. Thus, we find strong support for using Kansas' neighbors as a control group in our analysis. Finally, the treatment effects we'll find are not compounded by other changes in tax policy at the state or local levels, which might impact Kansas and other states differentially at the time of the reform. There were no significant changes in state or local income or sales taxes at the time of the reform.

3.2. Migration

If individuals move states in order to take advantage the new tax preferences, then our identifying assumption could be violated if only those who are most sensitive to marginal tax rates move to Kansas. On the other hand, the motivation behind the reform in part was to encourage individuals to move to and own businesses in the state of Kansas. We provide suggestive evidence that such a spike in population did not coincide with the passage of the tax reform using Census migration data from the American Community Survey (ACS). The survey asks respondents their current state of residence and what their state of residence was a year before. For 2014 and earlier, we calculate the fraction of the population that were not in the state the year before as the in-migration rate. Similarly, for 2013 and earlier, we can calculate the out-migration rate as the fraction of people living in state j in 2013 who was not living there in 2014. Table 2 shows the migration into and out of Kansas and the control states around the time of the policy change. The table provides suggestive evidence that reform had little effect on locational choices. For our analysis, we focus on individuals who

did not change states at any point between 2010 through 2013. This restriction excludes roughly 4% of our sample. The results for the full population, presented in the Appendix, show that including movers does not substantively change our findings.

4. Data

We draw our data from the population of individual income tax returns filed in Kansas and surrounding states (Missouri, Oklahoma, Colorado, and Nebraska) from 2010 to 2013. Our sample of filers consists of a 10% random sample of all filers who lived in Kansas or a neighboring state in at least one of the sample years. We randomly sample tax filers based on the last four digits of the primary filer's social security number. We then pull information from Form 1040 and related schedules for the years 2010-2013 for our random sample. We match these data to Social Security Administration (SSA) records, which allow us to identify the gender and age of the primary and secondary filers. We exclude from these data filers who reside in a U.S. territory or outside of the U.S. during one of the years 2010-2013. This group is excluded because it is disproportionately made up of military service people and thus have different factors driving their behavior than the general population. Finally, we focus on households with primary filers ages 18 through 60.

Table 3 presents summary statistics for Kansas and the combined control states. The full estimation sample consists of almost 1.2 million tax returns, of which 185,338 come from Kansas. Around 17 percent of the sample report having Schedule C income, and 12 percent report having Schedule E income, where the fractions are comparable in Kansas to those of the surrounding states. Among those with Schedule C income, the average amount is around \$10,993 while the average amount of Schedule E income conditional on having such income is \$33,454.

Due to the nature of these tax data, which are unedited and not topcoded, there are

large outliers due to taxpayers with extremely large business gains or losses being drawn into the random sample, and due to data entry (or other) errors. This can be seen in the sample statistics for Schedule C and Schedule E income, which have unconditional means of \$1,902 and \$4,174 but have standard deviations of \$46,248 and \$104,060, respectively. As we show in the Appendix, this noise creating long tails in the distribution leads to very large standard errors in our estimates when we use the unedited amounts reported on tax returns as our dependent variables.

To handle these extreme outliers in the tax return data, in our main specifications we winsorize all continuous variables at the 95% level. When the data are winsorized in this manner, the mean unconditional amounts of Schedule C and E income increase somewhat to \$2,053 and \$3,129, while the standard deviations of these variables fall substantially to \$8,658 and \$17,716. As a robustness check, we present results when we winsorize outcomes at the 99% level in the Appendix. Although the magnitudes of these results are similar, the standard errors, as expected, are larger.

5. Results

5.1. Reporting Business Income

We first present extensive margin results for presence income from sole proprietors (Schedule C), partnerships and S-corporations (Schedule E), and wages (Form 1040) in Table 4. Column (1) shows the results from our baseline difference-in-differences model given by Equation 1, while columns (2) and (3) give the results from Equations 2 and 3, respectively. We find that the a decrease in marginal tax rate is associated with a 0.4 percentage point increase in the probability of reporting self-employment income. In contrast, the results we find a small decline in the probability of reporting Schedule E income,

though these robust to specification choice. Finally, we find that wages fall by roughly 0.2 percentage points in response.

Taken together, our results suggest that the decrease in marginal tax rate on pass-through income may have encouraged new sole proprietors among Kansas residents; however, given the decline in wages, at least a portion of that increase could also be due to recharacterized wages. In particular, an employee working for a firm may prefer to receive their labor income, which would typically be reported on Form W2, instead as contract labor income, which is reported on Form 1099MISC. Furthermore, those who receive contract labor income are required to file a Schedule C, which would look as though a new self-employment business was created when in fact income was merely recharacterized to take advantage of the tax preferences. To further disentangle the factors behind the new business activity, we look at whether the firm that issues the W2 is the same firm that issues the 1099MISC in later years. In addition, we look at subcategories of those with Schedule C income in order to distinguish a small business from a contractor. We base our definitions of a small business following Knittel et al. (2011), where we use one of two categories: (1) a Schedule C filer who has either total net income or total expenses greater than \$15,000 or (2) a Schedule C filer with total expenses greater than \$5,000. Table 5 shows that while there is not positive or statistically significant effect on the increased likelihood of a small business in the post period, there is an increase in the probability that a firm who had previously hired a worker recharacterized her to be a contractor.

5.2. Impact on Income

Looking at the impact of the reform on reported income for the full sample, Table 6 shows that while there is no statistically significant effect on the levels of Schedule C or E income, there is a statistically significant decline of \$260 in total wages. The absence of an

effect on the level of business income could be due to the fact that both existing business and new businesses are included in the sample. In particular, there may be large differences in the amount of income generated that varies by business age. Thus, we look at changes in the level of incomes for different sub-groups who reported business income in the pre-treatment years. We parse our data for each business income type into groups defined by people who had (1) business income in both 2010 and 2011 (2) positive business income in both 2010 and 2011 (3) positive business income that was greater than 50% of their AGI in both 2010 and 2011 (4) only business income and (5) both wage and business income. Group (1) limits the sample to those with existing businesses prior to the reform. Groups (2) and (3) are meant to proxy for those who had the most to gain from the marginal rate reduction, while group (4) proxies for those who are likely to be a “true” business. Group (5) proxies for those who may have more opportunity to recharacterize wages as they were earning wages prior to the reform.

Tables 7 and 8 give the results for the different subsamples of Schedule C and E income filers, respectively. For Schedule C income, the coefficient of interest are of roughly the same magnitude across groups, though results are only significant at the 10% level for those who had positive Schedule C income in 2010 and 2011. In contrast, the magnitudes for the effect on Schedule E income vary dramatically by group ranging from a decrease by \$240 to an increase of \$990. For two of the five groups, the results are once again only statistically significant at the 10% level .

6. Impact on Real Business Activity Among the Self-Employed

In this section, we focus exclusively on the self-employed to better understand whether the reform had an impact on the real economy through a proprietor’s investment and employment decisions. We examine these questions for the population of all Schedule C filers

in 2011 who resided in one of our sample states. However, before turning to expenses, we start by looking at changes in income in the population of existing firms from the prior year. Table 9 shows that for the overall sample, the self-employed reported a statistically significant increase of roughly \$290, while wages fell by roughly \$760. The decline in wages is of similar magnitude across the different subgroups, ranging from \$480 to \$1000 for the subsamples. However, the increase in Schedule C income is not present for those with positive Schedule C income that comprise over 50% of total AGI or for those with no wages income.

Although we are unable to observe actual investment and hiring decisions, we use information on expenses from the Schedule C as proxies. Firms that purchase equipment may take an annual deduction for the wear and tear of the property. Section 179 expensing further allows firms to deduct the full cost of the property in the first year of use. Thus, we view depreciation expenses as lower bound for the proprietor's total investment. Wages expense represent the total wage bill that proprietor's pay to workers. Changes in the wage bill could include changes to wage rates, changes in the number of workers, or changes in the hours worked. Furthermore, wage expenses do not include amounts paid to contract labor, which is a separate line item deduction. Due to data limitations, we observe contract income as a residual of total deductions less wage and depreciation expenses.

Table 10 gives results for changes in depreciation, wage, and other expenses found on Schedule C. We find no statistically significant effect of the reform on depreciation expenses. For both wage expenses and other expenses (which includes contract labor), the result are mixed. While both the group who had positive income that made up over 50% of their AGI in the pre-treatment years and the group with no wage income saw decreases in other expenses, those who had both wage and Schedule C income saw increases in other expenses. This pattern suggests significant heterogeneity within the self-employment group. For example, if both groups that experienced an decrease in other expenses are

“true” businesses, then it might make sense that their expenses would decline as there is less benefit to writing off total income. In contrast, the group that has both wages and Schedule c income may find it beneficial to recharacterize their wages as contract labor, in which case we would see an increase in other expenses. In terms of wage expenses, We see increases for certain sub groups, though the overall effect is small in magnitude and significant only at the 10% level.

7. Conclusion

We utilize a state-level tax reform along with a large dataset of federal tax returns to identify the impact of marginal tax rates on pass-through businesses. Our results suggest that sole proprietors, a type of pass-through entity, grew on the extensive margin due to the decrease in marginal tax rates; however, at least a portion of that change can be attributed to recharacterizing of other income sources, namely wages, in order to take advantage of lower tax rates. Similar extensive margin changes fail to materialize for other types of pass-through entities including S-corporations and partnerships.

In addition to looking at pass-through businesses more generally, we focus on sole proprietors who reported business income in the year before the policy’s announcement to test whether the reform led to any changes in real business activity. We look specifically at depreciation and wage expenses which we use as proxies for investment and employment decisions. We find no evidence that the lower marginal tax rates on net income impacted investment. Furthermore, although we do find some positive effect on wage expenses, these changes appear to be limited only to certain subgroups of the self-employed. Finally, when we look at the remainder of expenses excluding wages and depreciation, we find mixed results. Given that this aggregate expense includes a number of items such as contract labor, that we find mixed results is not surprising. Our results indicate that some proprietors may

have previously overstated their expenses to decrease their net income and thus lower their tax bill prior to the reform. As a result of the reform some proprietors may decrease their expenses as it is less valuable to lower their net income, while others may simply relabel their wage labor as contract labor to take advantage of the tax preference.

The small effects on real economic activity we find may not align with the priors of many researchers and policy makers, but they may not be that surprising in context. In particular, the Kansas reform has resulted in significant revenue losses for the state of Kansas. If tax filers believe that these tax cuts make the current state budget unsustainable, and therefore believe that the future will entail tax increases, then they are unlikely to exhibit large responses to what amounts to a transitory change in after-tax income. In addition, our data allow us to observe only the first year after the tax reform. If there are costs associated with expanding business operations or shifting to self-employment, then such changes may take time. We thus might find no short run effects of the reform, while the longer run effects are significant. We intend to continue to study how small businesses in Kansas evolve in the wake of the 2013 tax reform.

REFERENCES

- Blau, David M.**, “A Time-Series Analysis of Self-Employment in the United States,” *Journal of Political Economy*, 1987, 95 (3), pp. 445–467.
- Blow, Laura and Ian Preston**, “Deadweight loss and taxation of earned income: evidence from tax records of the UK self-employed,” IFS Working Papers W02/15, Institute for Fiscal Studies July 2002.
- Clotfelter, Charles T.**, “Tax Evasion and Tax Rates: An Analysis of Individual Returns,” *The Review of Economics and Statistics*, August 1983, 65 (3), 363–73.
- Cooper, Brad**, “Kansas Gov. Brownback Outlines Sweeping Tax Plan,” January 2012. Retrieved April 20, 2015.
- Cooper, Michael, John McClelland, James Pearce, Richard Prisinzano, Joseph Sullivan, Danny Yagan, Owen Zidar, and Eric Zwick**, “Business in the United States: Who Owns it and How Much Tax Do They Pay?,” in “Tax Policy and the Economy, Volume 30” NBER Chapters, National Bureau of Economic Research, Inc, March 2015.
- DeBacker, Jason, Vasia Panousi, and Shanthi Ramnath**, “A Risky Venture: Income Dynamics within the Non-Corporate Private Business Sector,” Technical Report 2015.
- Dickson, Martin B., Stephen W. Mazza, and Michael R. Keenan**, “The Revolutionary 2012 Kansas Tax Act,” *Kansas Law Review*, 2012, 61, 295–340.

Fairlie, Robert W. and Bruce D. Meyer, “Trends in Self-Employment Among White and Black Men: 1910-1990,” NBER Working Papers 7182, National Bureau of Economic Research, Inc June 1999.

Giroud, Xavier and Joshua Rauh, “State Taxation and the Reallocation of Business Activity: Evidence from Establishment-Level Data,” NBER Working Papers 21534, National Bureau of Economic Research, Inc September 2015.

Heim, Bradley T., “The responsiveness of self-employment income to tax rate changes,” *Labour Economics*, December 2010, 17 (6), 940–950.

Joulfaian, David and Mark Rider, “Differential taxation and tax evasion by small business,” *National Tax Journal*, December 1998, 51 (4), 675–687.

Knittel, Matthew, Susie Nelson, Jason DeBacker, John Kitchen, James Pearce, and Richard Prisinzano, “Methodology for Identifying Small Businesses and Their Owners,” OTA Technical Paper 4, U.S. Department of the Treasury 2011.

LaLumia, Sara, “The Earned Income Tax Credit and Reported Self-Employment Income,” *National Tax Journal*, June 2009, 62 (2), 191–217.

Long, James E., “The Income Tax and Self-employment,” *National Tax Journal*, March 1982, 35 (1), 31–42.

Moore, Kevin, “The effects of the 1986 and 1993 tax reforms on self-employment,” Technical Report 2004.

Moore, Robert L., “Self-employment and the Incidence of the Payroll Tax,” *National Tax Journal*, December 1983, 36 (4), 491–501.

Parker, Simon C., “Does Tax Evasion Affect Occupational Choice?,” *Oxford Bulletin of Economics and Statistics*, 07 2003, 65 (3), 379–394.

Saez, Emmanuel, “Do Taxpayers Bunch at Kink Points?,” *American Economic Journal: Economic Policy*, August 2010, 2 (3), 180–212.

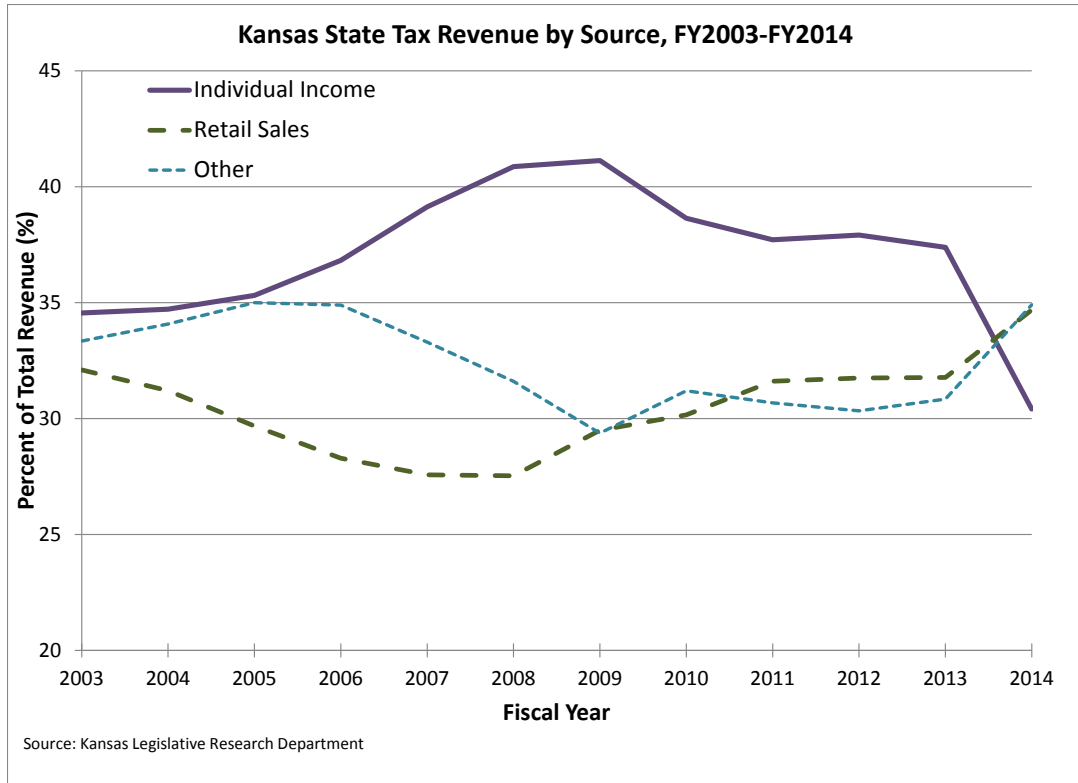
———, **Joel Slemrod, and Seth H. Giertz**, “The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review,” *Journal of Economic Literature*, March 2012, 50 (1), 3–50.

Schuetze, Herb J., “Taxes, economic conditions and recent trends in male self-employment: a Canada-US comparison,” *Labour Economics*, September 2000, 7 (5), 507–544.

Wu, Shih-Ying, “The Tax Effect on Taxable Income from Privately Held Businesses,” *Southern Economic Journal*, April 2005, 71 (4), 891–912.

Figures and Tables

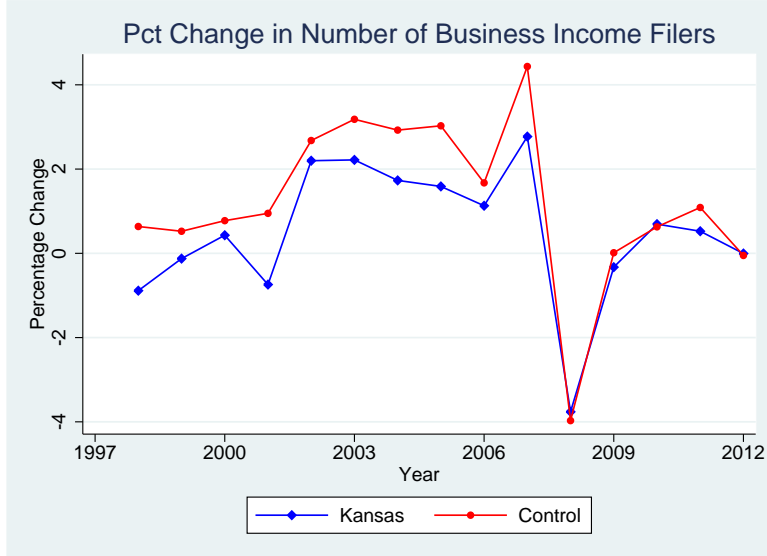
Fig. 1.—: Kansas Tax Revenue, 2003-2014



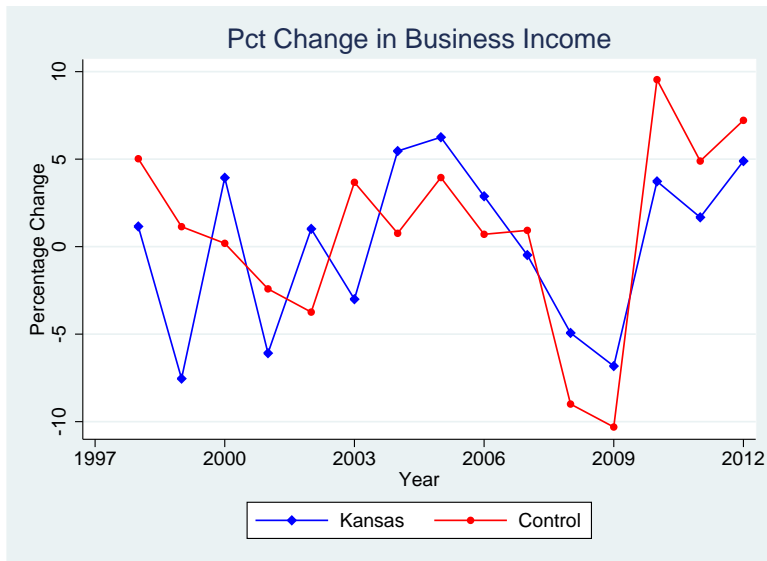
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Source: Kansas Legislative Research Department

Fig. 2.—: Pre-Treatment Trends



(a) Change in Number of Filers with Business Income

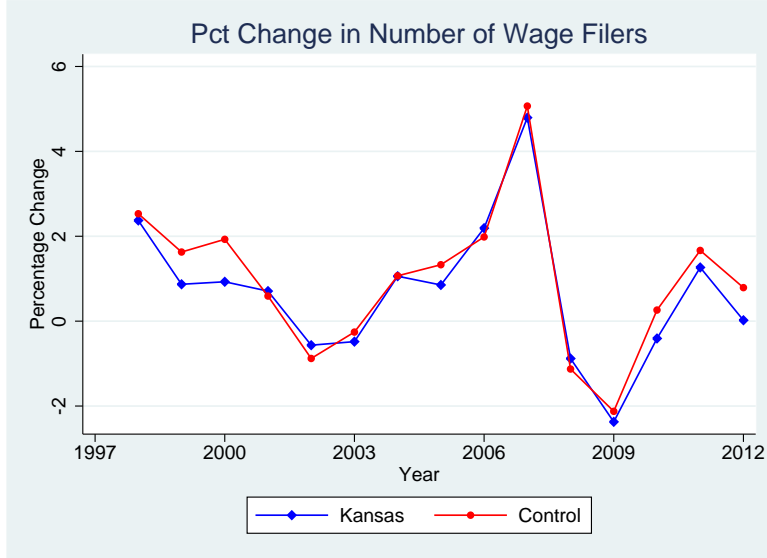


(b) Change in Business Income

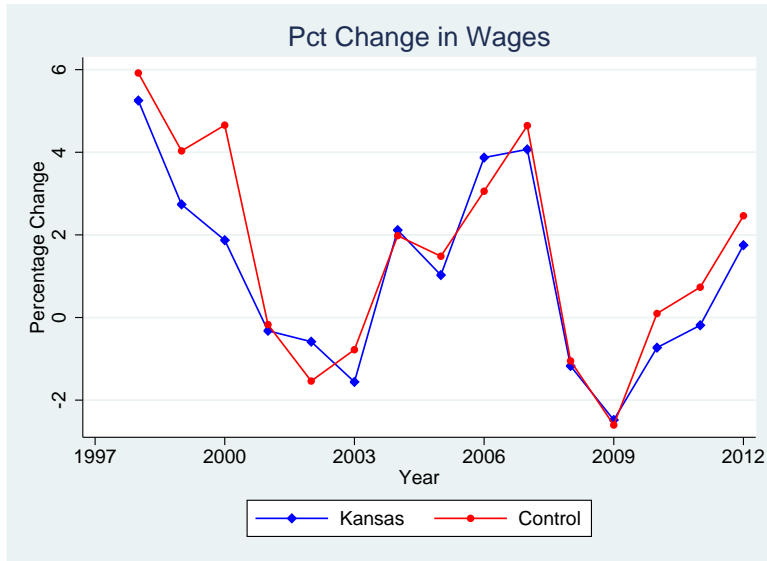
Notes.—

Add Notes

Fig. 3.—: Pre-Treatment Trends



(a) Change in Number of Filers with Wage Income



(b) Change in Wage Income

Notes.—

Add Notes

Table 1:: Average Sector Share of Employment (2010-2011)

Industry	Oklahoma	Nebraska	Missouri	Colorado	Kansas
Agriculture	0.1%	0.1%	0.1%	0.1%	0.1%
Mining, Oil, Gas	3.6%	0.1%	0.2%	1.2%	0.8%
Utilities	0.7%	0.0%	0.7%	0.5%	0.6%
Construction	5.1%	4.9%	4.6%	6.1%	4.9%
Manufacturing	9.8%	11.5%	10.5%	5.9%	13.9%
Trade, Transp, Warehouse	4.6%	5.1%	5.2%	4.6%	5.4%
FIRE, Professional	23.3%	27.3%	25.2%	32.3%	23.4%
Education Services	1.5%	2.4%	3.2%	2.2%	1.7%
Health Care	16.8%	15.4%	16.7%	12.9%	16.8%
Leisure, Hospitality, Other	17.5%	14.8%	16.7%	18.9%	15.1%

Notes.-

Add notes

Table 2:: Migration In and Out of Kansas

	Migration In	Migration Out
KS*Post	-0.0004 (0.002)	0.0006 (0.002)
Post Reform	-0.0006 (0.001)	-0.0005 (0.001)
KS	-0.0058*** (0.001)	-0.0004 (0.001)
MO	-0.0132*** (0.001)	-0.0077*** (0.001)
NE	-0.0112*** (0.001)	-0.0053*** (0.001)
OK	-0.0084*** (0.001)	-0.0071*** (0.001)
Constant	0.0393*** (0.001)	0.0329*** (0.001)
Observations	45	40

Source: American Community Survey, US Census

Table 3:: Summary Statistics, 2010-2013

	Random Sample		Self-Employed	
	Kansas	Control	Kansas	Control
Total Income	63,752	62,702	80,818	74,869
Has C	0.16	0.17	0.84	0.83
Has E	0.12	0.13	0.24	0.22
Has Wage	0.95	0.94	0.84	0.80
Schedule C Income	1,957	1,893	11,607	10,473
Schedule C Income (95% Windorized)	1,924	2,075	11,554	11,639
Schedule E Income	4,171	4,174	8,312	6,445
Schedule E Income (95% Windorized)	2,990	3,153	5,689	5,193
1040 Wages	51,922	51,346	54,579	50,687
1040 Wages (95% Windorized)	46,979	46,094	48,775	44,973
Mean Age of Primary Filer	40	40	43	43
Fraction Married Filing Joint	0.47	0.44	0.69	0.64
Observations	185,338	1,063,830	336,736	2,160,077

Notes.-

Add notes

Table 4:: Probability of Reporting Schedule C or E Income

	(1)	(2)	(3)
Schedule C			
KS*Post	0.003*	0.003**	0.004***
	(0.001)	(0.001)	(0.001)
Schedule E			
KS*Post	-0.003**	-0.002*	-0.001
	(0.001)	(0.001)	(0.001)
Wages			
KS*Post	-0.002***	-0.002***	-0.002**
	(0.001)	(0.001)	(0.001)
Demographics	No	Yes	Yes
Fixed Effects	No	No	Yes
Observations	1,249,168	1,249,168	1,249,168

Notes.–

Cluster-robust standard errors in parenthesis

** p<0.01, * p<0.05, * p<0.1

Table 5:: Changes in Number of Businesses

	(1)	(2)	(3)
Small Business (inc/ded)			
KS*Post	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
Small Business (ded)			
KS*Post	-0.002*	-0.001	-0.002*
	(0.001)	(0.001)	(0.001)
Recharacterize Wage Income			
KS*Post	0.001**	0.001**	0.001**
	(0.000)	(0.000)	(0.000)
Demographics	No	Yes	Yes
Fixed Effects	No	No	Yes
Observations	1,249,168	1,249,168	1,249,168

Notes.–

Cluster-robust standard errors in parenthesis

** p<0.01, * p<0.05, * p<0.1

Table 6:: Changes in Income Amounts

	Sched C	Sched E	Wages
KS*Post	14.23 (30.96)	23.96 (54.32)	-261.49*** (73.18)
Demographics	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes
Observations	1,249,168	1,249,168	1,249,168

Notes.—

Cluster-robust standard errors in parenthesis

** p<0.01, * p<0.05, * p<0.1

Table 7:: Changes in Amount, Conditional on Having Schedule C Income

	Pre-Treatment Restrictions					
	All	2010, 2011 Sched C	Positive Sched C	Positive; Gt 50% AGI	No wage income	Wage and Sched C
KS*Post	14.23 (30.96)	220.06 (189.78)	328.26* (188.45)	186.92 (388.96)	342.67 (457.32)	134.83 (216.97)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,249,168	167,253	115,441	39,539	32,352	120,881

Notes.-

Cluster-robust standard errors in parenthesis

** p<0.01, * p<0.05, * p<0.1

Table 8:: Amounts Conditional on Having Schedule E Income

	Pre-Treatment Restrictions					
	All	Ever Sched E	Positive Sched E	Positive; Gt 50% AGI	No wage income	Wage and Sched E
KS*Post	23.96 (54.32)	795.88* (447.54)	-240.94 (506.32)	991.34 (1,239.74)	578.31 (1,561.61)	785.21* (476.90)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,249,168	131,756	73,158	16,063	13,031	113,312

Notes.–

Cluster-robust standard errors in parenthesis

** p<0.01, * p<0.05, * p<0.1

Table 9:: Schedule C Sample: Intensive Margin Changes

	All	Pre-Treatment Restrictions				
		2010, 2011 Sched C	Positive Sched C	Positive; Gt 50% AGI	No wage income	Wage and Sched C
Sched C						
KS*Post	288.39*** (53.03)	395.57*** (62.56)	375.88*** (62.19)	44.29 (124.26)	-64.68 (150.01)	429.42*** (71.59)
Wages						
KS*Post	-761.34*** (69.63)	-894.19*** (77.65)	-995.43*** (90.25)	-718.24*** (140.42)	-477.18*** (136.69)	-766.96*** (91.90)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,496,813	1,947,611	1,339,153	462,304	381,867	1,406,469

Notes.–

Cluster-robust standard errors in parenthesis

** p<0.01, * p<0.05, * p<0.1

Table 10:: Schedule C Sample: Depreciations and Expenses

	Pre-Treatment Restrictions					
	All	2010, 2011 Sched C	Positive Sched C	Positive; Gt 50% AGI	No wage income	Wage and Sched C
Depreciation						
KS*Post	-6.68 (11.38)	-3.83 (13.82)	-17.58 (16.18)	-42.52 (37.74)	-41.31 (42.07)	16.75 (14.68)
Wage Expenses						
KS*Post	65.07* (37.10)	72.72 (45.25)	63.72 (54.24)	310.71** (129.25)	5.07 (144.40)	81.41* (46.80)
Other Expenses						
KS*Post	14.53 (49.42)	81.60 (58.02)	-29.69 (68.12)	-374.73** (150.45)	-534.41*** (173.54)	212.87*** (60.46)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,496,813	1,947,611	1,339,153	462,304	381,867	1,406,469

Notes.-

Cluster-robust standard errors in parenthesis

** p<0.01, * p<0.05, * p<0.1