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ECON 5105 Topics in Economic History
Final Research Proposal
May 6, 2019

Income Shifting in "The Great Kansas Tax Cut Experiment"[1]

Introduction

The literature on optimal income taxation suggests that high earners are especially responsive to changes in income tax rates. The reasons why, though, are still unclear. Some authors have suggested that high earners have more flexibility in the labor market and thus can more easily adjust their labor supply. On the other hand, it is equally plausible that high earners engage in tax avoidance behavior. For example, tax law permits business owners to report income from their businesses as "pass-through" income on their individual tax returns rather than pay corporate income taxes on it. The high labor supply elasticity of high earners may thus not reflect a true labor supply response but rather practices such as shifting income from one tax base to another in order to take advantage of the tax code. Determining why high earners have a high labor supply elasticity is important for the design of effective tax codes and tax reforms.

Empirical studies on optimal income taxation have frequently analyzed the tax cuts in the 1980s under President Ronald Reagan. Similar tax cuts in the 2000s and 2010s, though, have been far less studied. Researchers also tend to focus on the macroeconomic effects of the post-2000 tax cuts rather than on their lessons for tax code design. In other words, the post-2000 tax cuts are rarely analyzed from the perspective of optimal income tax theory.

In 2012, Kansas passed House Bill 2117 (HB 2117), which reduced income tax rates on high earners and eliminated all taxes on pass-through income. HB 2117 has been described as an "experiment" in tax policy: the change and its effects are relatively easy to isolate. This study will analyze tax receipt data in Kansas from 2010–2019. HB 2117 incentivized reporting income as pass-through income and this study will look for evidence of such income shifting. The results will inform future tax reforms.

House Bill 2117

The Kansas legislature passed House Bill 2117 in May 2012. Governor Sam Brownback called it "a real live experiment" in conservative tax policy and promised that it would be a "shot of adrenaline into the heart of the Kansas economy."[2,3]

HB 2117 cut taxes in three ways. First, it combined the top and middle income brackets so that the highest earners became subject to the same marginal rates as those in the middle of

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[1] Credit to Gleckman (2017) for this moniker.

[2] Rothschild (2012).

[3] Brownback (2012).

the income distribution. Second, the bill reduced tax rates at all income brackets: the marginal rate for the top/middle brackets fell from 6.45% and 6.25% to 4.9%; the rate for the bottom bracket fell from 3.5% to 3%. Lastly, the bill eliminated all taxes on "pass-through" income, which had previously taxed at 7%. Business owners (typically the owners of small businesses such as sole proprietorships, partnerships, LLCs, and subchapter S corporations) can claim the profits from their businesses as "pass-through" income on their personal tax returns (instead of subjecting the profits to corporate income tax rates). By eliminating taxes on pass-through income, HB 2117 provided both a tax break for business owners and an incentive for entrepreneurs to incorporate new businesses.

HB 2117, however, was repealed in February 2017. The tax cuts directly contributed to a fiscal crisis: by 2017, the state's budget deficit had bloomed to $900 million.[4] The economic growth that Brownback had promised also failed to materialize. HB 2117 was widely seen as a failure in the eyes of both politicians and the general public.

Despite being a relatively clear natural experiment, HB 2117 has not been widely studied. Rickman and Wang (2018) analyzed the effects of HB 2117 and similar tax cuts implemented under Governor Scott Walker in Wisconsin. After examining a range of macroeconomic indicators, Rickman and Wang concluded that both tax cuts—and the subsequent fiscal austerity measures—"did not spur growth, and if anything, harmed state economic performance." Blagg (2015) similarly analyzed the effects of HB 2117 on private sector job creation in Kansas. Blagg used quarterly, county-level data from the Census Bureau and the Bureau of Economic Analysis to compare Kansas to its four bordering states (Colorado, Missouri, Nebraska, and Oklahoma). He isolated the effects of HB 2117 and concluded that "Kansas has not experienced an increase in private sector employment due to this policy change, but rather has perhaps seen private sector employment levels fall in the year following the enactment of the policy change."

(This study owes a debt to Blagg (2015). This study will also use county-level data, which is the narrowest level of data publicly available. In addition, even though HB 2117 changed only Kansas's income tax schedule—and thus its effects are relatively easy to isolate—Kansas also collects corporate income taxes and sales taxes and so tax revenue data must be segmented by source. Thanks to Blagg for his breakdown of the Kansas tax code. Lastly, Blagg notes that tax receipts could fluctuate due to macroeconomic conditions and controls for them. This study will do the same.)

Literature Review: Optimal Income Tax Theory

The research on optimal income taxation to date has been primarily theoretical and had limited practical applications. Are income taxes too low or too high? Such a simple question becomes increasingly nuanced. To evaluate whether taxes are too low or too high, one must suppose that there is an optimal income tax schedule. But what is defined as optimal? And how is income enumerated? Households pay an entire suite of taxes—e.g., sales taxes—and respond to the tax code as a whole rather than income tax rates in isolation. Determining the optimal income tax schedule in practice is hard because tax codes are complicated.

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[4] Hobson (2017).

The conceptual framework that Mirrlees developed in 1971 has been improved upon but never seriously challenged. While there is little-to-no consensus about what income tax rates should be in practice, there *is* consensus about what researchers would need to know in order to derive an optimal rate schedule. In the decades since 1971, theoreticians have expanded upon Mirrlees's original model. Researchers have found that, in general under the Mirrlees framework, optimal tax rates are highly sensitive to their assumptions about:

(i) the social welfare function (utilitarian, Rawlsian, or non-welfarist);
(ii) the skill distribution (Pareto or lognormal);
(iii) labor supply elasticities.[5]

Hypothetically, the skill distribution and labor supply elasticities can be measured. There is still debate about the skill distribution in the general population: is it Pareto or lognormal? (Summaries of the debate can be found in Mankiw et al. (2009) and Tuomala (2016).) Mirrlees (1971) had originally assumed a lognormal distribution. He also wrote, though, that "the natural, and one would suppose most reliable, indicator of [one's] income-earning potential is his income." Saez (2001) expanded upon this to argue that the real-world income distribution could be used to estimate the exogenous skill distribution:

> [There is] no need to introduce an exogenous skill distribution. Therefore, the skill distribution in the Mirrlees model should not be considered a real economic element . . . but rather as a simplification device. . . . The skill distribution should simply be chosen so that the resulting income distribution is close to the empirical income distribution.

This is progress towards giving optimal income tax theory practical applications. If Saez's argument holds, then one only needs to measure the real-world income distribution in order to determine the skill distribution to use.

The problem, though, is that the shape of the real-world income distribution seems to vary with income level. Tuomala (2016) summarizes: "As is commonly known, lognormal distribution fits reasonably well over a large part of the income range, but diverges markedly at both tails. Pareto distribution, in turn, fits well at the upper tail." The Pareto income distribution of high earners is an especially well-established result:

> The excellent Pareto fit of the top tail of the distribution has been well known for over a century, since the pioneering work of Pareto (1896), and has been verified in many countries and many periods, as summarized in Atkinson et al (2011).

The missing piece of the puzzle are the labor supply elasticities. Mirrlees (1971) originally assumed that the labor supply elasticity was constant, i.e., that the population was homogenous in its response to tax rate changes.[6] Feldstein (1995) and Diamond (2005) made the

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[5] Mirrlees (1971) originally assumed that the population was homogenous in its response to income tax rate changes (i.e., he assumed that the elasticity of the labor supply was constant). This assumption was made for simplification purposes. Feldstein (1995) and Diamond (2005), in contrast, argued that the labor supply elasticity varies with income level. Their arguments have largely supplanted Mirrlees's original assumption in the literature.

[6] Saez (2001) assumed this too.

case that the elasticity of the labor supply likely varies with income level and that high earners in particular can be expected to have a unique response to changes in income tax rates. Their arguments have largely supplanted Mirrlees's original assumption of a constant labor supply elasticity.

High earners may be expected to be *more* responsive to income tax rate changes than low earners because high earners generally have more flexibility in the labor market. First of all, they are more likely to own assets and thus have sources of income other than wages and salaries. Their salaries are also unlikely to reflect the entirety of their compensation; they may be compensated partly with stock options, benefits plans, and job perks. Lastly, high earners tend to have more discretion over the hours that they work and, due to their higher skill level, a greater ability to find new positions.

But what does the data show? Feldstein (1995) studied the 1986 Tax Reform Act in the US (TRA86). Like HB 2117, TRA86 was reduced income tax rates on high earners: the bill cut marginal rates on the top income bracket from 50% to 38.5%. Feldstein analyzed the tax returns of middle-to-high income individuals before and after TRA86. He found a "substantial response" to the change in rates: reported pre-tax incomes were markedly higher.[7] He concluded that the labor supply elasticity of high earners "is at least 1 and could be substantially higher." Gruber and Saez (2002) used the same methodology to analyze the effects of TRA86 and the Economic Reform Tax Act of 1981 (ERTA81). Their dataset was larger than Feldstein's and included low-income taxpayers as well. They too found that high earners had a larger labor supply elasticity, which they calculated to be around 0.57. There have been numerous additional efforts to calculate labor supply elasticities;[8] Saez, Slemrod, and Giertz (2012) summarize over 122 studies. They conclude that "the most reliable longer-run estimates" of the labor supply elasticity of high earners "range from 0.12 to 0.4." While these figures are "considerably lower" than those in earlier studies,[9] it still appears that high earners are more responsive to changes in income tax rates than low earners.

TRA86 and ERTA81 are extremely well-studied in the literature. Tax return data is highly sensitive and so it is worth discussing the datasets typically used in these studies. Feldstein (1995) obtained access to tax returns through a partnership with the US Treasury. Gruber and Saez (2002) studied the Continuous Work History File compiled by the Social Security Administration (SSA).[10] The dataset was anonymized by the National Bureau of Economic Research (NBER) prior to the authors' use. The SSA's source dataset contains personally identifiable information and is not available to the public.

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[7] Theoretically, the behavioral response to income tax rate changes would also be reflected labor force participation measures (e.g., hours worked). Analyzing pre-tax income, though, has several benefits: better data, for example, as well as greater practical applicability. Feldstein (1995) and Saez, Slemrod, and Giertz (2012) explain the reasoning in greater detail.

[8] Røed and Strøm (2002) summarize the research in Europe.

[9] Saez et al. attribute this to the "better data and improved methodology" of recent studies; in addition, "the variety of tax rate changes after 1986 facilitated separating out the impact of tax rate changes from non-tax-related changes in the inequality of pre-tax income."

[10] "Continuous Work History Sample." [Database].

Why do high earners have higher a labor supply elasticity? Slemrod (1996) suggested that the high elasticities Feldstein found were actually due to the "shifting of income—for example, from the corporate tax base to the individual tax base—and not income creation such as additional labor supply." Piketty, Saez, and Stantcheva (2014) decomposed the labor supply elasticity of high earners into three components: a labor supply response; tax avoidance (this is similar to Slemrod's notion of income shifting but could also include, e.g., the illegal misrepresentation of income); and compensation bargaining. The authors examine macro-level, cross-country data and data on CEO pay in the US from 1970–2006. In contrast to Slemrod, Piketty et al. find *no* evidence of tax avoidance during this period. They find that high earners have an overall labor supply elasticity of 0.5 and they attribute 60% of this response to compensation bargaining and 40% to true labor supply effects.

These contradictory results motivated this study. There is still no consensus on how much of the labor supply elasticity of high earners is a true labor supply response versus a tax avoidance or income-shifting response. Determining this would inform the design of tax codes and future tax reforms.

Data

This study proposes a partnership with the Kansas Department of Revenue (KDOR). This study anticipates that the HB 2117 may have been more successful along certain dimensions than is popularly assumed. The results will inform Kansas policymakers considering future tax reforms.

The best source of income tax data would be the K-40 tax returns of Kansas residents. This is clearly highly sensitive information. Under K.S.A. 79-3234, the secretary of revenue may

> disclose taxpayer information from income tax returns to persons or entities contracting with the secretary of revenue where the secretary has determined disclosure of such information is essential for completion of the contract and has taken appropriate steps to preserve confidentiality.[11]

KDOR will need to anonymize the data (i.e., remove personally-identifying information) before providing it to the research team. Gruber and Saez (2002) removed the first five digits of every social security number but last four digits as a unique identifier (UUID) for each record. KDOR and the research team will take every precaution to protect the data and the privacy of taxpayers.

If KDOR is not willing to partner with the research team, then the study can use the county-level income tax data that KDOR makes publicly available.[12] This was the strategy used by Blagg (2015). The county-level income tax data could also be cross-referencing with annual county-level population figures from the Kansas Division of the Budget[13] in order to yield per capital income tax payments for each county. This would approximately identify counties with

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[11] Kansas State Legislature (2018).

[12] "Annual Report." [Database].

[13] "Kansas Certified Population Data." [Database].

more high-earning residents. A greater proportion of businesses created in high-earning counties would suggest income shifting.

Data on new businesses can be obtained from the Kansas Business Center (KBC).[14] For every business in Kansas, the KBC public records list its status (e.g., "active and in good standing"), its date of formation, and its address. Unfortunately, this data can only be accessed via the Business Entity Search Station (BESS). BESS is designed to allow users to look up the records of specific businesses; it does not offer datasets. Collecting the BESS data into a usable form will require significant work. This study would thus also benefit from a partnership with the KBC. The KBC may be willing to provide access to their source database. Kansas business data is in the public record, just not currently easily accessible.

In all cases, data will cover the years 2010–2019. This range will capture the effects of both the implementation and the repeal of HB 2117.

Empirical Model

If the research team successfully partners with KDOR, then the following model will be estimated:

$$(1) \quad income_{it} = \beta_0 + \beta_1 \ln(salary_{it}) + \beta_2 \ln(salary_{it-n}) + \beta_3 \ln(bizinc_i) + \beta_4 \ln(bizinc_{it-n}) + \beta_5 \ln(otherinc_{it}) + \beta_6 \ln(otherinc_{it-n}) + \beta_j X_{jt} + \beta_k Z_{kt} + u_{it}$$

where *income* is total reported pre-tax income; *salary* is all income from labor (i.e., salaries/wages); *bizinc* is pass-through income from a business the taxpayer owns; *otherinc* is income from all other sources (e.g., capital gains, interest, dividends, etc.); X_j are controls for macroeconomic conditions; and Z_k are controls for demographic characteristics (e.g., filing status (single vs. married), age, gender, etc.). Log instruments are used to capture percentages, i.e., the proportional contribution of each income type to total reported pre-tax income. The model is level-log and so β_1–β_6 are semi-elasticities.

The model is a time series regression as per Slemrod (1996) and Gruber and Saez (2002).[15] Gruber and Saez (2002) estimate 1-, 2-, and 3-year lags to capture lagged responses to changes in the tax code. Taxpayers might not respond to changes in the tax code immediately but rather over time. In Kansas, for example, it may take some time for taxpayers to set up new businesses to take advantage of the pass-through rules.

The primary variables of interest are β_3 and β_4. HB 2117 incentivized reporting a greater share of income as pass-through income (since pass-through income would be untaxed) and so these coefficients are expected to be positive. β_1 and β_2 are of secondary interest; both are expected to be positive (since the reduction in the income tax incentivizes work) but small in magnitude. Salaries are codified in contracts and so they may be "sticky" over the time frame being considered. β_5 and β_6 are of tertiary interest and could be positive or negative. If β_3 and β_4

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[14] "Business Entity Database." [Database].

[15] I have never studied time series regressions and my Applied Econometrics class did not cover them. I researched time series regressions in Wooldridge (2016) but I suspect that I am still implementing them incorrectly.

are positive, statistically significant, and economically significant, then this would suggest that taxpayers are shifting their sources of income in response to the tax code changes.

If the research team cannot successfully partner with KDOR, then data will be compiled from the publicly available KDOR and KBC statistics and the following model will be estimated:

$$(2) \qquad ctyinctax_{it} = \beta_0 + \beta_1 ctybiz_{it} + \beta_2 ctybiz_{it-n} + \beta_j X_{jt} + \beta_k Z_{kt} + u_{it}$$

where *ctyinctax* is the revenue collected from the income tax at the county level; $ctybiz_t$ is the number of businesses (active and in good standing) in a county in period *t*; and $ctybiz_{t-n}$ is the number of businesses (active and in good standing) in a country in the lagged period *t-n*.

β_1 and β_2 are the variables of interest. They are expected to be negative: income tax revenue should be negatively correlated with the number of businesses in a county.

Anticipated Results

This study expects to find evidence of income shifting

In (1), business income is expected comprise a greater share of pre-tax income beginning in 2013.

In (2), county-level income tax revenue is expected to be negatively correlated with the number of businesses in a county. There should be a stronger negative correlation beginning in 2013.

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