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Tax Reform and Farm Households*

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Abstract

Federal tax policy affects the economic behavior and well-being of farm households, as well as the management and profitability of farms. Recent calls for reforming current tax law could fundamentally changing the Federal income tax system by eliminating most itemized deductions and modifying credits, while restructuring capital gains and dividend tax rates, lowering tax rates on individual and business income, as well as reducing the number of tax brackets. At the same time, the Tax Cuts and Jobs Act calls for the expansion of some business provisions, and in particular that relate to capital cost recovery. The reforms, if enacted, could have a significant impact on the after-tax income and well-being of both farms and farm households. This paper uses farm-level data from USDA's Agricultural Resource Management Survey to examine the current tax situation for farm households and to evaluate the impact the Tax Cuts and Jobs Act may have on them.

Keywords: Tax Reform, Taxation, Tax Rate, Farm Investment Demand, Cost Recovery, Bonus Depreciation, Section 179, Farm Household Well-being

JEL Classification Numbers: Q1, Q14, H25, D24.

Introduction

A major push for tax reform in the United States is currently underway. It would be the first major rewrite of the tax code in several decades and could potentially impact not only domestic residents but the global economy. Federal tax policy has the ability to affect the economic behavior and well-being of farm households, as well as management and profitability of farm businesses. Tax rates and tax preferences for certain activities affect not only after-tax income of farm households but also influence economic decisions.[1] Likewise, farm businesses are impacted by individual tax rates and business tax preferences provided by deductions, credits and other provisions.[2] Together, provisions of the tax code affect the welfare of family-farm households and the bottom lines of their farm operations.

This article provides estimates of the direct economic impacts that major tax reform plans would have on farm households and business. The study emphasizes not only the aggregate impacts, but also the heterogeneous effects on farm households in different income groups; and, unlike other studies, in the properties and impacts of the tax regimes over a business cycle. The Great Recession reminded us that business cycles are important features of the economy and therefore it is critical to take them into consideration when analyzing taxes. Figure 1 shows that farm household income moderated between the 2007 and 2010 period, and expansed between 2011 and 2016. The tax reform plans we examine are based on the 2017 Tax Cuts and Jobs Act (TCJA) as proposed in the House of Representatives and the Senate. Henceforth we refer to the House version of TCJA as the "House Bill" while the Senate version of the TCJA is referred as the "Senate Bill."

We find that the TCJA reduces aggregate tax liabilities by at least $65 billion (in 2016 real dollars) on tax receipt from farm households over a ten-year period; however, there is significant heterogeneity in the allocation of the tax saving across different groups. Both tax reform plans decrease the average effective tax rate for farm households by an average of 3 percent over the ten-year period. Farm households with income between the 20th to 80th percentile see a modest reduction in their effective income tax rates, while wealthier households, the top 10 percent and top 1 percent, see the biggest decreases in their rates. Under both reform plans, the lowest quintile of farm households would see an increase in their total tax liability (net of credits and deductions).

To obtain our results, we develop an individual tax model (ITM) to estimate tax variables for the farm operation and farm household using a nationally representative sample, and apply the major tax code provision changes to simulate their effects on farm household finances, both under current tax law as in effect in 2016 ("current law") and based on proposed changes in the TCJA. The analysis

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[1]Decisions such as labor force participation and labor allocation (hours worked), personal investment, timing of income realization, housing decisions, and even decisions about family formation (Slemrod, 1995; Heckman, 1993; Eissa and Liebman, 1996; Dickert-Conlin and Chandra, 1999; Saez, 2002; Saez et al., 2012).

[2]These tax preferences include special provisions that allow farms to allocate income and net losses across years to help smooth tax liabilities from characteristically volatile farm business earnings; farms employing labor are allowed an extra deduction for wages paid, potentially affecting hiring decisions; and farm capital investment is subject to accelerated cost recovery provisions that effectively lowers the cost of capital (LeBlanc and Hrubovcak, 1986; Ariyaratne et al., 2009; Williamson and Stutzman, 2016).

is performed at the household level, and the tax model is used to estimate (i) overall tax liability for farm households' federal income tax, and (ii) distributional effects of current law and the TCJA. We estimate the impact of the TCJA on farm households, because for most farm operations, farm income flows untaxed from the operation to the farm household where it is taxed at the individual level along with the farm household's other income; therefore, the impacts of tax reform are the result of the interrelatedness of individual and business tax reform.[3] Our model is rich in detail and is able to account for key items of the individual income tax, such as the alternative minimum tax, capital gains treatment, itemized deductions, earned income credit, child credits, multiple business deductions and other features of the income tax code.

We use repeated cross-sections of farm household-level data from ten years of the USDA's Agricultural Resource Management Survey (2007-2016) to simulate the impacts of tax policy over a decade of actual economic activity, inclusive of external shocks, cyclical entry/exit, and investment decisions. In order to test for the performance of the TCJA across the farm business cycle, we hold the tax law parameters constant across time and adjust nominal variables in the dataset using the Consumer Price Index with 2016 as the base. Thus, our model estimates the effects of tax reform over a decade, but rather than relying on growth projections and other assumptions, we use past data that captures the inherent stochastic nature of business cycle. We believe that this approach gives us an advantage over competing analysis whose conclusions are not robust to changes in the growth projections, let alone switching from growth to contraction.

In the next section we discuss the background of the Federal income taxation of farm households and farm operations. In Section III we describe major tax provisions affecting farm operations and the changes as proposed by the TCJA. Section IV briefly describes the data employed in the analysis. Section V presents the results of the tax simulations, and finally Section VI concludes the paper.

Taxation and Tax Reform Provisions

The vast majority of farms are pass-through entities, and as such, income from farming is subject to the federal individual income tax, rather than the corporate income tax. Data collected in the ERS/NASS Agricultural Resource Management Survey (ARMS) shows that pass-through entities are the predominant form of legal organization for farms in the United States. Figure 2 shows the types of legal organizations of family farms since 2009.[4] In 2016, farms organized as these types of pass-through constituted over 98 percent of family farms and almost 92 percent of the total value of agricultural production in the United States. Seven and a half percent of these family farms were

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[3]This research examines direct impacts to farm households and business provisions due to tax reform. However other indirect impacts may also affect farms and farm households. For example, changes to tax credits for production of biofuels may affect farm households through its effect on commodity prices. The measurement of such indirect effects is beyond the scope of this report.

[4] A "family farm" is any farm where the majority of the business is owned by the operator and individuals related to the operator.

registered LLCs.[5]

Farm households receive income from both farm and off-farm activities, and for most, off-farm income accounts for a large share of the household's total income. In many cases, farms have negative net income (losses) when business expenses including depreciation and deductions for capital investments exceed farm earnings. In this case, farm losses may be used to offset off-farm income. Since 1980, farm sole proprietors as a group have reported negative aggregate net farm income for tax purposes and, over the last decade, both the share of farmers reporting losses and the amount of losses reported have increased.

Because taxes on farm income are paid at the individual level, under the TCJA, changes to the individual income tax system, farm households could experience significant changes to their after-tax incomes. Furthermore, any reform of the Federal income tax code could also impact investment, management, and production decisions in the agricultural sector.

The remainder of this section discusses some of the most important tax provisions for the farm sector. Readers can skip the remainder of this section and refer to table 1 for an even more succinct summary than the one below. In addition to discussing the proposed changes and contrasting to current regulation, some statistics are provided to illustrate the relative importance of each provision to farm households and businesses.

Individual Income Tax Brackets

The 2017 TCJA would reduce marginal tax rates, and in the House Bill, reduces the number of brackets, from its current seven (see table 1 for a side-by-side comparison of current law and the TCJA). The House and Senate versions of the TCJA each have their own rates and bracket structure; the House version compresses the seven current brackets into four, while the Senate retains the number of brackets as under current law, but significantly increases the income thresholds of most brackets.

Pass-through Income Treatment

The TCJA provides preferential tax treatment to income from pass-through entities, but the House and Senate versions each achieve that goal in very different ways. The House version of the TCJA proposes to tax a portion of pass-through income at a reduced maximum marginal rate of 25 percent. The Senate version of the TCJA provides a 23 percent deduction business income instead of the House's 25 percent marginal rate. Under current law, income from farms organized as pass-through

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[5] Along with the above mentioned business forms, farms may also choose to form a hybrid-type business structure known as a Limited Liability Company (LLC), which are registered by individual states and regulated by state statutes. An LLC may be organized as a sole proprietorship, partnership, or S or C corporation, and it is up the members to elect the organizational designation. An LLC is in many ways similar to other pass-through entities (except for those organized as C corporations), namely that the profit or loss from the business is distributed to the members (owners) and each member pays taxes on the profit (recognizes the loss) at the individual level on their personal income tax returns. In this sense the LLC is a "pass-through" entity.

entities (sole proprietorships, partnerships, and S-corporations) are taxed at the individual level and may be subject to statutory maximum rate of up to 39.6 percent.

Standard and Itemized Deductions

Under the TCJA, all itemized deductions would be eliminated except deductions for mortgage interest and charitable donations. Personal exemptions would be eliminated and the standard deduction would be nearly doubled for a single individual from its current $6,300; married individuals filing jointly would be allowed a standard deduction of around $24,000.

Child Tax Credit

The total child tax credit is increased to $1,600, in the House Bill, $2,000 in the Senate version, up from $1,000 under current law. However, the refundable portion of the child tax credits remains the same as current law. The phase-out threshold for the credit for married individuals filing jointly is also increased. Under the House Bill, the credit would not face a phase-out of the credit until earnings reach $150,000; under current law the phase-out begins at $110,000. The Senate version is more generous and sets the phase-out level at $500,000.

Alternative Minimum Tax

The House version of TCJA eliminates the Alternative Minimum Tax (AMT). We estimate that, under current law, 3.4 percent of farms would owe AMT tax in 2016 for an average amount of $8,366, conditional on owing tax. Because AMT targets higher income individuals, it is not surprising that small farms were the least likely to owe AMT (1.6 percent) since they have on average lower adjusted gross incomes (AGI) than midsize and larger farms. In contrast, about 39 percent of large farms owed AMT for an average amount of $10,761.

Long Term Capital Gains

The TCJA maintains all aspects of current law regarding the long term capital gains taxation with the exception of the net investment tax. The current tax rate on long-term capital gains is 0 percent for taxpayers in the 10 or 15 percent income tax brackets, 15 percent for taxpayers who are below the 39.6 percent income tax bracket, and 20 percent for those in the 39.6 percent bracket. The net investment tax is a 3.8 percent surtax assessed on certain high-income taxpayers.

Under current law, many of the assets used in farming or ranching are eligible for capital gains treatment including breeding, dairy, draft, and sporting purpose livestock. In 2016, USDA survey data suggests about 36 percent of all family farms reported some capital gains or losses, both from the sale of farm assets and non-farm assets while IRS data indicates the average individual taxpayer is far less likely to report a capital gain or loss (13.6 percent). In additional to reducing the capital gains taxes paid, a reduction in the tax on capital gains could have a significant impact on the land

market. In terms of value, land represents the largest asset by held farms, and because appreciation in land's value is considered a capital gain and realized upon its sale, a reduction in the capital gains may increase the incentive for farm land sales by reducing the so-called "lock-in effect" whereby assets are held longer, all else equal, in order to forego the tax on the gain.

Farm Business Deductions

Section 179 of the Internal Revenue Code allows a taxpayer to recover the cost of investments by deducting or "expensing" the equipment in the year of the purchase, within certain limits. In addition to Section 179, Section 168(k) allows farmers to take "bonus depreciation" beyond the Section 179 limits. The two provisions may be used in coordination, which has meant that much of the capital purchases made during the past decade were eligible to be completely deducted in the first year.

Under the TCJA, capital cost recovery through the section 179 deduction will not be limited to a maximum amount, but instead the deduction will be allowed to the extent of the cost of the investment. Under the House version of the TCJA, the maximum amount is increased to $5,000,000; the aggregate investment limit is $20,000,000 before deduction phases out. Under current law in 2017, the maximum amount of investment cost that can be deducted under section 179 is $510,000; the aggregate investment limit is $2,000,000 before deduction phases out.

While recent evidence of the effect of cost recovery provisions in the tax code suggests that the deductions can have an effect on incremental investment, the effect is likely to be small. In the case of section 179, it was reported that for every $1,000 increase in the section 179 expensing amount, farms that had been previously constrained by the section 179 limit made an incremental capital investment of between $320 and $1,110 (Williamson and Stutzman, 2016).

Under current law, interest paid on debt that is used to finance the purchase of business property or to finance business activity is generally deductible by the farm as an expense.[6] In 2016, the farm sector reported paying $8.7 billion in total interest (excluding interest paid on the operator's dwelling).

Under the TCJA, the business interest deduction is limited to 30 percent of business income, while businesses with less than $25 million of gross receipts are exempt from the limitation. The deduction can be of significant value to some farms, and the tax value of the deduction varies by the farm's marginal tax rate. Conditional on having an interest expense, the average amount reported by a farm in 2016 was $14,297. Overall, larger farms carry more debt and thus have larger interest expenses than smaller farms. Small farms reported an average of $6,994, while mid-sized farms had $23,607. Large farms had more than twice the interest expense of midsized farms ($49,544), potentially worth $19,619 in expense deductions if the farm is in the top marginal tax bracket.

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[6]There are exceptions to the deductibility of interest. Interest that must be capitalized cannot be expensed, nor can fees paid for funds the may be used on a standby basis. Interest paid on loans from a life insurance policy is also not qualified for the expense deduction.

The TCJA eliminates the Domestic Activities Production deduction. An estimated 7 percent of farms directly benefit from the section 199 deduction. The deduction is limited to the lesser of 9 percent of adjusted gross income from domestic production activities income or, 50 percent of wages paid to produce income from domestic production activities. While the wages-paid provision limits the applicability of the deduction for many smaller farms that hire little or no labor, larger farms do have significant labor expenses. In 2016, family farms had nearly $28 billion in labor expenses. The average deduction for eligible farm households—those with labor expenses and income from qualified production activity—was $5,669. Among farms, commercial farm households are the primary beneficiaries since they are more likely to report both positive farm income and wages paid to hired labor.

Farmer-owned cooperatives are also eligible for the section 199 deduction, and the cooperative may return the deduction to its members-owners when it pays out patronage dividends. The value of the deduction to the farmer is based on his/her effective marginal tax rate; the higher the rate the great the value of the deduction. In 2016, nearly 290,000 farm households (about 14 percent of all farm households) reported receiving patronage dividend income, and on average the amount was $4,356, for a total of $1.26 billion.

Data

We use farm-household level data from the Agricultural Resource Management Surveys for 2007 to 2016. These datasets provide information about the farm businesses operation and also data on the household of the survey responder. Sample weights are provided that target a representation of the farm population in the United States.

We clean the raw data and convert all nominal values into 2016 real dollars. We drop observations missing data for total household income or farm business income. For observations missing other variables such as dividends received, capital gains, and household expenses; we input a zero.[7] We use the annual CPI to deflate all nominal values into 2016 real dollars. We choose the annual CPI measure because under current tax law, it is used to adjust income tax brackets and other tax code variables for inflation.

Farm businesses legally constituted as a subchapter C corporation are dropped from the sample. As mentioned in the previous section, the overwhelming majority of farms businesses are constituted as pass-through entities for tax purposes and corporations make a little over 1 percent of the weighted sample for any given year. We exclude households of C corporation farms because we do not have information regarding the corporation as a whole but only about the farm operation being surveyed. Hence, the necessary information to compute taxes paid under the corporate tax code is missing; furthermore, the farm household information would not distinguish whether the income

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[7]As a robustness check, we conduct all experiments using only observation with no missing data. The results don't differ qualitative.

received from this farm operation was in the form of wages, dividends, profit sharing or other forms of compensation.

Table 2 presents descriptive statistics of the cleaned dataset. For every year other than 2016, the dataset targets over 2 million farms (weighted frequency) through approximately 20,000 actual observations in most years. The number of farms (not including those registered as corporations) have shown a steady decline over the last decade. Average farm household income is well above that of the general population. The income numbers show two contrasting time periods in the dataset: lower income for the first half of the decade and improving and booming average income for the latter half.

The summary of income components in Table 2 illustrates the varied sources of income farm households receive. In 2016, total average income for a farm household was $117,881, with wages from off-farm earnings making up the greatest source of earnings overall. Pass-through income, coming from the farm operation and from other farm business endeavors, was a combined $44,726. Farm households also had earnings from off-farm business, $11,658 on average, also pass-through income. Sources of capital gains, were on average, smaller in amount—$1,307 on average from off-farm capital gains sources, and $1,055 from farm capital gains.

Tax Simulations

We built a model that estimates personal income and payroll taxes at the farm household level using the dataset presented in the previous section. Our model is rich in detail and accounts for the majority of components contained in a indivdual income tax return (IRS Form 1040). With the data, we can estimate provisions such as the alternative minimum tax, long term capital gains, earned income credit, child credits, self-employment (SE) taxes, itemized deductions and others. An online appendix contains the full details of the model including the programming codes used in this article.

We provide a comparison of tax estimates under 3 different tax regimes over a 10 year period. The "current law" regime uses the regulations, rates and thresholds of the 2016 tax code. There are two "reform" regimes based on the TCJA: one sets parameters and regulations found in the House version of the bill (passed on November 16, 2017) and the other sets parameters and regulations found in the Senate version of the Bill (passed on December 2, 2017).

The use of household-level data for a 10 year period gives our tax reform analysis an edge over competing analysis. Since, we use household-level data from the 2007 to 2016 period, our estimates account for external shocks and show the performance of the different tax regimes over a whole business cycle (contraction and expansion).In contrast to our study, most reports on the subject of tax reform present effects over a 10 year period *into the future*. These analyses must make assumptions regarding the growth rate of the economy and most importantly, they do not account for the presence of business cycles which are important features of the economy as we were painfully reminded during the Great Recession. As well, major reforms to the tax code are few and apart

through time; thus, it is highly likely that a given tax regime would be in place through recession and expansion periods of the economy.

Aggregate Tax Liabilities and Allocation of Tax

Figure 3 shows that both versions of the TCJA significantly reduce the tax liability of farm households over the 10 year period: $60 billion under the House Bill and about $76 billion under the Senate Bill. While both tax reforms have similar costs, the type of tax that accounts for the reduced liability is different for each plan. Under the House Bill, personal federal income tax liability is reduced by about $23 billion, while the self-employment (SE) tax accounts for $36 billion of the tax reduction. In contrast, under the Senate Bill all but $0.016 billion is due to a reduction in income taxes. The small loss in SE taxes under the Senate Bill is driven uniquely by the repeal of the Additional Medicare Tax. On the other hand, the House plan considers 70 percent of the pass-through income as wages to be taxed under ordinary income and thus only the remainder 30 percent is subject to SE taxes.

The Alternative Minimum Tax, eliminated in the House version of TCJA, is estimated to tax liability by close to $10 billion over the 10 year period under current law. From Figure 4 we can clearly see that this tax pro-cyclical with respect to farm household income and thus higher tax revenues from this tax item were collected during the latter half of the 10 year period. Table 3 provides average values for total income, wages and farm income for taxpayers owing AMT versus those who don't. For 2014, the year of peak farm income, we estimate that AMT affected 6 percent of farm households who had an average AMT liability of $9,425. For all other years, less than 5 percent of farm households see any liability from AMT. The average income figures for the group that owes AMT are considerably higher than the values for the group not owing AMT. During the expansion cycle, farm income for the group with AMT liabilities is more than 10 times that of the group with no liabilities while, during the contractionary period, the factor is between 25 to over 100.

We estimate that the Senate version of AMT would bring tax liabilities of $2 billion in excess of those under current law over the ten year period. The purpose of AMT is to limit the amount of itemized deductions and exemptions that high income households can claim. Since many deduction, exemptions and credits have income phase-out levels, the AMT falls primarily on high middle income households. The Senate Bill raises the exemption amounts and income thresholds of AMT but also eliminates the income limitations on itemized deductions thus allowing high income households to claim itemized deductions. Table 3 shows that average income and wages for households liable for AMT in the Senate plan is significantly higher than the same group under current law. Furthermore, the average AMT liability is about double under the Senate Plan.

Average Effective Tax Rates

Effective tax rates illustrate the actual tax burden imposed on taxpayers under the different tax models. We follow the literature at large and use the following definition for average effective tax rates:

$$\text{Avg. Tax Rate} = \frac{\sum_{i=1}^{N} \tau_i \times \omega_i}{\sum_{i=1}^{N} M_i \times \omega_i}$$

where N is the number of subjects in the group, τ_i is the tax liability or refund of taxpayer i, M_i is total income (inclusive of capital gains) of taxpayer i and ω_i is the sample weight. This definition of average effective rates allows us to circumvent the problem of computing effective rates for individual taxpayers with tax refunds (negative tax) and negative incomes. The issue of negative taxes is important in this article as our federal income tax estimates are net of other taxes and credits (earned income credit and child tax credits).

The aggregate average effective rates for federal income tax and SE tax decrease under both versions of TCJA. Table 4 presents the estimated effective rates for the years between 2007 and 2016. The TCJA reduces the average effective rate of total taxes (federal income tax plus SE tax) by 2.6 percentage points in the House Bill and 3.3 percentage points in 2016. As expected from the discussion of tax revenues, the Senate Bill does not change the average effective rate of the SE tax while the House Bill reduces the effective SE tax by 1.5 percentage points.

The average effective tax rates by income groups exhibit considerable variation which is masked in the aggregate measures. Table 6 shows the effective tax rates by income group across the years.[8] Effective average tax rates for farm households in the middle range of the income distribution (20–80th percentile of income) are much lower than the overall average. These farm households would see their effective federal income tax rate fall under the TCJA, but not by as much as the average farm household, or between 0.5 and 1.6 percentage points. Further, farm households in this group face a higher average SE tax rate than farm households overall under all tax scenarios.

As expected, the effective average tax rates for farm households in the 90-99th percentile income group are higher than the overall average. Under the House Bill, the 90-99 income group would see a reduction of 3.4 to 4.7 percentage point in their effective total tax rate while the Senate Bill decreases such rate in over 5 percentage points across all years. Because of the income cap on the Social Security portion of the SE tax, the 90-99 income groups faces a lower average SE tax than the overall group. This property is maintained in the tax reform scenarios.

Allocation of Tax Breaks

Figure 5 examines the allocation of the reduction in taxes, net of SE taxes, across the farm business cycle for the House and Senate versions of the TCJA. The figures represent the percent share of the total tax reduction. Overall, farm households in the top 10 percent of the income distribution receive over 53 percent of the tax reductions proposed in the House version of the TCJA, while they

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[8]Income quantiles levels by year are presented in Table 5

receive 71 percent of the total break under the Senate version. Much of this is the results of the the Senate version allocating greater tax reductions to higher-income farm households–particularly farm households in the top 1 percent–due to lower maximum marginal tax rate and preferential treatment of pass-through income. And much of this gain comes at the expense of farm households in the third quintile income group. Under the House version, farm households in the third quintile income group (40-60th percentile group) experience a larger share of the tax cuts relative to the Senate version. Farm households in the first and second quintiles will also experience smaller breaks under the Senate version of the TCJA, though the change is smaller. Finally, farm households in the bottom quintile of the income distribution are made worse off by TCJA, once SE tax are accounted for. The negative shares for the 20th percentile income group mean that, net of SE tax, they owe more under both the Senate or House version of the tax reform, relative to current law.

Progressivity

The previous section highlighted that there is a heterogeneous impact on average effective tax rate depending on the income group; thus, it is natural to analyze impact of tax reform on the progressivity of the tax system. Our estimates show a sizeable reduction in farm household tax liability; therefore, we examine the allocation of these tax savings among the different types of farm households. Finally, we also highlight the evolution of the progressivity measure along the cycle for farm household income.

Progressivity in the Tax Code

To gauge the progressivity of the tax code we compute the Stroup index for the different tax code scenarios using a modified Gini coefficient that allows for negative income. Stroup (2005) proposed a measure for tax progressivity which is analogous to that of the Gini coefficient.[9] The interpretation is simple: the extreme value of 1 indicates a tax system in which the richest person pays all taxes while zero indicates that all tax liability falls in the poorest person. The advantage of the Stroup index is that it accounts for the underlying income inequality in the data. Since we are interested in the performance of the tax policy over the farm business cycle, it is important to account for the potential changes in income inequality during the contraction period and then in the expansionary period.

Figures 6 and 7 show the time series of the computed Stroup index for federal individual income tax and total taxes (income taxes plus SE taxes), respectively. We observe that individual income tax progressivity of the current tax code is more stable than that of the TCJA. Surprisingly, progressivity of the individual income tax under current law is counter-cyclical or in other words, it becomes less

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[9]The Stroup index computes the Lorenz curve for the tax measure (for example federal income taxed) in which the order of the x-axis is based on the income. Then, the Gini coefficient is computed using the Lorenz curve for incomes as the reference line rather than the 45 degree line.

progressive when farm income is higher. When total taxes are considered, the Stroup index values under current law present little variability over the time period.

Using only individual income taxes as the tax measure, we find that the TCJA results in a less progressive system across all years. Figure 6 clearly shows that the Stroup index is consistently lower than current law over the study period. The difference in the progressivity relative to current law becomes more pronounced during the period of low income (2007-2011) and then catches up partially due to the decrease in progressivity of the current law for the latter half of the sample period. This property once again highlights the importance importance of considering the properties of tax system over a business cycle and not only over periods of growth.

Using total taxes as the tax measure provides an interesting result for the House version of tax reform: the progressivity relative to current law shift from less to more in sync with the business cycle of farm incomes. From Figure 7 we can immediately observe that the Stroup index values for current law and the House plan cross between 2011 and 2012. The time period to the left of this point is characterized by lower farm incomes over the ten-year cycle, and the resulting Stroup indexes portray a less progressive system under the reform plan. In contrast, the latter half of the time period in our sample is characterized by higher incomes and the estimated Stroup indexes point to a more progressive system under the House version of tax reform.

Conclusion

In this paper we examine impact of the Tax Cuts and Jobs Act's on farm household tax liabilities and compare them to current Law. The TCJA calls for the elimination of most itemized deductions, a modification of credits for children and dependents, as well as restructuring of tax brackets, and taxing capital gains income at a lower rate, relative to current law. Under current law, income from farms organized as pass-through entities (sole proprietorships, partnerships, and S corporations) are taxed at the individual level and therefore may be subject to statutory maximum rate of up to 39.6 percent. Among its other provisions, the TCJA lowers the maximum marginal tax rate on farm income for farms organized as passthroughs.

Under both versions of TCJA, the aggregate average effective rates tax decrease relative to current law. The TCJA reduces the average effective rate of total taxes (federal income tax plus self-employment taxes) by 2.6 percentage points in the House Bill and 3.3 percentage points in 2016. On the other hand, the changes are not distributed uniformly across income groups, with the top ten percent of farm household accruing between 50 and 70 percent of the total tax cuts made under the TCJA. Consequently, the TCJA reduces the progressivity of the tax code, as much of the tax breaks instituted by the Act, are accrued by higher-income farm households.

References

ABEBE, K., D. C. DAHL, AND K. D. OLSON (1989): "The Demand For Farm Machinery," Staff Papers 14194, University of Minnesota, Department of Applied Economics.

ARIYARATNE, C. B., A. M. FEATHERSTONE, ET AL. (2009): "Impact of government payments, depreciation and inflation on investment behavior in American agriculture sector using sample of Kansas farms," .

AUERBACH, A. J. AND K. HASSETT (1991): "Recent U.S. investment behavior and the tax reform act of 1986: A disaggregate view," *Carnegie-Rochester Conference Series on Public Policy*, 35, 185–215.

BIERLEN, R. AND A. M. FEATHERSTONE (1998): "Fundamental q, Cash Flow, and Investment: Evidence from Farm Panel Data," *The Review of Economics and Statistics*, 80, 427–435.

COHEN, D. AND J. G. CUMMINS (2006): "A retrospective evaluation of the effects of temporary partial expensing," Finance and Economics Discussion Series 2006-19, Board of Governors of the Federal Reserve System (U.S.).

CUMMINS, J. AND R. G. HUBBARD (1995): "The Tax Sensitivity of Foreign Direct Investment: Evidence from Firm-Level Panel Data," in *The Effects of Taxation on Multinational Corporations*, National Bureau of Economic Research, Inc, NBER Chapters, 123–152.

CUMMINS, J. G. AND K. A. HASSETT (1992): "The effects of taxation on investment: new evidence from firm level panel data," *National Tax Journal*, 45, 243–251.

CUMMINS, J. G., K. A. HASSETT, AND R. G. HUBBARD (1996): "Tax reforms and investment: A cross-country comparison," *Journal of Public Economics*, 62, 237–273.

DESAI, M. A. AND A. D. GOOLSBEE (2004): "Investment, Fiscal Policy, and Capital Overhang," *Brookings Papers on Economic Activity*, 35, 285–355.

DICKERT-CONLIN, S. AND A. CHANDRA (1999): "Taxes and the Timing of Birth," *Journal of Political Economy*, 107, 161–177.

EDGERTON, J. (2011): "The effects of taxation on business investment: New evidence from used equipment," .

EISSA, N. AND J. B. LIEBMAN (1996): "Labor Supply Response to the Earned Income Tax Credit*," *The Quarterly Journal of Economics*, 111, 605.

GOOLSBEE, A. (1998): "Investment Tax Incentives, Prices, and the Supply of Capital Goods*," *The Quarterly Journal of Economics*, 113, 121.

HADRICH, J., R. LARSEN, AND F. E. OLSON (2013): "Impact of the Section 179 tax deduction on machinery investment," *Agricultural Finance Review*, 73, 458–468.

HALL, R. E. AND D. W. JORGENSON (1967): "Tax Policy and Investment Behavior," *The American Economic Review*, 57, 391–414.

HALVORSEN, R. (1991): "The effects of tax policy on investment in agriculture," *The Review of Economics and Statistics*, 393–400.

HANSON, G. D. AND D. R. BERTELSEN (1987): "Tax reform impacts on agricultural production and investment decisions," *American Journal of Agricultural Economics*, 69, 1013–1020.

HAUSMAN, J. A. AND J. M. POTERBA (1987): "Household behavior and the tax reform act of 1986," Working papers.

HECKMAN, J. J. (1993): "What has been learned about labor supply in the past twenty years?" *The American Economic Review*, 83, 116–121.

HOUSE, C. L. AND M. D. SHAPIRO (2008): "Temporary investment tax incentives: theory with evidence from bonus depreciation," *The American Economic Review*, 98, 737–768.

HULSE, D. S. AND J. R. LIVINGSTONE (2010): "Incentive effects of bonus depreciation," *Journal of Accounting and Public Policy*, 29, 578–603.

JENSEN, F. E., J. S. LAWSON, AND L. N. LANGEMEIER (1993): "Agricultural investment and internal cash flow variables," *Review of agricultural economics*, 295–306.

JOINT COMMITTEE ON TAXATION (2002): "Estimates of Federal Tax Expenditures for Fiscal Years 2003–2007," Report, Congress of the United States.

KEY, N., D. PRAGUER, AND C. BURNS (2017): "Farm Household Income Volatility: An Analysis Using Panel Data from a National Survey," ERR 226, U.S Department of Agriculture, Economic Research Service.

LEBLANC, M. AND J. HRUBOVCAK (1986): "The effects of tax policy on aggregate agricultural investment," *American Journal of Agricultural Economics*, 767–777.

LEBLANC, M., J. HRUBOVCAK, R. DURST, AND R. CONWAY (1992): "Farm machinery investment and the Tax Reform Act of 1986," *Journal of Agricultural and Resource Economics*, 66–79.

MCKENZIE, D. J. (2004): "Asymptotic theory for heterogeneous dynamic pseudo-panels," *Journal of Econometrics*, 120, 235–262.

MISHRA, A. K., H. S. EL-OSTA, M. J. MOREHART, J. D. JOHNSON, J. W. HOPKINS, ET AL. (2002): "Income, wealth, and the economic well-being of farm households," *Agricultural Economic Report*, 812, 20036–5831.

O'DONOGHUE, E. J. AND J. B. WHITAKER (2010): "Do direct payments distort producers' decisions? An examination of the Farm Security and Rural Investment Act of 2002," *Applied economic perspectives and policy*, 170–193.

PAUL, C. J. M., R. NEHRING, AND D. BANKER (2004): "Productivity, Economies, and Efficiency in US Agriculture: A look at contracts," *American Journal of Agricultural Economics*, 1308–1314.

SAEZ, E. (2002): "Optimal income transfer programs: intensive versus extensive labor supply responses," *The Quarterly Journal of Economics*, 117, 1039–1073.

SAEZ, E., J. SLEMROD, AND S. H. GIERTZ (2012): "The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review," *Journal of Economic Literature*, 50, 3–50.

SLEMROD, J. (1995): "Income creation or income shifting? Behavioral responses to the Tax Reform Act of 1986," *The American Economic Review*, 85, 175–180.

STROUP, M. D. (2005): "An index for measuring tax progressivity," *Economics Letters*, 86, 205 – 213.

WEERSINK, A. J. AND L. W. TAUER (1989): "Comparative analysis of investment models for New York dairy farms," *American Journal of Agricultural Economics*, 71, 136–146.

WHITAKER, J. B. (2009): "The varying impacts of agricultural support programs on US farm household consumption," *American Journal of Agricultural Economics*, 91, 569–580.

WILLIAMSON, J. M. AND S. STUTZMAN (2016): "Tax policy and farm capital investment: Section 179 expensing and bonus depreciation," *Agricultural Finance Review*, 76, 246–269.

Figures and Tables
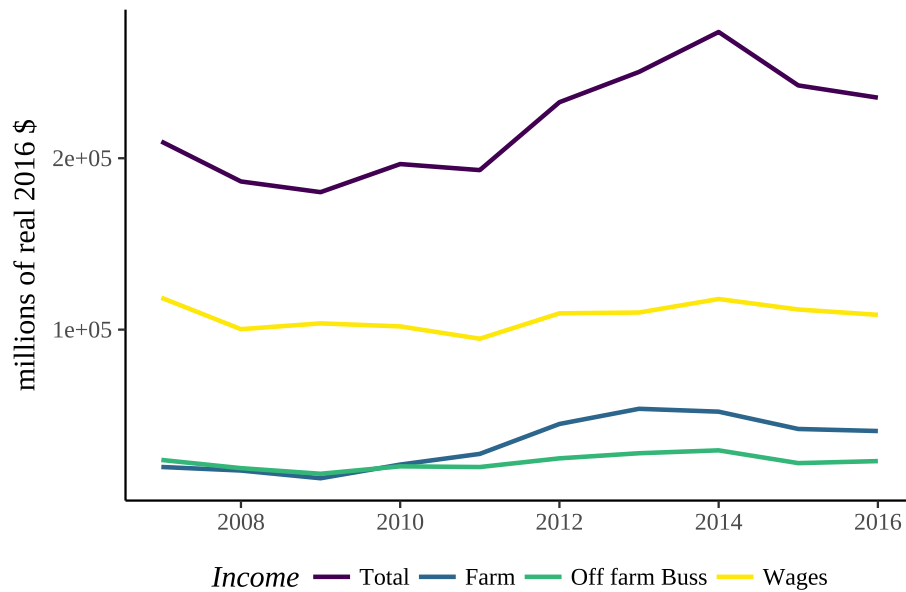
Figure 1: Income sources for farm households in the ARMS dataset. Number presented are sample weighted totals
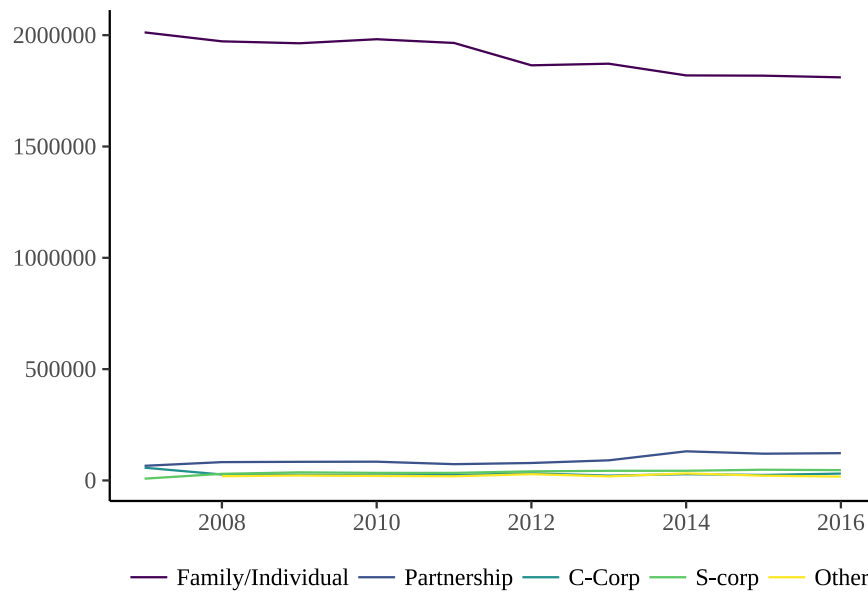
Figure 2: Legal organization of farms in the ARMS dataset. Results are sample weighted.

(a) Under House Bill
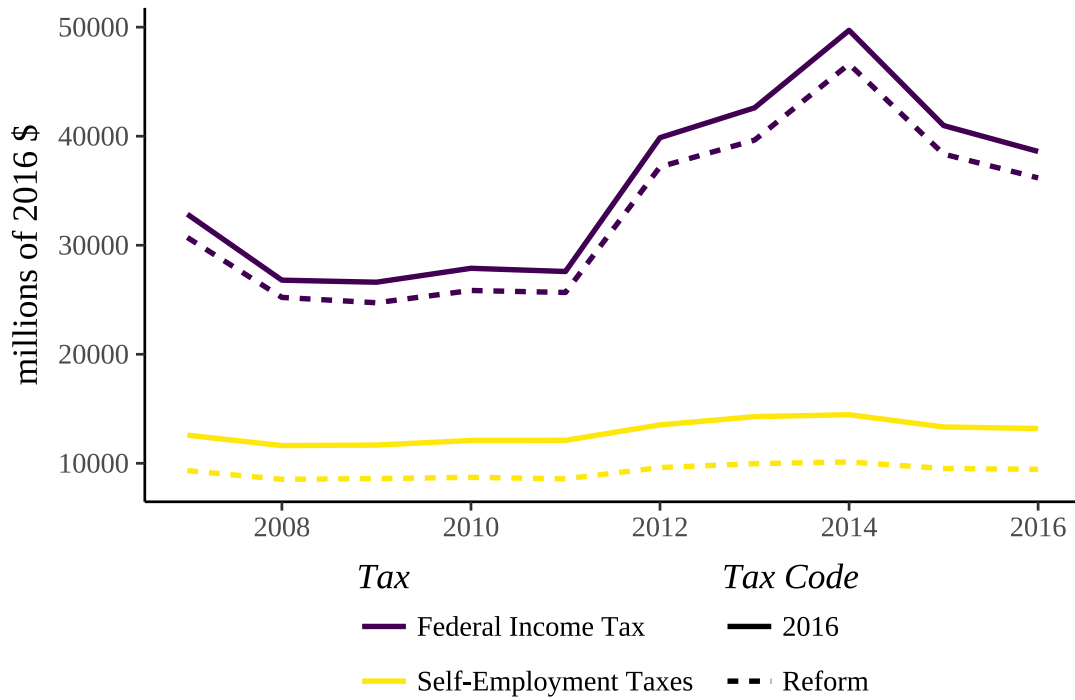
(b) Under Senate Bill
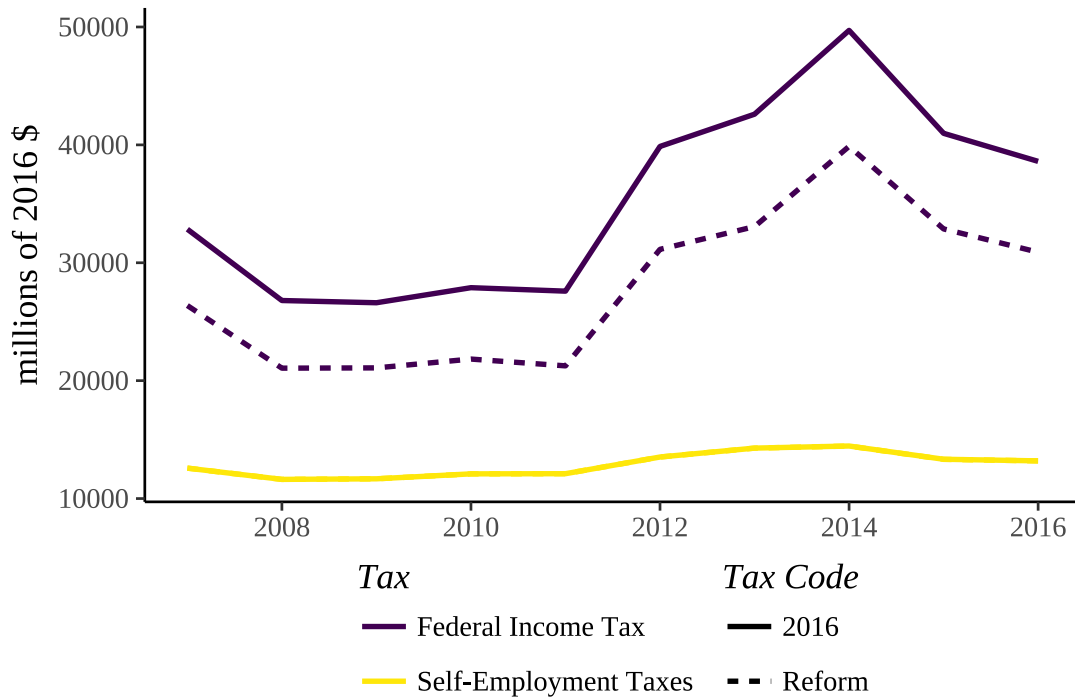
Figure 3: Estimated Federal Income Tax revenues (net of credits) and self-employment taxes under current law and proposed tax reforms

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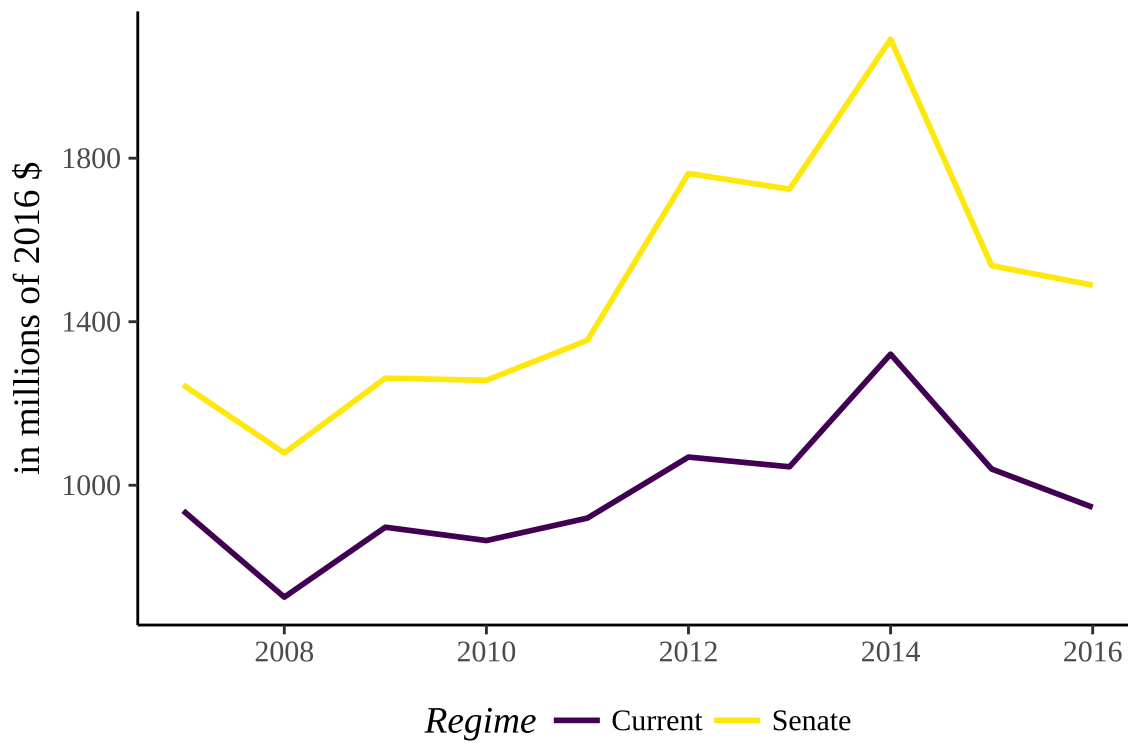
Figure 4: Estimated tax revenue from the Alternative Minimum Tax provision based on authors'
calculations

(a) Allocation of tax reduction from House Bill
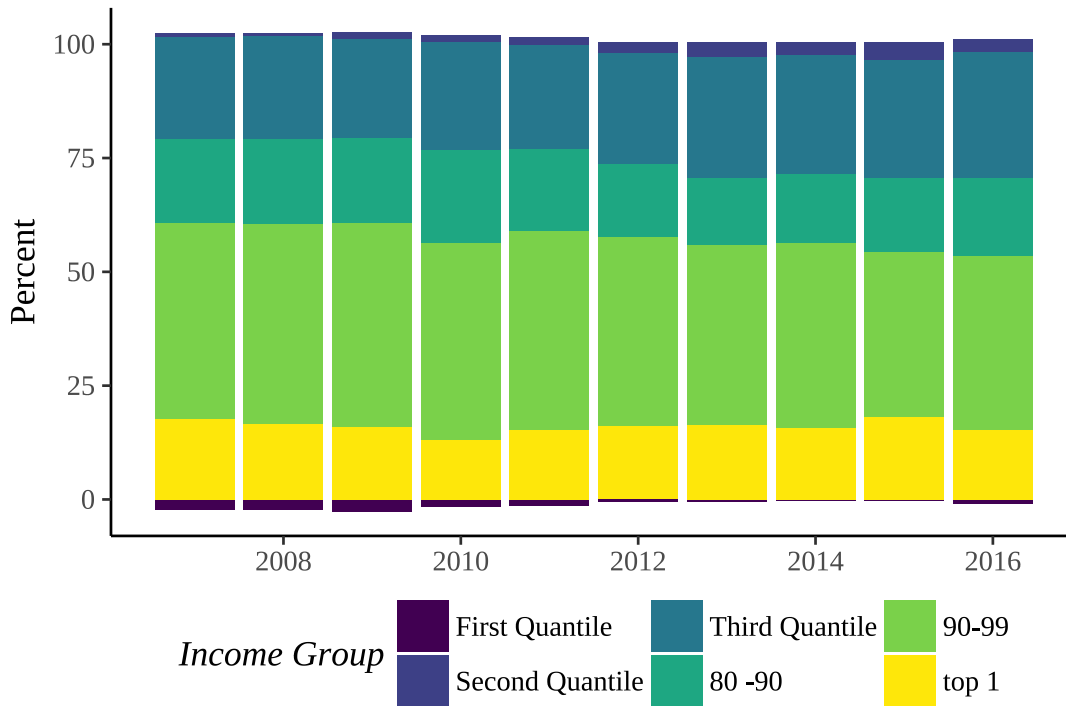
(b) Allocation of tax reduction from Senate Bill
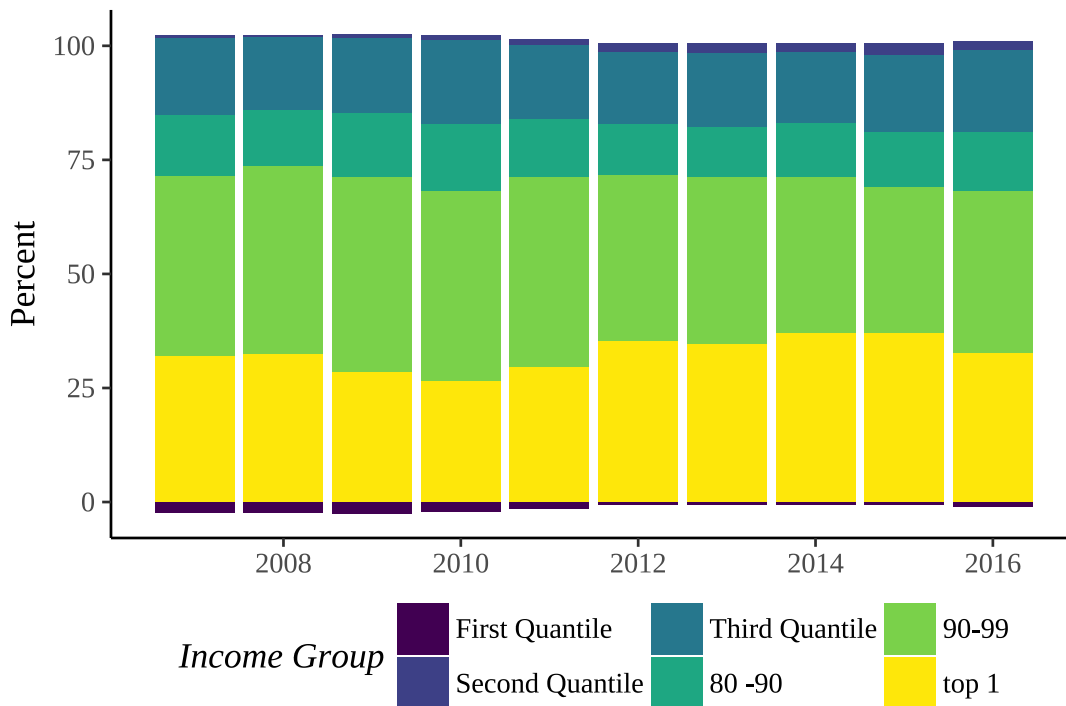
Figure 5: Tax reduction allocation across income groups. Percents are the total tax break for the group over the total tax break amount

Figure 6: Stroup Index for current law and proposed tax reforms using individual income tax net of credits. Stroup index computed using modified Gini coefficients that allow for negative incomes
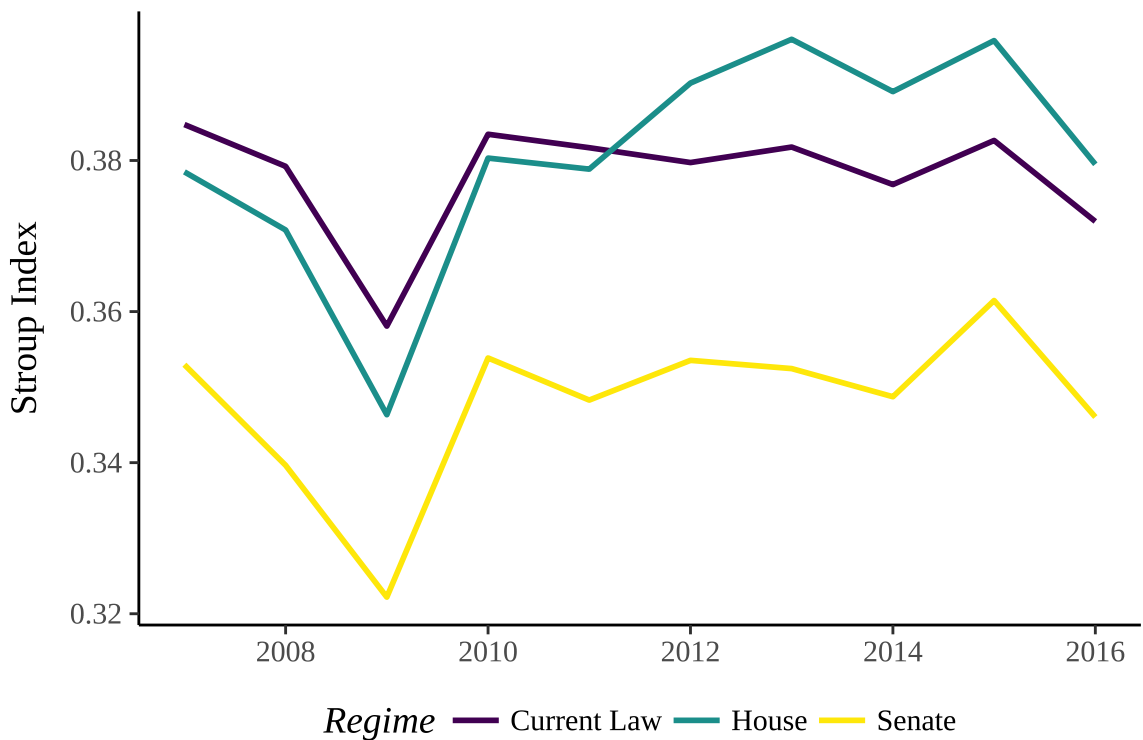
Figure 7: Stroup Index for current law and proposed tax reforms using total taxes net of credit. Stroup index computed using modified Gini coefficients that allow for negative incomes

Table 1: Modifications to Tax Code under Tax Cut and Jobs Act

	Current Law (2016)	TCJA, House Version	TCJA, Senate Version
Ordinary Income	Seven tax brackets: 10, 15, 25, 28, 33, 35, and 39.6%	Four tax brackets: 12, 25, 35, 39.6%	Seven brackets: 10, 12, 22, 24, 32, 35, 38.5
Long-term Capital Gains and Dividends	0, 15, 20% depending on the taxpayer's ordinary income tax bracket. High-income taxpayers are assessed a 3.8% Net Investment Income Tax.	0, 15, 20% depending on the taxpayer's ordinary income tax bracket.	0, 15, 20% depending on the taxpayer's ordinary income tax bracket.
Personal Exemptions	$4,000 per individual; Phases out for high-income taxpayers.	Eliminates	Eliminates
Standard Deduction	$6,300 for single filers $12,600 for married individuals	$12,200 for single filers $24,400 for married individuals	$12,000 for single filers $24,000 for married individuals
Itemized Deductions	Limited by adjusted gross income.	Eliminates most, with the exception of the mortgage interest deduction (with respect to no more than $500,000 of indebtedness) and the deduction for charitable donations. Eliminates the limitation on deduction amount due to high adjusted gross income.	Eliminates most, keeps the mortgage interest deduction, the deduction for charitable donations, and medical expenses (above 7.5% of AGI rather than 10%). Also keeps the state and local tax deductions but sets a $10,000 limit. Eliminates the limitation on deduction amount due to high adjusted gross income.
Credits	Mix of refundable and non-refundable credits.	Maintains current law EITC and expand Child Tax Credit with a $600 non-refundable portion.	Maintains current law EITC and expands Child Tax Credit to $2,000. Phaseout raised to $500,000 for single and married. Refundable amount of $1,000
Alternative Minimum Tax	Applies to high-income taxpayers.	Repeals	Maintain current rates but raises the income thresholds and the exemption amounts.

Table 1 – continued from previous page

	Current Law (2016)	TCJA, House Version	TCJA, Senate Version
Tax Rates on Pass-through Income	Taxed as ordinary income (see rates above), subject to SECA.	Maximum marginal rate of 25%, applies to 30 percent of net business income.	Allow individuals to deduct 23.0 percent of "domestic qualified business income" earned through a pass-through business (partnership, S-Corporation or sole proprietorship).
Expensing Provisions	Section 179 maximum amount $500,000; investment limit of $2,000,000 before deduction phases out.	Increases the maximum amount to $5,000,000; investment limit is $20 million before deduction phases out.	Increases the maximum amount to $1,000,000; investment limit is $2,500,000 before deduction phases out. 100% bonus depreciation.
Net Operating Loss (NOL)	NOL may be carried back up to 5 years, carried forward up to 20 year.	NOL carryforward is limited to 90% of net taxable income (without regard for NOL), NOL carryforward adjusted for inflation; NOL carryback eliminated	NOL carryforward is limited to 90% of net taxable income (without regard for NOL), NOL carryforward adjusted for inflation; NOL carryback eliminated, except for farming
Business Interest Expense	Interest paid on indebtedness for business purposes is generally deductible under current law; however there are limitations that apply to investment interest	Limits deduction to no more than business income plus 30% of adjusted taxable income for the taxpayer. Limit does not apply to producers with less than $25 million of gross receipts.	Limits deduction to no more than business income plus 30% of adjusted taxable income for the taxpayer (no carryforward). Limit does not apply to producers with less than $15 million of gross receipts.
Domestic Production Activities Deduction (section 199)	The deduction is applied to the percentage of income from qualifying DPA activities and is the lesser of 9 percent of that income or 50 percent of the wages paid for the activities (must pay W-2 wages).	Eliminates	Eliminates
Estate Tax	Top marginal rate of 40%, $5,430,000 lifetime exemption per individual.	Lifetime exemption increased to $11.2 million per individual, $22.4 million per couple, from 2018 through 2023.	Lifetime exemption increased to $11.2 million per individual, $22.4 million per couple.

Table 2: Summary Statistic for Farm Households in the ARMS surveys. Results are weighted means and don't include corporations

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Farms	2086252	2103309	2105630	2120263	2090554	2011694	2023646	2025076	2007646	1996420
Total Income	100555	88644	85585	92730	92356	115669	123722	135144	120787	117881
Wages	56849	47664	49221	48049	45295	54427	54346	58199	55656	54405
Off Farm Business	11487	9107	7539	9535	9478	12369	13769	14589	11006	11658
Farm Income	11183	10439	7300	12536	14988	25116	30470	30499	24352	24277
Farm Buss. Income	9516	8447	6299	10016	13145	22338	26585	25734	20932	20449
Capital Gains										
Off Farm	1158	399	624	522	1015	1314	856	1361	1090	1307
Farm	1606	948	1045	653	780	1707	1512	1902	1420	1055

Note: Farm income includes farm business income plus other sources of compensation from farm activities such as rental income from farm land.

Table 3: Average Income for households owing AMT versus those who don't.

Year	Owe AMT	Current Law				Senate Bill			
		N	AMT	Total Income	Wages	N	AMT	Total Income	Wages
2007	No	1,989,133	0	88,573	53,998	2,005,988	0	85,036	52,253
2007	Yes	97,119	9,654	370,834	115,249	80,264	15,514	518,509	171,736
2008	No	2,019,307	0	77,553	45,309	2,031,978	0	74,412	43,980
2008	Yes	84,002	8,646	365,247	104,283	71,332	15,127	505,817	152,627
2009	No	2,018,638	0	74,200	46,646	2,038,596	0	72,722	46,416
2009	Yes	86,992	10,315	364,886	108,980	67,033	18,826	496,359	134,541
2010	No	2,024,407	0	80,711	44,868	2,043,171	0	77,225	43,993
2010	Yes	95,856	9,021	358,106	115,214	77,092	16,301	518,013	155,540
2011	No	1,987,265	0	78,884	42,411	2,015,244	0	77,149	42,216
2011	Yes	103,290	8,903	372,099	100,776	75,310	17,986	527,465	127,676
2012	No	1,898,523	0	100,074	51,693	1,910,184	0	93,964	50,803
2012	Yes	113,172	9,445	400,637	100,293	101,510	17,365	550,142	122,638
2013	No	1,903,954	0	109,066	51,703	1,916,930	0	100,944	50,893
2013	Yes	119,692	8,732	371,329	96,377	106,716	16,157	549,102	116,357
2014	No	1,884,953	0	118,339	53,253	1,903,265	0	112,122	52,019
2014	Yes	140,123	9,425	380,884	124,740	121,810	17,165	517,489	154,773
2015	No	1,895,512	0	107,560	52,374	1,912,635	0	103,064	50,637
2015	Yes	112,134	9,272	363,905	111,124	95,011	16,179	500,614	156,693
2016	No	1,886,651	0	103,761	51,140	1,903,655	0	99,225	50,387
2016	Yes	109,769	8,619	384,341	110,535	92,765	16,056	528,848	136,877

Results presented are weighted averages. Total income includes capital gains/losses.

Table 4: Average taxes under current law, House Bill and Senate Plan. Average taxes are computed as total tax liabilities over total of income inclusive of capital gains

Year	Individual Income Tax			Self Employment Tax			Net Change	
	Current	House	Senate	Current	House	Senate	House	Senate
2007	15.48	14.47	12.43	5.93	4.40	5.93	2.54	3.05
2008	14.31	13.46	11.24	6.21	4.56	6.21	2.50	3.07
2009	14.66	13.62	11.61	6.43	4.74	6.43	2.73	3.05
2010	14.10	13.07	11.04	6.12	4.41	6.12	2.74	3.06
2011	14.14	13.15	10.89	6.20	4.40	6.20	2.79	3.25
2012	16.94	15.80	13.23	5.75	4.08	5.75	2.81	3.71
2013	16.90	15.72	13.12	5.66	3.95	5.66	2.89	3.78
2014	17.98	16.86	14.42	5.23	3.66	5.23	2.69	3.56
2015	16.75	15.68	13.43	5.45	3.89	5.45	2.63	3.32
2016	16.22	15.20	12.98	5.55	3.97	5.54	2.60	3.25

Table 5: Income groups across years. Income variables is total household income including of off farm capital gains. Reported income groups are based in weighted data

	Quantiles					
	First	Second	Third	Fourth	90 percentile	99 percentile
2007	25,647	51,827	78,618	123,906	187,007	997,893
2008	22,751	46,290	72,505	119,215	175,405	795,997
2009	23,819	47,384	73,528	122,275	176,582	702,396
2010	24,963	49,262	75,748	122,838	183,824	738,553
2011	25,821	50,158	75,691	122,064	181,189	724,414
2012	30,896	58,329	89,074	140,334	206,127	1,031,481
2013	35,362	62,997	93,158	144,117	216,232	1,122,078
2014	36,719	68,683	102,936	161,504	244,721	1,025,838
2015	35,483	63,755	94,109	147,557	216,503	886,932
2016	34,140	62,083	94,241	146,254	218,118	935,707

Table 6: Average Tax Rates for different income groups

Year	Individual Income Tax			Self Employment Tax			Net Change	
	Current	House	Senate	Current	House	Senate	House	Senate
Income Group: 20 to 80 percentile								
2007	5.25	5.38	3.91	7.29	5.67	7.29	1.49	1.34
2008	4.56	4.74	3.37	6.98	5.42	6.98	1.38	1.19
2009	4.66	4.77	3.46	6.89	5.34	6.89	1.44	1.20
2010	4.80	4.81	3.38	6.99	5.32	6.99	1.66	1.42
2011	4.57	4.64	3.21	6.88	5.20	6.88	1.61	1.36
2012	6.35	6.08	4.68	6.90	5.25	6.90	1.92	1.67
2013	6.83	6.48	5.05	6.98	5.11	6.98	2.22	1.78
2014	7.52	7.23	5.91	6.52	4.81	6.52	2	1.61
2015	6.91	6.59	5.31	6.52	4.90	6.52	1.94	1.60
2016	7.08	6.74	5.52	6.57	4.99	6.57	1.92	1.56
Income Group: 90 to 99 percentile								
2007	21.14	18.82	17.07	4.65	3.29	4.65	3.68	4.07
2008	20.12	18	15.89	5.16	3.60	5.16	3.68	4.23
2009	19.70	17.30	15.40	5.23	3.56	5.23	4.07	4.30
2010	20.57	18.02	16.25	4.92	3.46	4.92	4.01	4.32
2011	20.20	17.82	15.68	5.19	3.47	5.19	4.10	4.52
2012	22.41	19.94	17.86	4.58	3.13	4.58	3.92	4.55
2013	22.41	20.05	17.70	4.58	3.08	4.58	3.86	4.71
2014	23.03	20.40	18.64	4.24	2.94	4.24	3.93	4.39
2015	21.51	19.27	17.56	4.64	3.30	4.64	3.58	3.95
2016	21.34	19.10	17.14	4.63	3.24	4.63	3.63	4.20
Income Group: top 1%								
2007	32.10	30.57	26.58	2.45	1.45	2.45	2.53	5.52
2008	30.70	29.43	24.56	2.80	1.53	2.80	2.54	6.14
2009	31.38	29.78	26.03	2.65	1.58	2.65	2.67	5.35
2010	30.52	29.30	25.11	2.66	1.51	2.65	2.37	5.42
2011	30.23	28.92	24.12	2.88	1.47	2.88	2.72	6.11
2012	31.50	30.60	24.88	2.63	1.23	2.63	2.30	6.62
2013	32.18	30.99	25.09	2.64	1.25	2.64	2.58	7.09
2014	32.93	32.20	26.59	2.43	1.11	2.42	2.05	6.35
2015	32.92	31.75	26.74	2.36	1.14	2.34	2.39	6.20
2016	32.17	31.19	26.25	2.52	1.29	2.52	2.21	5.92

Table 7: Tax break allocation (individual income tax only) across different groups. All numbers are percent of the aggregate tax break across all income groups. Negative numbers imply a tax increase

			Income Percentiles			
	0-20	20-40	40-60	80-90	90-99	top1
House Version of TCJA						
2007	-9.28	-9.7	4.74	18.72	68.52	27
2008	-9.47	-9.76	0.8	18.73	75.2	24.51
2009	-9.9	-6.73	2.36	19.4	69.72	25.06
2010	-7.61	-7.27	6.87	17.15	73.21	17.83
2011	-6.57	-7.93	5.13	16.44	71.94	20.98
2012	-3.77	-3.59	12.9	14.42	64.37	15.67
2013	-4.16	-2.88	14.27	15.07	58.99	18.71
2014	-3.5	-3.45	13.57	14.56	65.31	13.5
2015	-3.62	-1.57	13.5	14.08	55.74	21.86
2016	-5.65	-4.21	18.14	14.62	59.83	17.27
Senate Version of TCJA						
2007	-2.27	0.61	16.7	13.44	39.52	31.99
2008	-2.33	0.4	15.79	12.31	41.26	32.56
2009	-2.62	0.78	16.64	13.87	42.69	28.62
2010	-2	0.94	18.37	14.64	41.68	26.61
2011	-1.46	1.14	16.42	12.64	41.49	29.77
2012	-0.53	1.88	15.63	11.28	36.35	35.39
2013	-0.62	2.11	16.2	10.98	36.58	34.76
2014	-0.63	1.8	15.75	11.71	34.25	37.13
2015	-0.63	2.62	16.84	12.16	31.82	37.18
2016	-0.98	1.88	17.92	12.99	35.34	32.85

Table 8: Tax break allocation (total taxes) across different groups. All numbers are percent of the aggregate tax break across all income groups. Negative numbers imply a tax increase

	Income Percentiles					
	0-20	20-40	40-60	80-90	90-99	top1
House Version of TCJA						
2007	-2.41	0.79	22.37	18.59	43.05	17.62
2008	-2.33	0.54	22.42	18.72	44.09	16.55
2009	-2.74	1.47	21.84	18.48	45	15.92
2010	-1.62	1.32	23.89	20.28	43.39	13.03
2011	-1.39	1.55	22.69	18.09	43.68	15.38
2012	-0.47	2.35	24.39	15.94	41.55	16.24
2013	-0.55	3.29	26.53	14.84	39.33	16.55
2014	-0.37	2.65	26.24	14.94	40.69	15.85
2015	-0.28	3.76	25.88	16.16	36.36	18.12
2016	-1.04	2.73	27.57	17.27	38.14	15.34
Senate Version of TCJA						
2007	-2.27	0.61	16.7	13.44	39.52	31.99
2008	-2.33	0.4	15.79	12.31	41.26	32.56
2009	-2.62	0.78	16.64	13.87	42.69	28.62
2010	-2	0.94	18.36	14.63	41.67	26.64
2011	-1.46	1.14	16.42	12.64	41.49	29.77
2012	-0.53	1.88	15.63	11.28	36.35	35.39
2013	-0.62	2.11	16.2	10.98	36.58	34.76
2014	-0.63	1.8	15.74	11.7	34.23	37.16
2015	-0.63	2.62	16.83	12.15	31.79	37.24
2016	-0.98	1.88	17.92	12.99	35.33	32.86