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# An Analysis of the Effect of Sunsetting Tax Provisions for Family Farm Households

Tia M. McDonald and Ron Durst



Tax

FARM

Form 1040 U.S. Individual Income Tax Return

Department of the Treasury—Internal Revenue Service

For the year on 1-12-23  
Your first name and initial  
Last name  
Last name  
Last name

Home address (number and street)  
City, town or post office, state, and ZIP code. If you have a foreign address, see page 14.

Appt. no.

Check one  
1 Single  
2 Married filing jointly (even if only one had income)  
3 Married filing separately. Enter spouse's SSN above  
4 Head of household with qualifying person's name here. Is a child but not your dependent?  Yes  No  
5 Qualifying widow(er) with dependent's name here.  Yes  No

6a  Yourself, if someone can claim you as a dependent; do not check box 6a  
6b  Spouse  
6c Dependents:  
(1) First name Last name  
(2) Dependent's social security number

7 Total number of deductions claimed  
8 Taxable interest. Attach Form 1099-INT if tax was withheld.  
9 Ordinary dividends. Attach Form 1099-DIV if tax was withheld.  
10 Qualified dividends. Attach Form 1099-DIV if tax was withheld.  
11 Taxable refunds, credits, or other offset payments. Attach Form 1099-REF if tax was withheld.  
12 Business income or loss. Attach Form 990-B if tax was withheld.  
13

TAX

Mortgage

Utilities  
Savings

Pension



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# An Analysis of the Effect of Sunsetting Tax Provisions for Family Farm Households

Tia M. McDonald and Ron Durst

## Abstract

Two recent laws enacted temporary provisions to the Federal tax code: the American Rescue Plan Act (ARPA) and the Tax Cuts and Jobs Act (TCJA). The authors of this report assess the impact of these expired and expiring Federal income and estate tax policies on tax liabilities for farm households. The authors estimate that the expiration of the temporary provisions of the ARPA and TCJA would increase farm households' Federal income tax liabilities by \$8.9 billion and estate tax liabilities by \$647 million the year following expiration. The change in tax liabilities varies by farm size and for groups of farmers considered underserved by USDA programs. This analysis suggests that the combined effect of the sunsetting of reduced individual income tax rates, the increased standard deduction, a cap on State and local tax deductions, and the elimination of the personal exemptions would have the largest impact on underserved and all other farm households, except for very large farm households identified as those with annual gross cash farm income above \$5 million. For these very large farm households, the sunsetting of the qualified business income deduction (QBID) would result in the largest increase in tax liabilities.

**Keywords:** income tax, estate tax, farm households, Tax Cuts and Jobs Act (TCJA), American Rescue Plan Act (ARPA), tax provisions, underserved farms, farm typology

## Acknowledgments

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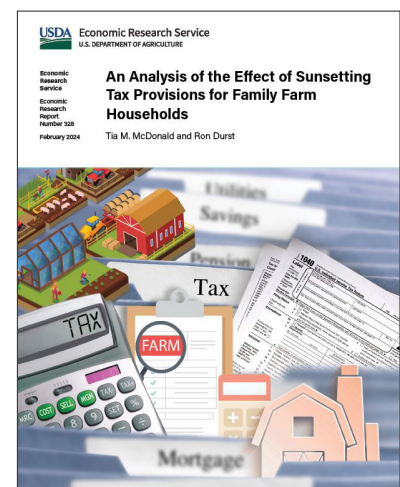


# An Analysis of the Effect of Sunsetting Tax Provisions for Family Farm Households

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## What Is the Issue?

The 2017 Tax Cuts and Jobs Act (TCJA) made significant changes to Federal individual income and estate tax policies, while the American Rescue Plan Act (ARPA) provided temporary increases in the child tax credit and the earned income tax credit for childless taxpayers. Since the Federal individual income tax affects most farmers and the Federal estate tax can affect the ability to transfer the farm business to the next generation, these changes are of considerable importance to the farm community. Several of the TCJA changes to Federal individual income and estate tax policies were temporary and are scheduled to expire in 2025. The ARPA changes expired at the end of 2021 but have been included in the U.S. Presidential annual budget proposal, and the empirical impact of permanent inclusion of these proposed changes in the tax code was examined in this report. This report evaluates the impact of these expired and expiring Federal income and estate tax policies on the financial well-being of farm households. This report offers analysis by farm size, as well as groups considered underserved by USDA programs—including female principal operator (PO) farms, non-White or Hispanic PO farms, beginning farms, and limited resource farms.



## What Did the Study Find?

The sunsetting of ARPA and TCJA provisions would result in increased taxes for most farm households, with the impact varying by farm size.

Findings based on expiring individual income tax policies:

- The sunsetting provisions that would have the largest impact on farm households (on average) are those provisions providing reduced individual income tax rates, an increased standard deduction, a cap on State and local tax deductions, and the elimination of the personal exemption—which would result in an increase in total tax liability of \$4.5 billion for all farm households. While large and very large farms would experience the largest increase in estimated income tax liability, the largest percentage increases would occur for farm households with moderate sales.

ERS is a primary source of economic research and analysis from the U.S. Department of Agriculture, providing timely information on economic and policy issues related to agriculture, food, the environment, and rural America.

- The expiration of the expanded child tax credit provisions in both ARPA and TCJA would result in a significant increase in tax liabilities for farm households receiving the credit. In 2021, these farm households received an average child tax credit of \$5,604. The expiration of the ARPA credit dropped the average tax credit to \$3,770, while the sunset of the TCJA enhancements would further reduce the share receiving the credit from 35.9 to 26.8 percent and the average estimated tax credit to \$1,331.
- One of the most significant TCJA changes scheduled to sunset in 2025 is the new deduction of 20 percent of qualified business income for passthrough businesses. The expiration of this provision would increase taxes for about 45 percent of all farm households with an estimated average increase in tax liability of \$2,464. A much larger share of large and very large farm households would be affected, with significantly larger increases in estimated tax liability of \$11,868 and \$87,219, respectively. A smaller share of underserved farm households would be affected by the loss of the deduction.

#### Findings based on expiring estate tax policies:

- The TCJA increase in the amount of property that can be transferred to the next generation free of Federal estate tax is scheduled to sunset in 2025, returning the exempt amount to the pre-TCJA level, adjusted for inflation. As a result, the share of farm estates estimated to owe Federal estate tax would increase from 0.3 to 1.0 percent, and Federal estate taxes are expected to double from \$572 million to \$1.2 billion.
- While the share of retirement, off-farm occupation, low-sales, and moderate-sales farm estates expected to owe tax would remain under 2 percent, the share of large and very large farm estates subject to tax would increase to 7.3 and 8.5 percent, respectively.
- Regarding underserved farm households, the most significant impact would be for female PO households, with the share of these households estimated to owe estate tax expected to increase from 0.6 to 1.5 percent. Limited resource and beginning farmer farms would experience the smallest increase in those estimated to owe estate tax under the lower exempt amount.

## How Was the Study Conducted?

This report used financial and demographic data for farms and farm households from USDA's Agricultural Resource Management Survey (ARMS) (2018–21) and data from the U.S. Internal Revenue Service. The data were used to run the USDA, Economic Research Service's (ERS) Federal income tax model to estimate family farm household adjusted gross income and tax liability if: (1) all TCJA and ARPA provisions are active and (2) each provision of the TCJA and ARPA has expired. For the Federal estate tax estimations, the ERS's estate tax model was used. This model is an actuarial model using farm financial information from ARMS (2018–21), mortality data from the U.S. Social Security Administration (2019), publicly available estate tax data from the U.S. Internal Revenue Service (2020), and average effective interest rates calculated by IRS from Farm Credit System rates (2021). This model was used to compare Federal estate tax liabilities for farm households in 2026 by applying the TCJA increased exemption levels and the exemption level that would apply if the elevated exemption amount is allowed to expire.

# An Analysis of the Effect of Sunsetting Tax Provisions for Family Farm Households

## Introduction

The 2017 Tax Cuts and Jobs Act (TCJA) significantly changed Federal individual income and estate tax policies. TCJA individual income tax provisions included reduced tax rates, an increase in eligibility and the amount of the child tax credit, and a new deduction for noncorporate businesses. In the estate tax area, the TCJA provided a significant increase in the amount of property that can be transferred to the next generation, free of estate tax. Additionally, the American Rescue Plan Act (ARPA) temporarily increased the child tax credit and the earned income tax credit for childless taxpayers for the 2021 tax year. These ARPA provisions have been included in the U.S. Presidential annual budget proposal and are therefore being considered for permanent inclusion in the tax code. Since the Federal individual income tax affects most farmers and the Federal estate tax can affect the ability to transfer the farm business to the next generation, these changes are of considerable importance to the farm community. Modifications to Federal income and estate tax policies can affect not only the financial well-being of farm households but also the number and size of farms, their organizational structure, and their use of land, labor, and capital inputs.

While the corporate tax rate reductions contained in the TCJA were permanent, some changes to Federal individual income and estate tax policies were temporary and are scheduled to expire in 2025. As the expiration date for the TCJA changes approaches, the debate regarding the future of these policies is likely to intensify. This report evaluates the impact of these expiring Federal income and estate tax policies on the tax burdens and financial well-being of farm households.

The report examines the temporary income tax provisions of the TCJA and ARPA, and estimates how the provisions may affect the tax liability of family farm households. These individual income tax provisions are important since, in 2021, 97.6 percent of family farms were organized as business entities that do not pay taxes themselves but pass the income/loss to the owners, where the income/loss is taxed at the individual level. The authors expect the impact of the expiration of these provisions to be different than the impact of the original enactment, due to changes in income and land values.

The USDA, Economic Research Service's (ERS) Federal income tax model is used to estimate farm operation and farm household tax measures, leveraging a nationally representative sample of farms from the USDA's Agricultural Resource Management Survey (ARMS). The effects of the expiring tax provisions of TCJA and expired provisions from ARPA on farm household tax liability are simulated. The model uses farm household-level data and is restricted to family farms, defined as any farm where a majority of the business is owned by the operator and individuals related to the operator. The individual tax model is used to determine the share of farmers affected by the expiring provisions and to estimate the change in farm households' Federal income tax liabilities.

Federal estate taxes are estimated using an actuarial estate tax model to compare the estate tax exclusion from current law with the results using the exclusion amounts applicable in 2026, if the TCJA provisions are allowed to expire. The model utilizes data from ARMS, the Farm Credit System,<sup>1</sup> the USDA's National

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<sup>1</sup> Special use valuation uses IRS published average effective interest rates from the Farm Credit System. For more information, see Internal Revenue Bulletin 2021-35.

Agricultural Statistics Service (NASS) June Area Survey, and the U.S. Internal Revenue Service. This report shows the estimated change in the share of farm estates required to file a return, the share of farm estates that owe Federal estate tax, and aggregate Federal estate tax liabilities.

This report provides the estimated impact of sunseting tax provisions on family farm households by typology and underserved group. Typology provides a sense of how the impact varies by farm size and primary occupation of the principal operator (PO). Retirement farms have gross cash farm income (GCFI) of less than \$350,000 and the PO reporting that they are retired. Off-farm occupation farms have a GCFI of less than \$350,000 and the PO's primary occupation is not farming. For all other typologies, the primary occupation of the PO is farming. The GCFI thresholds for low-sales, moderate-sales, midsize, large and very large farms are \$150,000, \$350,000, \$1 million, and \$5 million, respectively. Underserved groups include farms whose PO is non-White, Hispanic or female. Underserved also includes beginning and limited resource farms. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales<sup>2</sup> and low household income<sup>3</sup> for 2 years in a row.

In order to provide information on underserved farm households, a pooled sample of ARMS data (2018–21) was used. By pooling data, more reliable values could be estimated than would be possible using a single year of data. The ARMS is a repeated cross-section that is sampled to be representative of the farm population overall, but in a single year does not necessarily allow for representative estimates of smaller populations. To provide context for the use of a 4-year pooling of the ARMS dataset, the authors offer a comparison of ARMS and USDA Agricultural Census statistics for non-White Hispanic and female PO farms, as well as beginning farms. The Agricultural Census is a complete count of U.S. farms and ranches and the people who operate them, providing a basis to assess the representativeness of the pooled ARMS sample for these groups. The authors were not able to provide a comparison for limited resource farms since statistics for these farms are not identified in the Census of Agriculture.

Table 1 offers a comparison of the distribution of female PO farms, non-White Hispanic PO farms, and beginning farms by acres operated and sales. This table shows that the distribution of farms by these two size metrics is similar between ARMS and the Agricultural Census, suggesting that the pooled ARMS is a relatively representative sample. Although the size of the farm does not give a full picture of the farm household's finances, eligibility and uptake of the business tax provisions analyzed in this report are more likely for larger farms, making the distribution of farms by size important for assessing the overall impact of these provisions.

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<sup>2</sup> In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300.

<sup>3</sup> Low household income means that current-year income falls below the national poverty level for a family of four with two children or is less than half of the county median household income.



Table 1

**A comparison of the distribution of acres operated by underserved producers from USDA's Census of Agriculture (2017) and Agricultural Resource Management Survey (ARMS) (2018-21)**

	Principal operator female		Principal operator non-White or Hispanic		Beginning farm	
	Share of operations (2017 Census)	Share of operations (2018-21 ARMS)	Share of operations (2017 Census)	Share of operations (2018-21 ARMS)	Share of operations (2017 Census)	Share of operations (2018-21 ARMS)
<b>Acres operated</b>						
1 to 10	0.18	0.15	0.24	0.16	0.21	0.14
10 to 50	0.34	0.39	0.30	0.37	0.35	0.40
50 to 180	0.26	0.29	0.25	0.28	0.26	0.28
180 to 500	0.12	0.11	0.11	0.11	0.11	0.11
More than 500	0.10	0.06	0.10	0.08	0.08	0.07
<b>Sales (U.S. dollars)</b>						
Less than \$1,000	0.29	0.31	0.34	0.30	0.29	0.28
\$1,000 to \$2,500	0.12	0.15	0.12	0.14	0.14	0.12
\$2,500 to \$5,000	0.12	0.16	0.11	0.13	0.12	0.15
\$2,500 to \$10,000	0.12	0.13	0.12	0.13	0.12	0.14
\$10,000 to \$25,000	0.12	0.12	0.12	0.12	0.11	0.10
\$25,000 to \$50,000	0.07	0.05	0.06	0.04	0.06	0.05
\$50,000 or more	0.16	0.09	0.12	0.13	0.15	0.16

ARMS = Agricultural Resource Management Survey.

Source: USDA, Economic Research Service (ERS) using USDA, National Agricultural Statistics Service (NASS), 2017 Census of Agriculture and USDA, NASS and ERS, Agricultural Resource Management Survey 2018-2021.

## Current Family Farm Household Income and Tax Characteristics

There is considerable variation among farm households regarding farm size and the importance of the farm business to farm household well-being. While most farm households receive income from both farm and off-farm sources, the relative importance varies considerably. Table 2 provides income and farm business receipt information for various farm types and for underserved farm households. In general, total income tends to increase with farm size. Additionally, on average, farm income is the primary source of income only for midsized and larger farms while low-sales, off-farm occupation and retirement farms receive most if not all of their income from off-farm sources. Underserved farm households also receive most of their income from off-farm sources. This variation in both the level and sources of income factor into the impact of the sunseting of the temporary tax provisions in ARPA and TCJA.

Table 2

**Income and capital gains by farm typology and underserved farm households**

	Average gross cash-farm income (U.S. dollars)	Average farm income (U.S. dollars)	Average off-farm income (U.S. dollars)	Average capital gains (U.S. dollars)	Average adjusted gross income (U.S. dollars)
<b>Farm Typology</b>					
<b>Small</b>					
Retirement	21,706	6,060	68,180	6,034	73,082
Off-farm occupation	21,171	-1,572	143,051	2,146	148,873
Low sales	26,647	-1,861	68,750	1,306	64,180
Moderate sales	235,337	49,532	64,856	2,751	122,933
Midsize	584,755	130,554	74,637	3,439	219,020
Large	1,898,366	385,121	74,549	3,468	500,368
Very large	11,931,171	1,544,634	79,127	9,456	1,746,136
<b>Underserved farm households</b>					
Female principal operator	47,483	4,861	92,847	1,144	99,695
Non-White or Hispanic principal operator	96,121	14,988	85,354	1,040	102,120
Beginning	63,455	7,285	117,163	905	129,375
Limited resource	14,492	-11,099	17,401	561	6,360
All farm households	150,906	24,129	99,132	2,473	127,870

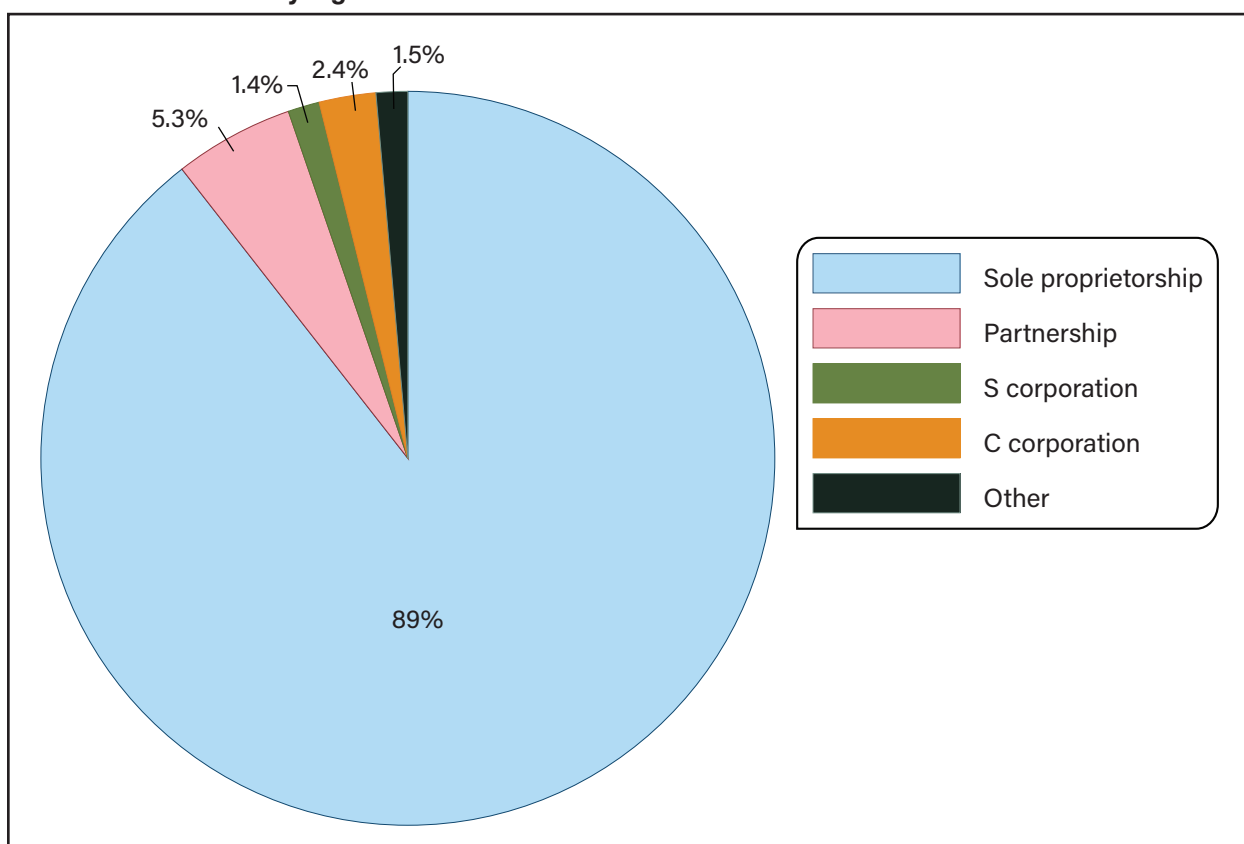
Note: Retirement farms have gross cash farm income (GFCI) of less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsize farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farm households are defined as having low farm sales and low household incomes for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farm sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

A farm's legal tax structure impacts whether farm business income is taxed via the Federal income tax or via the corporate tax. For farm businesses organized as sole proprietorships, partnerships and S corporations, income is passed through to the household and subject to the Federal income tax. Income generated from C corporations is subject to corporate taxes. Most farms are organized as sole proprietorships (figure 1). Smaller shares of farms are organized as partnerships and S corporations. Only 2.4 percent of farms are organized as C corporations, meaning that the vast majority of farm income is subject to Federal individual income taxes.<sup>4</sup>

<sup>4</sup> S corporations and C corporations are owned by shareholders. Subchapter C corporations are taxed on their income at the corporate level and again upon distribution to the shareholders, while an S corporation's income is passed through directly to the shareholders and not subjected to Federal income tax at the corporate level.

Figure 1  
**Distribution of farms by legal tax status**



Note: S corporations and C corporations are owned by shareholders. Subchapter C corporations are taxed on their income at the corporate level and again upon distribution to the shareholders while an S-corporation's income is passed through directly to the shareholders and not subjected to Federal income tax at the corporate level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

## The Federal Income Tax

In the following section, estimates are provided for the impact on tax liabilities of expiring Federal tax provisions from the TCJA and expired provisions from the ARPA. To do this, the authors use ERS's Federal income tax model and income and household data from ARMS 2018–21. ARMS collects information on income from farm and nonfarm sources, capital investment, marital status, and household size. The Federal income tax model uses this survey data to estimate each farm household's adjusted gross income (AGI), eligibility and impact of deductions and credits, and Federal income tax liability.<sup>5</sup> For these tax simulations, under the assumption that all 2021 tax provisions are active, the authors systematically assess the impact of eliminating each tax provision. While the TCJA provisions do not fully sunset until 2026, the ARPA provisions expired at the end of 2021. With regard to the TCJA Federal income tax provisions, the analysis does not attempt to forecast farm income to 2026, since farm income tends to be volatile. By using 2021 provisions, farm income is assumed to keep pace with inflation-adjusted tax parameters. With regard to ARPA expired provisions, the tax simulation model is used to assess the impact of each provision's expiration on

<sup>5</sup> For a detailed description of USDA, ERS's Federal income tax model, see Williamson and Bawa (2018).

eligibility and tax liability, which provides a common baseline for which to compare the impact of expiring tax provisions. Because 2021 is the assumed tax year, the income data from the 2018, 2019, and 2020 ARMS is inflated to 2021 dollars.

## Expiring Individual Income Tax Provisions

### *Income Tax Rates, Tax Brackets, Standard Deductions, and Personal Exemptions*

The TCJA made several temporary changes to income tax rates, tax brackets, and the standard deduction—as well as eliminated the personal exemption and established a limit on the deduction for State and local taxes. Specifically, the TCJA reduced the top income tax rate from 39.6 percent to 37 percent and changed the income tax brackets to make more income subject to lower tax rates. The TCJA also increased the standard deduction from \$12,700 for married joint filers and \$6,350 for single filers to \$24,000 and \$12,000, respectively. The personal exemption, which was equal to \$4,050 for each household member in 2017, was eliminated. The TCJA also placed a limit on the deductions for State and local taxes of \$10,000 for married joint filers and \$5,000 for single filers.

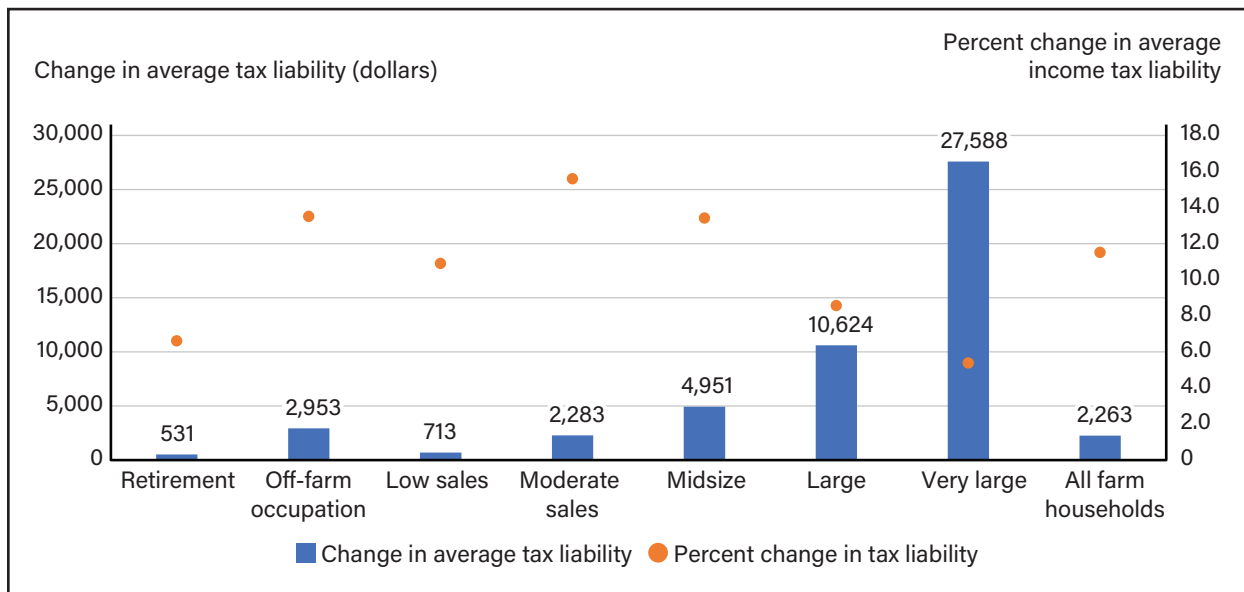
To analyze the combined effect of these temporary changes to income tax rates, brackets, and exemptions, tax liabilities were estimated for farm households using the 2021 income tax rates, brackets, and standard deductions. These baseline tax liabilities were then compared with estimated tax liabilities generated using the inflation-adjusted 2017 parameters. The results of the analysis suggest that the combined effect of these changes to Federal income taxes would increase tax liabilities for most farm households (figure 2). The largest increase in tax liabilities would occur for households with the highest total incomes.<sup>6</sup> The increase in tax liability increases across farm size, while the percentage increase in average tax is lowest for very large farms. For these very large farms, average tax liability would increase by \$27,588, representing a percentage increase in average tax liability of approximately 5.4 percent. Households with the lowest average total income would experience a much larger percentage increase in tax liability. Retirement and low-sales farm households would experience an increase in tax liability of \$531 and \$713, respectively, representing a percentage increase in average tax liability of 6.6 percent for retirement farm households and 10.9 percent for low-sales farm households.

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<sup>6</sup> Appendix A presents statistical tests used to underpin the discussion of differences between groups.

Figure 2

**Increase in tax liabilities resulting from expiring Tax Cuts and Jobs Act (TCJA) provisions that would increase tax rates, decrease deductions, and restore personal exemptions**



Note: All data are adjusted to 2021 values. The baseline scenario includes all tax provisions that were active in 2021. The comparison scenario reverts to pre-Tax Cuts and Jobs Act (TCJA) marginal tax rates, income brackets, and standard deductions; reimplements the personal exemption; and eliminates the limit on State and local tax deductions. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and have principal operators (POs) who report that they are retired. Off-farm occupation farms have a GFCI less than \$350,000 and a PO who reports a primary occupation other than farming. All remaining farm types have a PO whose primary occupation is farming. Low-sales farms have a GFCI less than \$150,000. Moderate-sales farms have a GFCI between \$150,000 and \$349,000. Midsize farms have a GFCI between \$350,000 and \$999,999. Large family farms have a GFCI between \$1,000,000 and \$4,999,999. Very large family farms have a GFCI greater than \$5,000,000.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

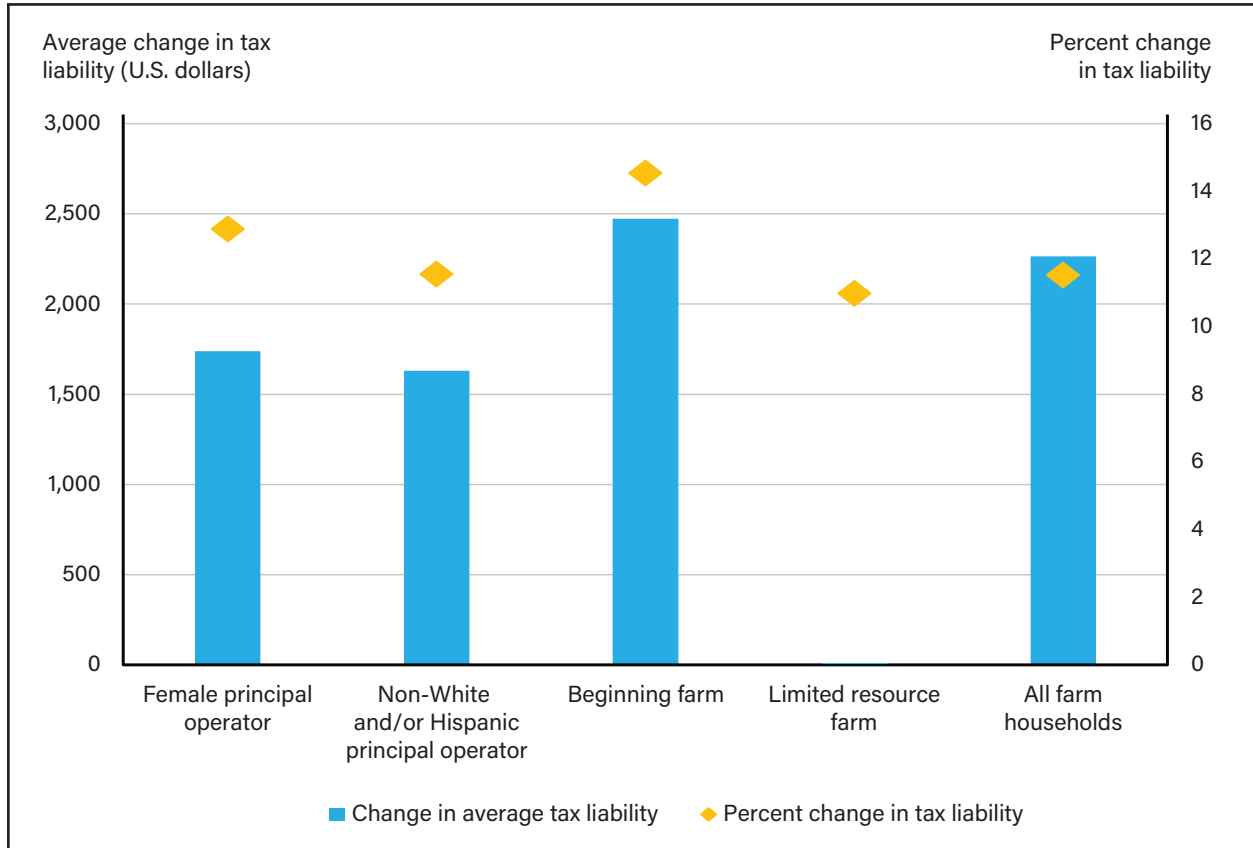
An examination across underserved<sup>7</sup> groups (female POs,<sup>8</sup> non-White and Hispanic POs, beginning, and limited resource farms) shows variation in the impact relative to the average farm (figure 3). Female POs and non-White or Hispanic POs would experience less than average tax increases if these provisions were allowed to expire. The effect on limited resource farms was lowest overall, with average tax liabilities increasing by only \$5. The effect on tax liabilities of beginning farms was similar to the overall average due largely to similar levels of adjusted gross income between the two groups.

<sup>7</sup> The terms underserved and historically underserved have been used in Farm Bill legislation to identify groups of farmers with lower Federal Government program participation rates. These groups include racial and ethnic minority, women, beginning, and veteran farmers (7 U.S.C. §1508(a)(7)(A)(ii)). Some definitions also include limited resource farmers, which is the definition used in this report. Due to data limitations, analysis of the impact on veteran farmers was not possible.

<sup>8</sup> Detailed farm household financial information is only available for the principal operator of the farm household.

Figure 3

**Increase in tax liability for underserved farm households resulting from expiring Tax Cuts and Jobs Act (TCJA) provisions that would increase tax rates, decrease standard deductions, and restore personal exemptions**



Note: All data are adjusted to 2021 values. The comparison scenario reverts to pre-Tax Cuts and Jobs Act (TCJA) marginal tax rates, income brackets, and standard deductions; reimplements the personal exemption; and eliminates the limit on State and local tax deductions. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Typically, the limit on deductions for State and local taxes has a greater impact on households in high tax areas, such as those more commonly found in metropolitan areas, and has a more muted impact for households in rural areas. Overall, 3.3 percent of farm households are estimated to have State and local taxes greater than the deduction limit; however, this percentage varies by farm typology (table 3). Small farm households are not likely to have State and local taxes above the deduction, while 23 percent of large farm households and 42.6 percent of very large farm households have State and local taxes above the deduction limit. Underserved farm households are also not likely to have State and local taxes greater than the deduction limit, ranging from 2.2 percent of non-White or Hispanic PO households to 3.5 percent of beginning farm households. For farm households whose State and local taxes exceed the deduction limit, the expiration of the limit would reduce Federal income tax liabilities. On average, tax liabilities would decrease by \$5,924 (3.3 percent) for those with State and local taxes that exceed the limit. For very large farms, their tax liabilities would decrease by \$20,307 (2.4 percent) on average.

Table 3

**The percentage of farm households with a State and local tax (SALT) deduction that is greater than the limit and the impact on tax liabilities for these households of expiring the SALT limit**

	Percentage with SALT above exemption	Average change in tax liability for those affected by the expiration of SALT limits (U.S. dollars)	Percentage change in tax liability for those affected by the expiration of SALT limits
<b>Farm typology</b>			
<b>Small</b>			
Retirement	1.07	-33,708 <sup>†</sup>	-43.2
Off-farm occupation	3.62	-3,493	-2.5
Low sales	1.20	-3,653	-2.6
Moderate sales	2.22	-3,569	-3.0
<b>Midsized</b>			
Midsized	7.62	-2,670	-2.4
<b>Large</b>			
Large	23.06	-5,171	-2.0
<b>Very large</b>			
Very large	42.60	-20,307	-2.4
<b>Underserved farm household</b>			
Non-White or Hispanic principal operator	2.15	-5,242	-2.6
Female principal operator	2.91	-2,693	-3.4
Limited resource	α	α	α
Beginning	3.50	-3,447	-3.4
All farms	3.28	-5,924	-3.3

SALT = State and local tax.

Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose PO reports a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsized farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farm households are defined as having low farm sales and low household incomes for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

† The average change in tax liability for retirement farm households is larger than all other categories of farm households due to a highly skewed distribution evident by a median change in tax liability of only -457.

α = Estimate does not comply with USDA, National Agricultural Statistics Service (NASS) disclosure practices.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

### *Child Tax Credit*

For taxpayers with children, the child tax credit reduces the taxpayers' tax liability by providing a tax credit to the taxpayer for each child under a certain age. The amount of the credit per child depends on the taxpayer's income and begins to phaseout at higher income levels. The child tax credit was first introduced in 1997, as part of the Taxpayer Relief Act, as a nonrefundable credit of \$400 per child. Over time, legislation has increased the child tax credit. From 2001 to 2004, the child tax credit was \$600 per child. From 2004 to 2017, the child tax credit was \$1,000 per child. In 2017, the TCJA increased the credit to \$2,000 per child. In 2021, the American Rescue Plan introduced an additional child tax credit of \$1,000 for children 6 to 17 years old, and \$1,600 for children younger than 6 years old.

Both the ARPA and TCJA expansions of the child tax credit were temporary. The ARPA expansion applied to the 2021 tax year only, and the TCJA is scheduled to expire at the end of 2025, when the tax credit is set to revert to \$1,000 per child. The ARPA and TCJA further made temporary changes to the income phaseout thresholds. The TCJA increased the income threshold from \$110,000 for married filers and \$75,000 for single filers to \$400,000 and \$200,000, respectively. The ARPA child tax credit had its own phaseout thresholds: \$150,000 for married filers, \$112,000 for head of household (HOH) filers, and \$75,000 for single filers.

The TCJA and ARPA also made temporary changes to the refundability of the child tax credit. A tax credit is considered refundable if any excess credit above that required to reduce the taxpayer's tax liability to zero is given to the taxpayer as a refund. Prior to TCJA, the refundable portion of the child tax credit was equal to 15 percent of earned income greater than \$3,000. The TCJA changed this to 15 percent of earned income greater than \$2,500, while the ARPA made the child tax credit fully refundable (see table 4 for a comparison of ARPA and TCJA CTC provisions).

Table 4  
**Child tax credit parameters**

	Pre-TCJA	TCJA	ARPA
Child tax credit amount	\$1,000	\$2,000	\$3,000 (\$3,600 for children under 6)
Eligible children	Children under age 17	Children under age 17	Children age 17 and under
Income limits	Full amount if MAGI is under \$110,000 on a joint return	Full amount if MAGI is under \$400,000 on a joint return	Full amount if MAGI is under \$150,000 on a joint return
Refundability	Up to \$1,000 but limited to 15 percent of earnings above \$3,000	Up to \$1,600 but limited to 15 percent of earnings above \$2,500	Fully refundable

TCJA = Tax Cuts and Jobs Act; ARPA = American Rescue Plan Act; MAGI = modified adjusted gross income.

Source: U.S. Internal Revenue Service.

To evaluate the effect of the expiration of the child tax credit expansion, a baseline scenario is first simulated with both ARPA and TCJA child tax credit expansions, which reflects 2021 law. The second scenario eliminates the ARPA child tax credit, while the third scenario eliminates both the ARPA and TCJA child tax credit expansions. The share of farm households expected to receive the child tax credit and the average amount of the child tax credit is presented for each scenario.

The results of the tax simulations show that, under the baseline scenario with both child tax credit expansions in place reflecting 2021 law, an estimated 35.9 percent of farm households received a child tax credit equal to \$5,604 on average (table 5). In the scenario where the ARPA child tax credit expansion is allowed to expire, the same share of households receive the child tax credit, although the amount received on average decreases to \$3,770. This lack of difference in the share receiving the tax credit reflects that the ARPA child tax credit had stricter income requirements and reached fewer households, therefore eliminating this additional child



tax credit does not affect the share of households that receive the child tax credit. In the third scenario, where both TCJA and ARPA child tax credit expansions are allowed to expire, the share of households that would receive the child tax credit falls to 26.8 percent since the TCJA's more generous income thresholds would also expire. The average tax credit received by farm households would also drop to \$1,331.

Table 5

**Impact of expiring American Rescue Plan Act (ARPA) and Tax Cuts and Jobs Act (TCJA) child tax credit expansions on farm households**

Farm typology	Percentage of farm households receiving child tax credit			Average child tax credit received (U.S. dollars)			Percentage change in child tax credit received	
	All 2021 tax provisions are active	Expired ARPA child tax credit expansion	Expired ARPA and TCJA child tax credit expansion	All 2021 tax provisions are active	Expired ARPA child tax credit expansion	Expired ARPA and TCJA child tax credit expansion	Expired ARPA expansion	Expired ARPA and TCJA expansions
<b>Small</b>								
Retirement	14.6	14.6	12.5	5,166	3,341	1,422	-35.3	-72.5
Off-farm occupation	42.4	42.4	29.5	6,026	4,107	1,342	-31.8	-77.7
Low sales	34.4	34.4	30.2	4,844	3,099	1,331	-36.0	-72.5
Moderate sales	43.3	43.3	30.4	6,472	4,325	1,588	-33.2	-75.5
Midsize	39.5	39.5	19.6	5,735	4,249	1,029	-25.9	-82.1
Large	27.3	27.3	12.9	5,698	4,348	981	-23.7	-82.8
Very large	17.7	17.7	10.2	5,599	4,017	1,159	-28.2	-79.3
<b>All farm households</b>	<b>35.9</b>	<b>35.9</b>	<b>26.8</b>	<b>5,604</b>	<b>3,770</b>	<b>1,331</b>	<b>-32.7</b>	<b>-76.2</b>

ARPA = American Rescue Plan Act; TCJA = Tax Cuts and Jobs Act.

Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021 and child tax credit expansions from ARPA and TCJA. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and POs who reports a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsize farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

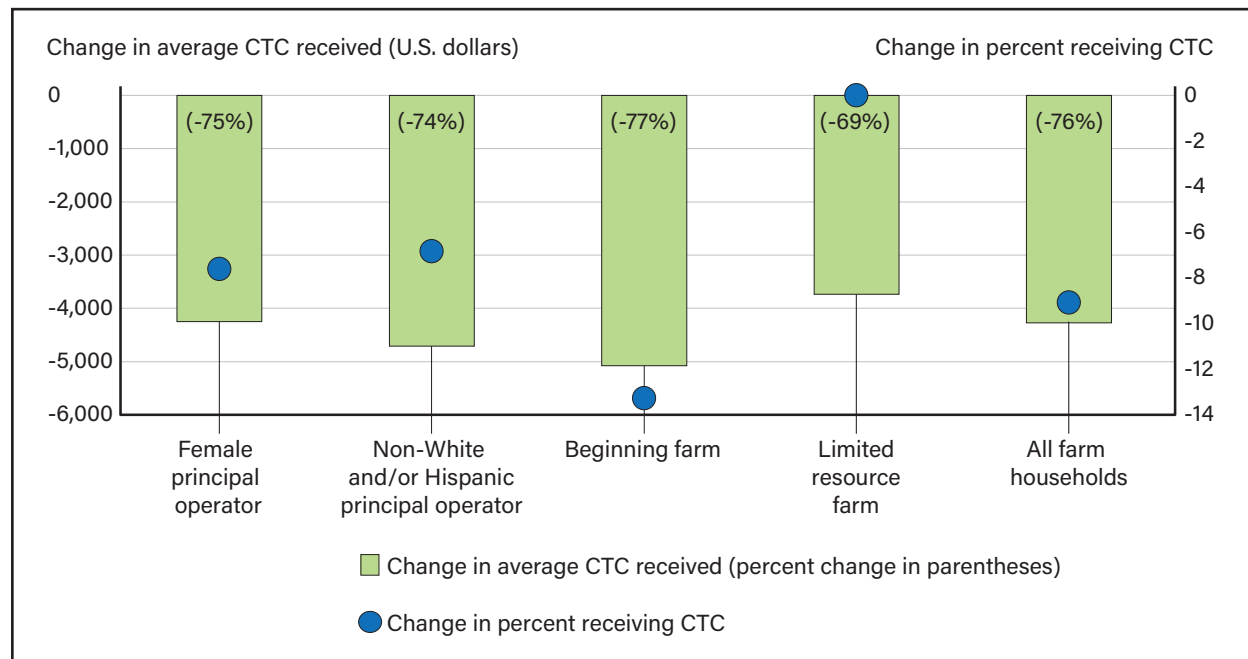
An examination across farm typology shows that the stricter income thresholds associated with the expiration of the TCJA child tax credit provisions would decrease the share of households receiving the credit. This decrease in share of households receiving the credit is largest for off-farm occupation, midsize, and larger farm households. For farm households that receive the child tax credit, the decrease in the size of the benefit is similar across midsize and larger farm households, and larger when compared with retirement and low-sales farm households.

Due to the decrease in the maximum credit available, an examination across underserved farms shows a decrease in the amount of child tax credit received by households eligible for the child tax credit (figure 4). The estimated decrease in child tax credit is greater than average for non-White or Hispanic PO farm households and beginning farm households, and lower than average for limited resource farm households. Additionally, the stricter income thresholds, which would result from TCJA provisions expiring, would cause

a decrease in the percentage of households receiving the child tax credit. The only group of households that would not experience a change in the percentage of households receiving the child tax credit are limited resource farm households, since these households have incomes well below the pre-TCJA thresholds and therefore none of these households would be excluded.

Figure 4

**Change in child tax credit (CTC) for eligible farm households resulting from expiring CTC provisions in the American Rescue Plan Act (ARPA) and Tax Cuts and Jobs Act (TCJA)**



ARPA = American Rescue Plan Act; TCJA = Tax Cuts and Jobs Act; CTC = child tax credit.

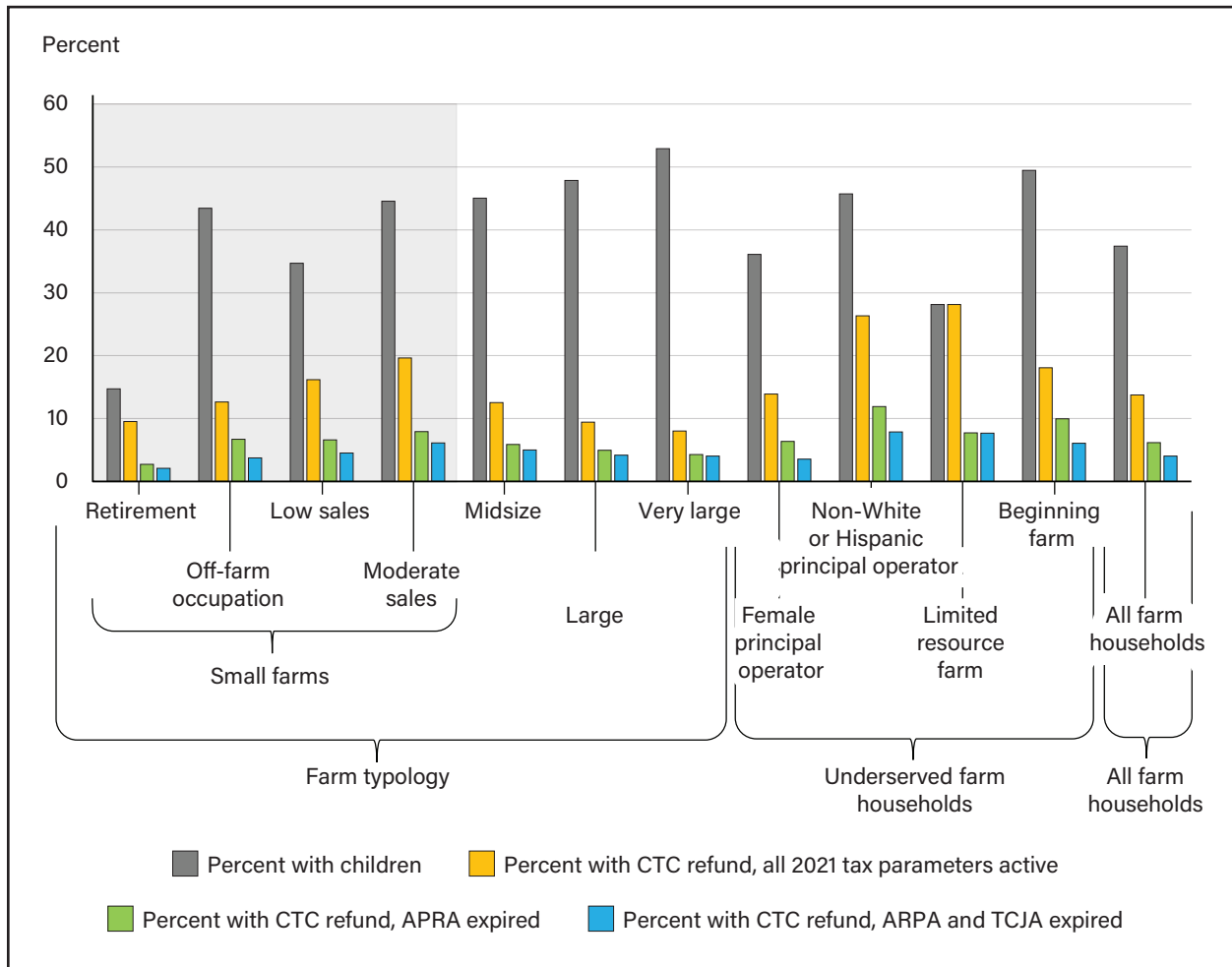
Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021 and CTC expansions from ARPA and TCJA. The sunseting scenario allows both ARPA and TCJA CTC expansions to expire. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Figure 5 shows that the percent of farm households that have children, as well as the percent estimated to receive a child tax credit (CTC) refund under ARPA and TCJA, under TCJA alone, and with both ARPA and TCJA expired. Even when ARPA is in effect and the CTC is fully refundable, not all households with children receive a CTC refund. Some households may not receive a CTC refund due to high levels of income that make the households ineligible for any CTC. Other households may not receive a CTC refund due to having a positive tax liability that is not fully offset by the CTC. Across all farm households, 37 percent have children, whereas 14 percent were estimated to receive a CTC refund under ARPA and TCJA. Refundability is further constrained by the expiration of ARPA, which limits refundability to households with earned income greater than \$3,000. Across all farm households, the expiration of ARPA decreases the percent of households that receive a CTC refund to 6 percent. The expiration of TCJA further constrains refundability by limiting refunds to households with earned income greater than \$2,500. Across all farm households, 4 percent were estimated to receive a CTC refund with both TCJA and ARPA expired.

Figure 5

**Change in percent of farm households with refundable child tax credit (CTC) resulting from expired American Rescue Plan Act (ARPA) and Tax Cuts and Jobs Act (TCJA) provisions**



CTC = child tax credit; ARPA = American Rescue Plan Act; TCJA = Tax Cuts and Jobs Act.

Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. Retirement farms have gross cash farm income (GFCI) of less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsized farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Across typology, larger farm households were more likely to have children but less likely to receive a CTC refund, even under TCJA and ARPA. The additional constraints on the refundability of the CTC had the greatest impact on lower income households, such as low- and moderate-sales farm households, since a greater share of these households have earned income below the relevant threshold. Across types of underserved farm households, the percent that have children compared with the percent estimated to receive a CTC refund differed. Only for limited resource farm households did the percent that have children equal the share that receive CTC under ARPA and TCJA. This difference is due to the low levels of income, by definition, for

these households and the fact that the refund was fully refundable for households with income less than the phaseout threshold. Non-White Hispanic PO farm households and limited resource farm households were found to be the most impacted by the additional constraints on refundability with expiring ARPA and TCJA CTC provisions. The expiration of ARPA decreased the percent of non-White Hispanic PO farm households from 26 percent to 12 percent. For limited resource farm households, expiration of ARPA excluded 20 percent of these households from receiving a CTC refund.

### *Alternative Minimum Tax*

The alternative minimum tax (AMT) is a parallel method of calculating an individual's income tax liability. The AMT applies to individuals whose income exceeds a certain level and is intended to limit their ability to utilize various tax deductions and other benefits to reduce or eliminate their tax liability under the regular individual income tax. The AMT has its own set of rates (26 percent and 28 percent) and exemptions and requires certain tax benefits to be added back to taxable income in determining income taxable under the AMT. If the amount of tax calculated under AMT exceeds the amount under the regular income tax method, the individual must pay this amount in addition to the regular income tax.

The TCJA included provisions that significantly reduced the impact of the AMT. These provisions included an increase in the AMT exemption amount and an increase in the income threshold where the exemption begins to phase out. The TCJA also repealed or scaled back some of the largest AMT preference items, including personal exemptions and State and local tax deductions. As a result, the share of farmers affected by the AMT has dropped substantially. Regarding the impact of sunseting AMT parameters for farm households, 2021 tax liabilities are estimated to revert the AMT exemption and income thresholds back to 2017 levels, adjusted for inflation.

The AMT increases tax liabilities for some high-income households. The expiring AMT provisions would likely increase both the amount of AMT tax liability and the share of households that pay the AMT. The results of the tax simulation (table 6) show an increase in the share of farm households that owe AMT from 0.1 percent to 4.7 percent. The majority of the impact is concentrated among larger farm households. For large farm households, the percent that are subject to the AMT increases from less than 1.9 percent to 37.1 percent. For very large farm households, the percent that are subject to the AMT increases from 14.3 percent to 30.8 percent.

Table 6

**Effects of expiring alternative minimum tax (AMT) provisions on tax liabilities and percent subject to the tax**

Farm typology	Percent of farm households subject to AMT		Tax liability for farm households impacted by expired AMT provision			
	All 2021 tax provisions are active	Expired AMT provisions	Average tax liability if all 2021 tax provisions are active (U.S. dollars)	Average tax liability if AMT provisions expired (U.S. dollars)	Change in average tax liability (U.S. dollars)	Percentage change in tax liability
Retirement	0	1.76	80,750	86,796	6,047	7.5
Off-farm occupation	0	4.47	78,390	84,845	6,455	8.2
Low sales	0	0.79	82,634	88,866	6,231	7.5
Moderate sales	0	3.08	64,999	69,949	4,950	7.6
Midsize	0.05	20.05	77,832	84,098	6,266	8.1
Large	1.87	37.13	95,780	104,534	8,754	9.1
Very large	14.27	30.81	97,837	110,778	12,941	13.2
All	0.09	4.65	82,173	89,109	6,936	8.4

AMT = alternative minimum tax.

Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsize farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000.

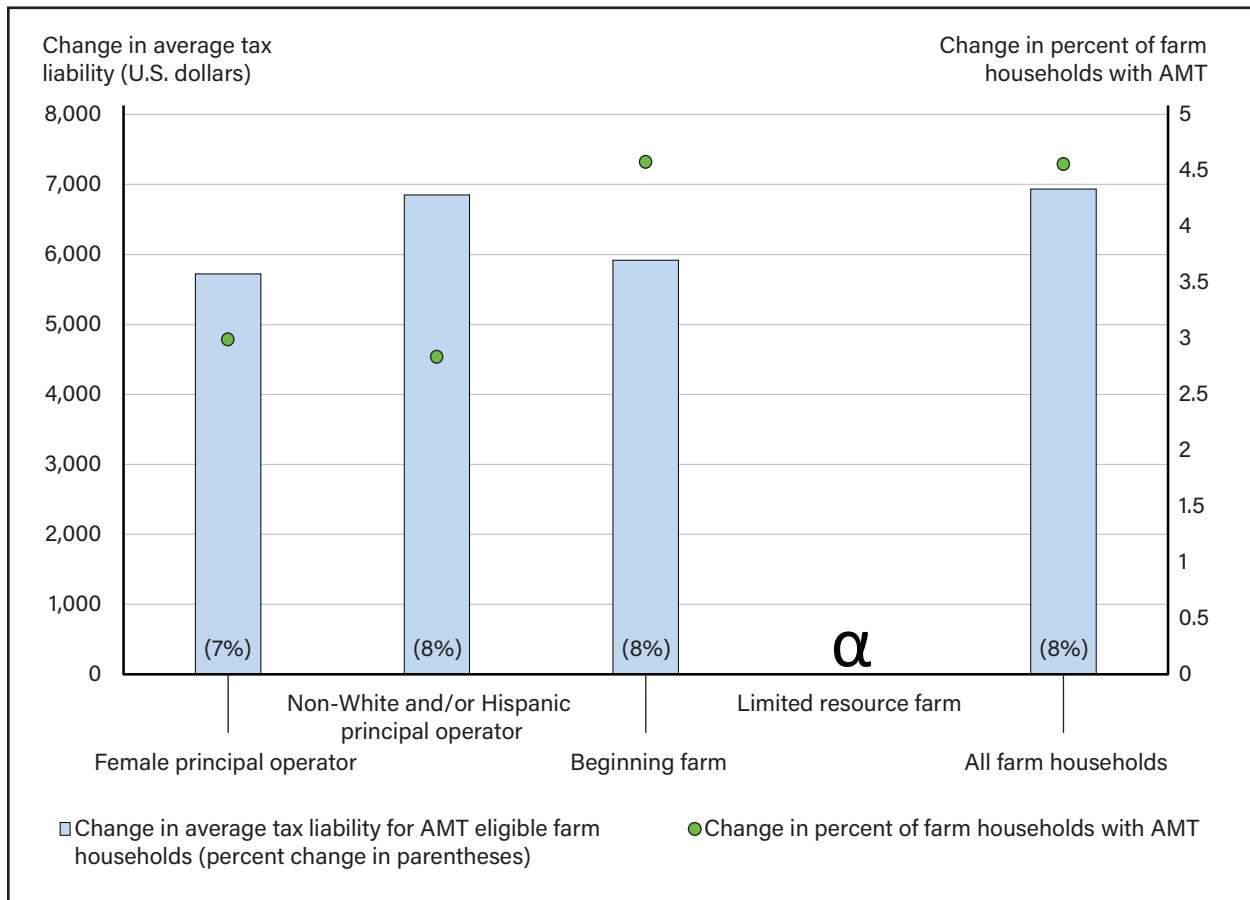
Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

While the sunseting AMT provisions would increase the percent of farm households with AMT by 4.5 percent, for non-White or Hispanic PO farm households and female PO farm households, the increase is significantly smaller (figure 6). For beginning farm households, the increased exposure to the AMT is similar to the average farm household. The effect on limited resource farms is negligible.<sup>9</sup>

<sup>9</sup> While there were not enough observations to allow the authors to produce precise estimates, the low levels of income for limited resource farms generally exclude these farm households from the AMT.

Figure 6

**Impact of expiring alternative minimum tax (AMT) provisions on underserved farm households**



AMT = alternative minimum tax.

Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

α = Estimate does not comply with USDA, National Agricultural Statistics Service (NASS) disclosure practices.

Source: USDA, Economic Research Service and USDA, NASS, 2018–2021 Agricultural Resource Management Survey.

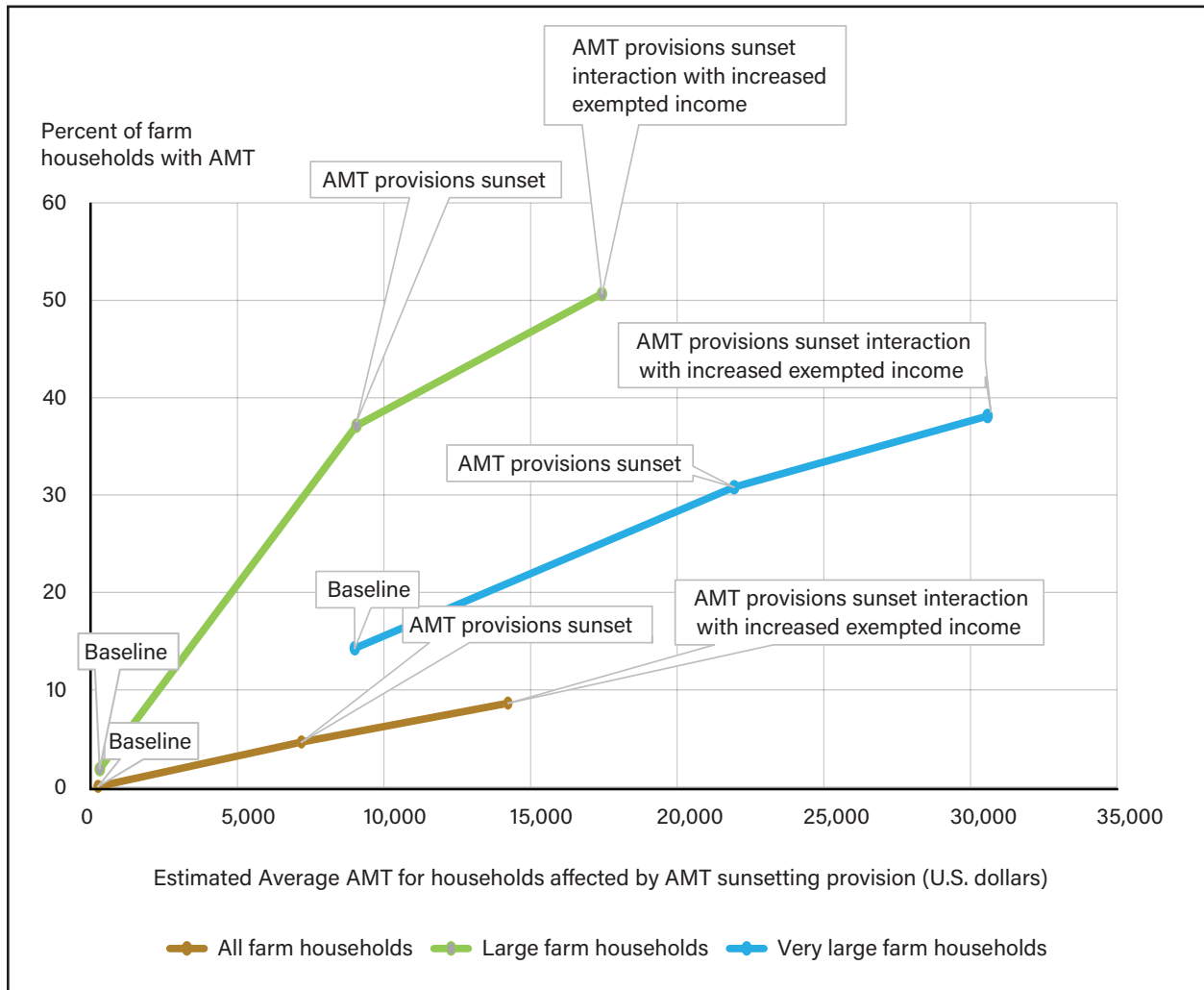
The AMT applies to certain tax preference items, including exempted income. The sunseting limit on State and local taxes and the potential reinstatement of the personal exemption would increase the amount of exempted income and increase the impact of the sunseting AMT provisions. To demonstrate the impact of increasing tax preference items, the combined impact of sunseting the AMT, sunseting the TCJA limits on the State and local tax deduction, and reinstating the personal exemption was estimated.

The results of the tax simulation are highlighted in figure 7 for large and very large farm households. For large farm households, the percentage subject to the AMT increases from 37 percent (under only the AMT sunseting scenario) to 51 percent under the AMT sunseting scenario with increased exempted income. For very large farms, the percentage increases from 31 percent (under only the AMT sunseting scenario) to 38 percent under the AMT sunseting scenario with increased exempted income. The reason for the greater increase in the share of large farm households subject to the AMT is due to the tax rates that determine AMT eligibility. The tax rates for the AMT are 26 and 28 percent, so only households whose average income tax rates were lower than these rates would be subject to the AMT. For many very large farms, the farms' income

levels are such that farm households are subject to the highest income tax rates (37 percent) and therefore are not subject to the AMT, even given preferential treatment of exempted income.

Figure 7

**Impact of sunseting alternative minimum tax (AMT) provisions, combined with increased exempted income from expiring State and local tax (SALT) deduction limits and reinstatement of the personal exemption, on tax liabilities**



AMT = alternative minimum tax; SALT = State and local tax.

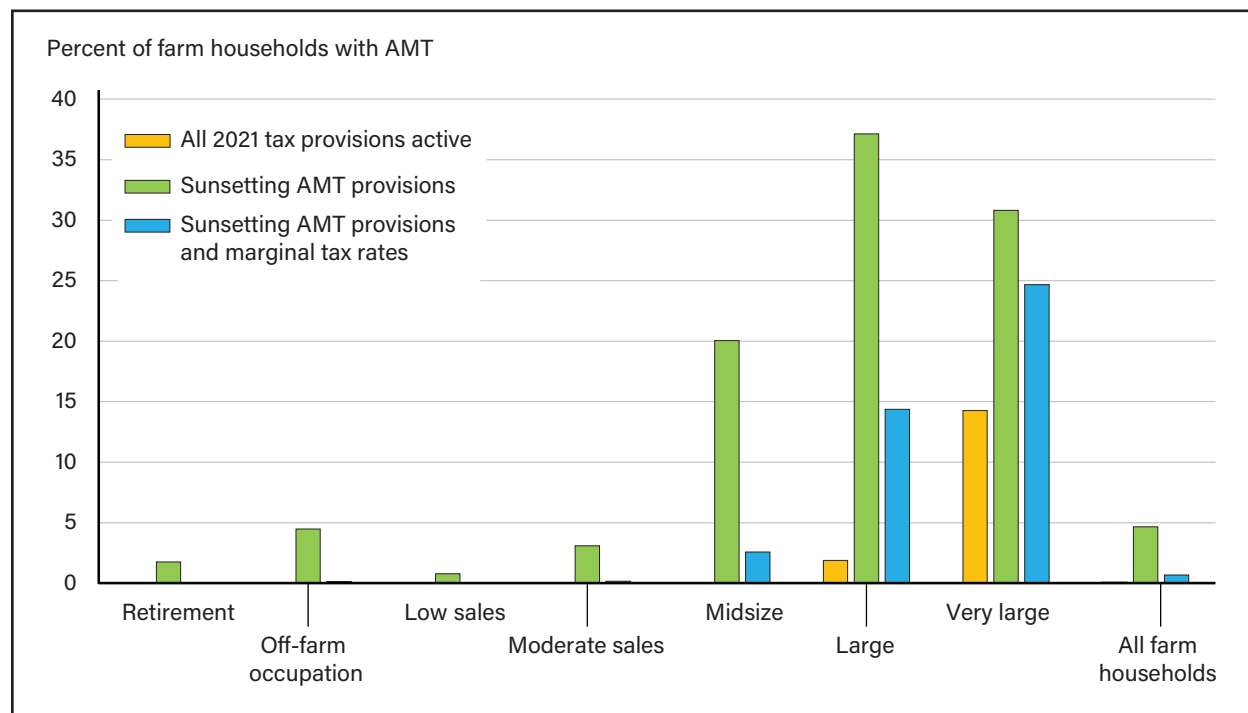
Note: The baseline includes all tax provisions that were active in 2021. The AMT provisions sunset scenario simulates the expiration of AMT provisions. The AMT sunset, interacted with increased exempted income, simulates the joint effect of expiring AMT provisions and the increased exempted income generated from the elimination of the SALT deduction limit and reinstating the personal exemption. Large family farms have gross cash farm incomes (GFCIs) of between \$1,000,000 and \$4,999,999. Very large family farms have GFCIs of greater than \$5,000,000.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

The tax rates for normal income also impact the reach of the AMT. All else being equal, higher tax rates on regular income decrease the share of households that are subject to the AMT. For this reason, the effect of expiring tax rates, combined with the effect of expiring AMT provisions, is further analyzed in this report. Figure 8 shows the baseline scenario, where all 2021 tax provisions are active, compared with the outcome if AMT provisions alone expire and the outcome if AMT provisions and marginal tax rates expire. Across all farm households, the effect of expired tax rates decreases the share subject to the AMT. The baseline scenario shows that 0.1 percent of farm households are subject to the AMT. If the AMT provisions expire, the percent

of farm households subject to the AMT increases to 4.7 percent. If the AMT provisions and the marginal tax rates expire, the percent of farm households subject to the AMT decreases to 0.7 percent. Expired AMT provisions and marginal tax rates also limit the reach of the AMT by farm typology. Expired marginal tax rates, along with sunseting AMT provisions, more than halve the percent of large farm households that are subject to the AMT. The effect on very large farm households is more muted, decreasing the share subject to the AMT from 31 to 25 percent.

Figure 8  
**Percent of farm households subject to the alternative minimum tax (AMT) if AMT provisions and marginal tax rates sunset**



AMT = alternative minimum tax.

Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsize farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

### Earned Income Tax Credit

The earned income tax credit (EITC) was introduced in 1975 and its expansion in recent years has resulted in it becoming the largest Federal need-tested antipoverty program that provides cash benefits to low-income workers (Crandall-Hollick et al., 2021). In 2019, the program provided more than \$70 billion to more than 25 million lower and middle-income workers and their families. EITC provides a subsidy to earned income in the form of a refundable tax credit of as much as 45 percent for a married worker with three or more children, up to a maximum of \$6,728 in 2021. The subsidy rate and maximum credit amounts are smaller for workers with fewer children and for single workers. The EITC is phased out for higher income workers (see table 7, with phase out ranges noted).



Table 7

**2021 earned income tax credit (EITC) maximum credit amounts and phaseout ranges**

Filing status		No children	One child	Two children	Three or more children
Single, head of household, or married filing separately	Maximum credit	\$1,502	\$3,618	\$5,980	\$6,728
	Phase out begins	\$11,610	\$19,520	\$19,520	\$19,520
	Phase out ends	\$21,430	\$42,158	\$47,915	\$51,464
Married filing jointly	Maximum credit	\$1,502	\$3,618	\$5,980	\$6,728
	Phase out begins	\$17,550	\$22,470	\$22,470	\$22,470
	Phase out ends	\$27,380	\$48,108	\$53,865	\$57,414

EITC = earned income tax credit.

Note: The American Rescue Plan Act (APRA) increased the maximum credit for childless workers from \$543 to \$1,502 in 2021. All monetary values are in U.S. dollars.

Source: U.S. Internal Revenue Service.

In 2021, the ARPA temporarily expanded the EITC, but the changes were targeted to those taxpayers without qualifying children. The expansion increased the credit rate from 7.65 percent to 15.3 percent and the maximum credit available from \$538 in 2020 to \$1,502 in 2021. Only about 2 percent of all family farm households are childless and remain eligible for EITC, while among all EITC eligible households, approximately 38 percent are childless. The tax simulation in this section compared the percentage eligible for the EITC and the average value of the EITC with the ARPA expansion to a baseline scenario that assumes the 2021 expansion did not occur. To simulate EITC for 2021 without the ARPA expansion, the maximum credit for childless workers in 2020 (adjusted for inflation) was used.

The results show that retirement and low-sales farm households have the highest percentage of households without dependent children that are EITC eligible (2.9 percent and 3.3 percent, respectively; see table 8). The average value of the EITC decreases with the sunset of the ARPA EITC provisions for filers who are impacted. The magnitude of this decrease is similar for affected farm households across the farm typology.

Table 8

**Impact of the expiring expanded earned income tax credit (EITC) for farm households without children. Low-sales and retirement farms have the highest percentage of households with EITC and without children**

For childless and EITC-eligible farm households					
	Percent of farm childless households with EITC	Average EITC if all 2021 tax provisions are active (U.S. dollars)	Average EITC if the EITC expansion for childless earners expired (U.S. dollars)	Change in average EITC received (U.S. dollars)	Percent change in EITC received
<b>Farm typology</b>					
Retirement	2.9	732	280	-452	-61.7
Off-farm occupation	0.9	686	229	-457	-66.7
Low sales	3.3	742	271	-471	-63.5
Moderate sales	1.1	897	315	-582	-64.9
Midsized	0.8	889	337	-552	-62.1
Large	0.3	860	318	-542	-63.0
Very large	0.8	1,075	348	-727	-67.6
All farm households	2.0	739	268	-471	-63.7

EITC = earned income tax credit.

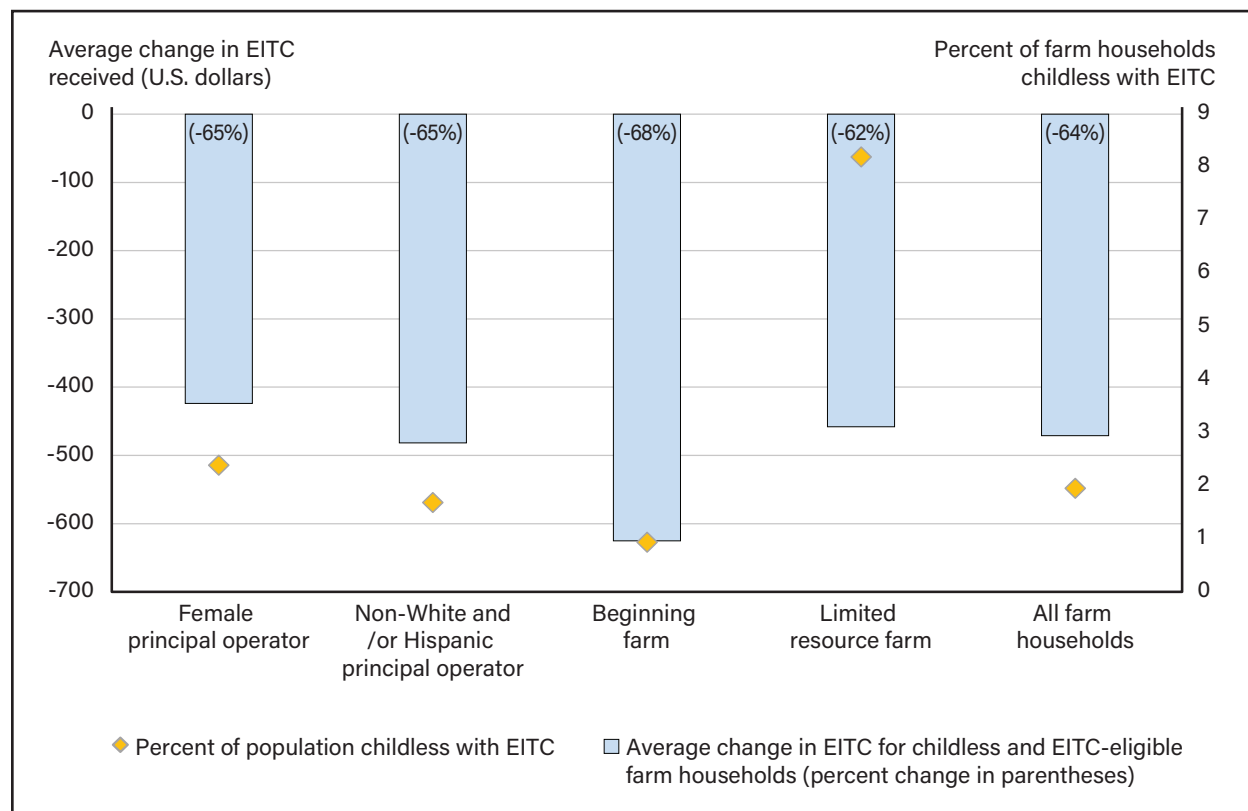
Note: The baseline includes all tax provisions that were active in 2021, including the American Rescue Plan Act (ARPA) expansion of EITC for childless workers. The sunset scenario simulates EITC without the ARPA expansion of EITC for childless workers. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsized farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Among underserved farm households, limited resource farms have the highest share of households that receive EITC and are childless (figure 9). This decrease in the credit received by childless EITC recipients was above average for beginning farm households and similar across all other underserved farm households.

Figure 9

### Impact of sunsetting the American Rescue Plan Act (ARPA) earned income tax credit (EITC) expansion on childless workers



EITC = earned income tax credit; ARPA = American Rescue Plan Act.

Note: The baseline includes all tax provisions that were active in 2021, including the ARPA expansion of the EITC for childless workers. The sunsetting scenario simulates the EITC without the ARPA expansion of EITC for childless workers. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low-farm sales meant direct or indirect gross farms sales were not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

## Expiring Business Tax Provisions

### Qualified Business Income Deduction

The TCJA included a provision that offered a deduction for businesses with pass-through income. As part of the TCJA, corporate tax rates were decreased. For farms and other businesses that are not organized and taxed as corporations, any profits from the business are passed through to the household and subject to Federal income taxation under the individual tax rate schedule. To provide parity with the reduction in corporate taxes, the TCJA provided pass-through entities a deduction equal to 20 percent of their qualified business income. This deduction is known as the qualified business income deduction (QBID). The QBID is only effective for businesses that have positive income; therefore, any businesses that report losses will not benefit from the deduction in that year.

Using ERS’s Federal income tax model, approximately 45 percent of all family farms are estimated to benefit from the QBID (table 9). The share of farms that have the QBID increases with farm size, with 41 percent of off-farm occupation and 39 percent of low-sales farms benefiting from the QBID, increasing to 80 percent

for very large farms. The impact of the QBID is measured in terms of the difference in average tax liability when the QBID is eliminated. For retirement and low-sales farms, the elimination of the QBID increases farms households' average tax liability by less than \$1,000 each. For moderate sales and midsize farms, the elimination of the QBID increases farm households' average tax liability by \$3,068 and \$5,678, respectively. For large and very large farms, elimination of the QBID increases farms households' average tax liability by \$11,868 (8.5 percent) and \$87,219 (14.1 percent), respectively.

Table 9

**Percent of farm households that receive a qualified business income deduction (QBID) and the impact on average tax liability**

	Percentage of farm households that received a QBID		For farm households affected by the expiration of a QBID			
	All 2021 tax provisions are active	Expired QBID	Average tax liability if all 2021 tax provisions are active (U.S. dollars)	Average tax liability if the QBID expired (U.S. dollars)	Change in average tax liability (U.S. dollars)	Percentage change in tax liability
<b>Farm typology</b>						
Retirement	43.4	0	10,111	10,962	851	8.4
Off-farm occupation	40.6	0	25,341	26,351	1,010	4.0
Low sales	39.1	0	7,868	8,579	711	9.0
Moderate sales	73.3	0	15,333	18,401	3,068	20.0
Midsize	76.0	0	40,508	46,186	5,678	14.0
Large	77.8	0	139,570	151,437	11,868	8.5
Very large	79.7	0	617,063	704,282	87,219	14.1
All farm households	45.3	0	27,354	29,818	2,464	9.0

QBID = qualified business income deduction.

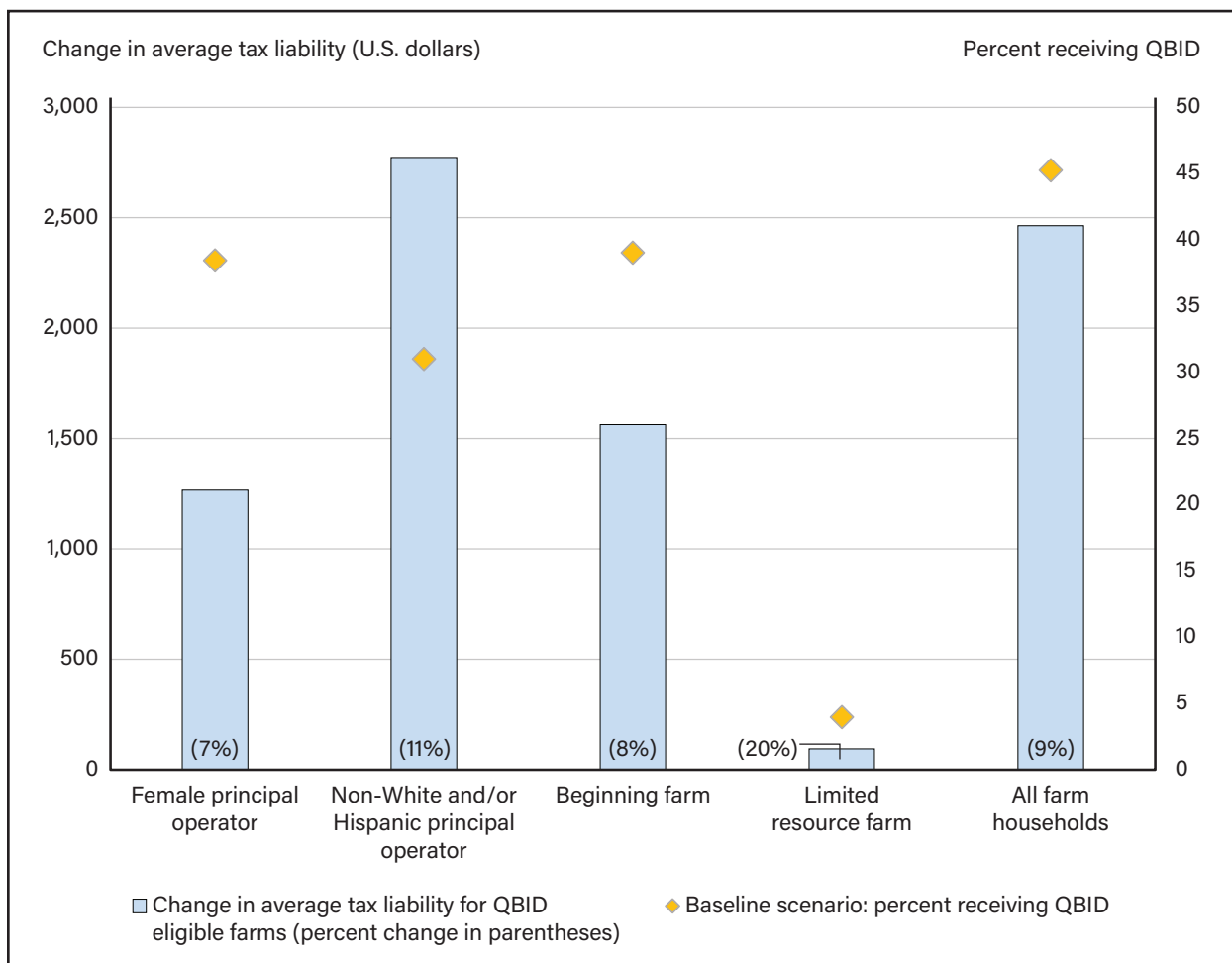
Note: All data are adjusted to 2021 values. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsize farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Analysis of the impact of eliminating the QBID on underserved farm households shows a lower than average increase in tax liability for female PO, beginning, and limited resource farm households (figure 10). Additionally, a smaller than average share of farms in each underserved group currently benefits from the QBID. One reason for this benefit is that these groups are more likely to report negative farm income. Because the QBID only benefits business owners with positive income, the loss of this deduction has less of an impact on those farms that frequently report negative income.

Figure 10

**The impact of eliminating the qualified business income deduction (QBID) on tax liabilities for underserved farm households**



QBID = qualified business income deduction.

Note: The tax scenario simulates the effect of eliminating the QBID on tax liabilities. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

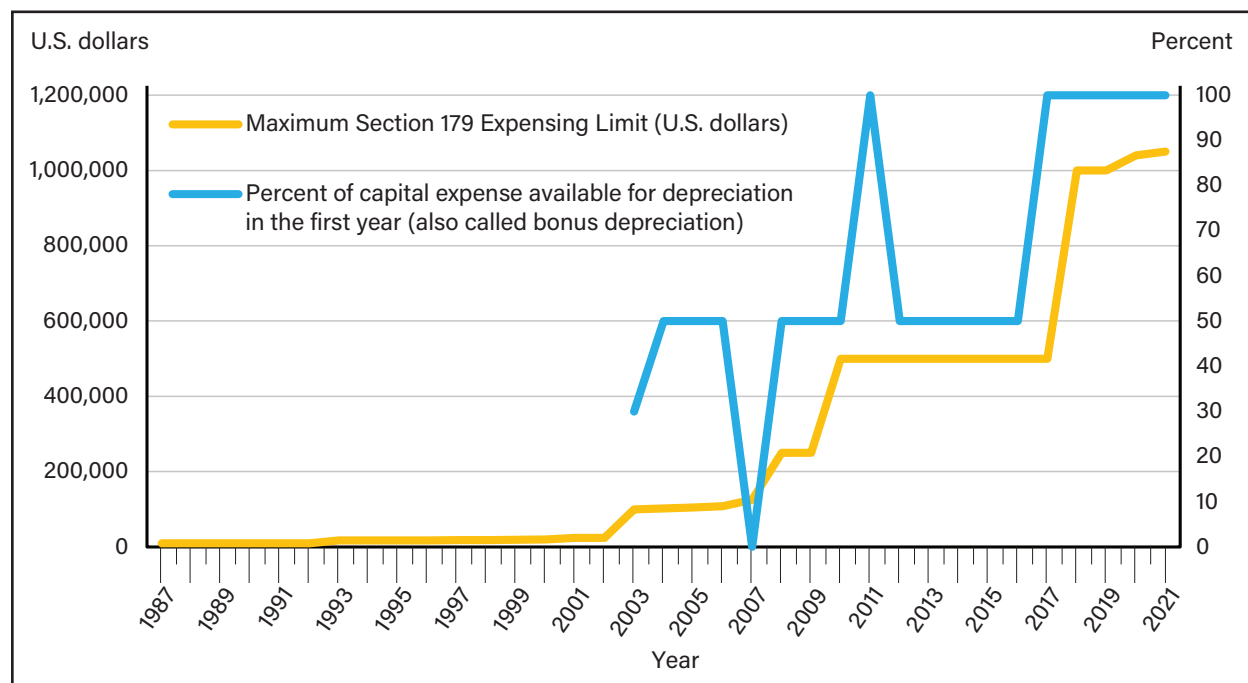
### Capital Expensing

Capital cost recovery is a method of deducting capital investments from taxable income, known as tax depreciation. In the absence of accelerated depreciation, the recovery of capital investment follows a depreciation schedule where the cost of the capital asset will be spread over the useful life of the asset. Starting in 1958, with the introduction of Section 179 of the U.S. tax code, businesses have been able to deduct from their Federal income taxes capital expenses in the year of purchase (up to a specified dollar limit). This dollar limit has increased over time. In 2018, the TCJA raised the expensing limit from \$500,000 to \$1 million and provided that limits in subsequent years would be adjusted for inflation.

Another form of accelerated depreciation, often called bonus depreciation, allows businesses to deduct a percentage of their capital expenses in the first year. Bonus depreciation was first introduced in 2003 and

allowed business owners to deduct up to 30 percent of that year’s capital expenses. The percentage allowance has varied over time and was 50 percent from 2012 to 2017 before the TCJA increased the allowance to 100 percent (figure 11). The extent to which farmers use or benefit from bonus depreciation is mediated by Section 179, since business owners are required to exhaust Section 179 expensing allowances before making use of bonus depreciation. Therefore, in 2021, only those farmers who invested more than \$1.05 million in eligible capital would benefit from bonus depreciation. While the bonus depreciation percentage allowance is set to phase out starting in 2023 and be fully phased out by 2026, the TCJA’s increased Section 179 limit is permanent.

Figure 11  
**Historical Section 179 capital expensing and first-year bonus depreciation limits, 1987–2021**



Note: Section 179 expensing and bonus depreciation allow for business owners to accelerate their capital costs recovery.

Source: USDA, Economic Research Service using data from the report: The Section 179 and Section 168(k) Expensing Allowances: Current Law, Economic Effects, and Selected Policy Issues (Congressional Research Service Report, 2018).

To estimate the impact of the elimination of bonus depreciation, tax liabilities with and without the bonus depreciation are calculated. To simulate tax liabilities, two tax scenarios are considered. In the baseline scenario for this simulation, all eligible capital investments are assumed to be fully depreciated, and in the alternative scenario, depreciation is capped at the Section 179 limit. By assuming full utilization of bonus depreciation in the baseline scenario, the maximum tax savings that may result from bonus depreciation is estimated.<sup>10</sup> In any year, a household may opt to use part or no bonus depreciation. It is important to note that since this depreciation is an acceleration of cost recovery and not an increase in the overall amount of investment that can be recovered, taxes are only deferred in the current year. Since the full amount of the investment has been recovered, income taxes in future years would be higher than if the investment was recovered over a period of years.

<sup>10</sup> The estimates reported here represent the 1-year tax savings that result from fully utilizing capital expensing in the current tax year. The authors do not consider the value of accelerated tax savings (relative to tax savings) that would result in using a nonaccelerated depreciation schedule. These estimates represent the average impact across years when bonus depreciation was available. The analysis in this report does not take into consideration behavioral responses where farm households may seek to cluster capital investment in years prior to expiration.

An estimated 0.1 percent of all farm households have capital expenses greater than the Section 179 threshold and would be eligible for bonus depreciation (table 10). The impact of eliminating bonus depreciation is concentrated among very large farms where 9.9 percent have bonus depreciation eligible capital expenses. The bonus depreciation is estimated to have the potential to reduce average tax liability for very large farms by approximately \$199,312 (38.1 percent) in the year of investment. For large farms, bonus depreciation reduced average tax liabilities in the year of investment by \$24,796 (48.7 percent). Zero tax savings is estimated for midsize and smaller farms, including retirement and off-farm occupation farms.

Table 10

**The effect of the expiring bonus depreciation on farm households**

	Percentage of farm households with bonus depreciation		Bonus depreciation for eligible farm households			
	All 2021 tax provisions are active	Expiration of bonus depreciation	Average tax liability if all 2021 tax provisions are active (U.S. dollars)	Average tax liability if bonus depreciation expired (U.S. dollars)	Change in average tax liability (U.S. dollars)	Percentage change in tax liability
<b>Farm typology</b>						
Retirement	0.0	0	0	0	0	0
Off-farm occupation	0.0	0	0	0	0	0
Low sales	0.0	0	0	0	0	0
Moderate sales	0.1	0	0	0	0	0
Midsize	0.2	0	0	0	0	0
Large	1.2	0	50,908	75,703	24,796	48.7
Very large	9.9	0	523,591	722,904	199,312	38.1
All	0.1	0	224,236	311,813	87,577	39.1

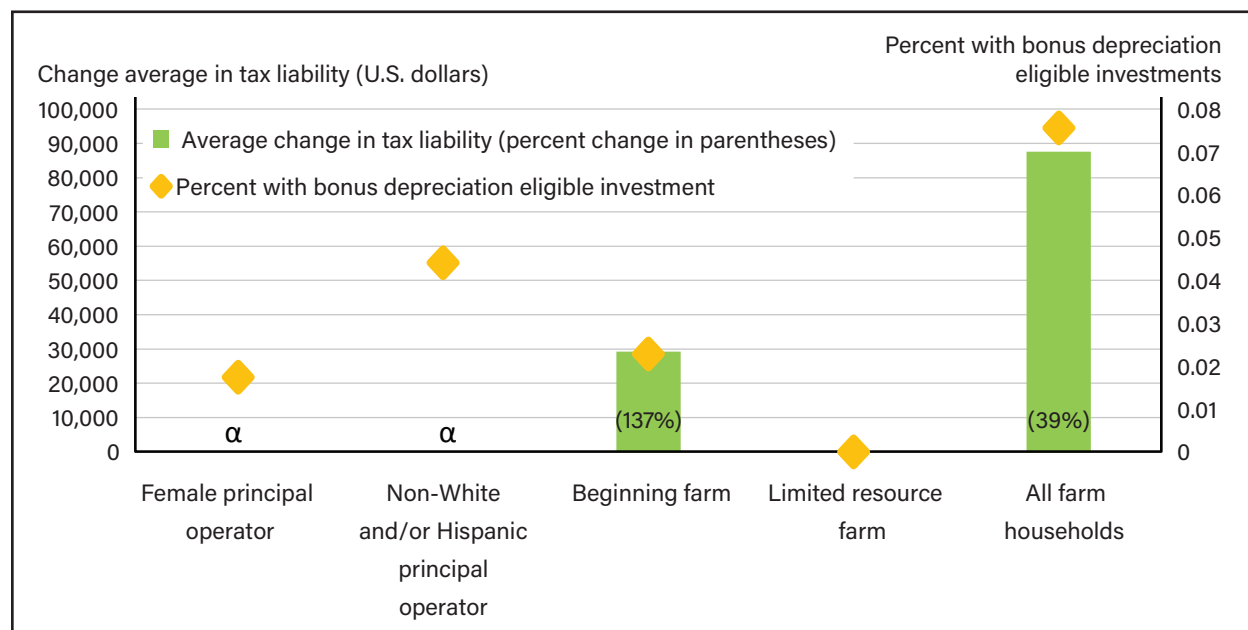
Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsize farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Among underserved farm households, the share of households affected by expiring bonus depreciation is lower than average for female PO, beginning, and limited resource farm households (figure 12). For these farm households, less than 0.03 percent have bonus depreciation eligible capital investments. The impact on tax liability differs between these households, although disclosure concerns did not allow the publication of the estimated change in tax liability in this report for female and non-White and or Hispanic PO farm households. For limited resource farm households, the average tax savings is close to zero. The reason that the bonus depreciation has little effect on tax liabilities for limited resource farmers is due to the low level of income and investment for these farm households. Limited resource farm households with bonus depreciation capital investments have an average AGI below the standard deduction and would therefore have no income tax liability even before bonus depreciation is considered.

Figure 12

**Impact of expiring bonus depreciation on underserved farm households**



Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. The sunseting scenario eliminates the bonus depreciation. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

α = Estimate does not comply with USDA, National Agricultural Statistics Service (NASS) disclosure practices.

Source: USDA, Economic Research Service and USDA, NASS, 2018–2021 Agricultural Resource Management Survey.

**Excess Business Loss Limits**

The excess business loss (EBL) provision, unlike most other provisions in the TCJA, increased taxes on certain businesses. The provision limited the deductibility of excess business losses (EBLs) for noncorporate taxpayers, effective for tax years 2018 through 2025.<sup>11</sup> EBLs are calculated by determining the amount by which a taxpayer’s aggregate trade or business deductions or losses exceed the taxpayers’ gross trade or business income or gains. The ability to deduct these losses is limited to an annual threshold amount indexed for inflation. In 2021, the threshold amount was \$262,000 (\$524,000 for joint filers). Amounts in excess of this threshold are treated as net operating losses. Unlike other businesses, farmers are eligible to carry back net operating losses to the 2 prior tax years. Because of this factor, only those farm households unable to fully use the EBL to offset their income in these 2 prior years would experience a tax increase in the current year as a result of EBL. Given the limited amount of information for prior years, it is not possible to estimate the tax liability increase resulting from the EBL provision. However, to estimate the potential aggregate impact and those types of farm businesses that would potentially benefit from the expiration of the provision, the share with losses in excess of the threshold and the excess amount are presented in this report instead of the tax savings that would result upon the expiration of the provision.

<sup>11</sup> The Coronavirus Aid, Relief, and Economic Security (CARES) Act retroactively delayed the provision’s implementation to 2021. The expiration date for the provision was later extended by two separate pieces of legislation. The American Rescue Plan Act (ARPA) and the Inflation Reduction Act (IRA) extended the EBL limitation for 1 and 2 additional years, respectively, making the limitation applicable for tax years 2021 through 2028.



While most farm businesses report a farm loss, many have other business income or gain from the sale of farm business assets, or have net losses below the threshold amount. Approximately 0.2 percent of all farm households report losses above the threshold amount and thus would potentially benefit from the expiration of the provision. A greater share of larger farm households have excess loss, at 2.6 percent of large farm households and 3.9 percent of very large farm households. The results show that a low percentage of farm households have business losses greater than the excess loss limits, but the amount of loss is considerable for those that have excess loss greater than the limits (table 11). The average amount of excess loss for all farms with excess loss was \$457,164. The amount for very large farms was considerably higher, at \$1.19 million. Across underserved groups, less than 1 percent of farms have excess business losses, with average losses ranging from \$261,154 for beginning farmers to \$416,137 for female PO farms.

Table 11

**Percentage of farm households with a loss greater than the excess loss limit and the average amount of excess loss**

	Percent with loss greater than the excess loss limit	Average amount of excess loss for those households with loss greater than the excess loss limit (U.S. dollars)
<b>Farm typology</b>		
<b>Small</b>		
Retirement	0.16	382,416
Off-farm occupation	0.05	567,407
Low sales	0.07	224,830
Moderate sales	0.34	528,445
<b>Midsized</b>		
Midsized	0.91	211,525
<b>Large</b>		
Large	2.57	568,889
<b>Very large</b>		
Very large	3.85	1,189,744
<b>Underserved</b>		
Non-White or Hispanic principal operator	0.36	377,930
Female principal operator	0.10	416,137
Limited resource	0.19	380,367
Beginning	0.13	261,154
All farms	0.21	457,164

Note: All data are adjusted to 2021 values. The baseline includes all tax provisions that were active in 2021. Retirement farms have gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsized farms have GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have GFCI greater than \$5,000,000. Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farm households are defined as having low farm sales and low household incomes for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of four with two children or is less than half of the county median household income.

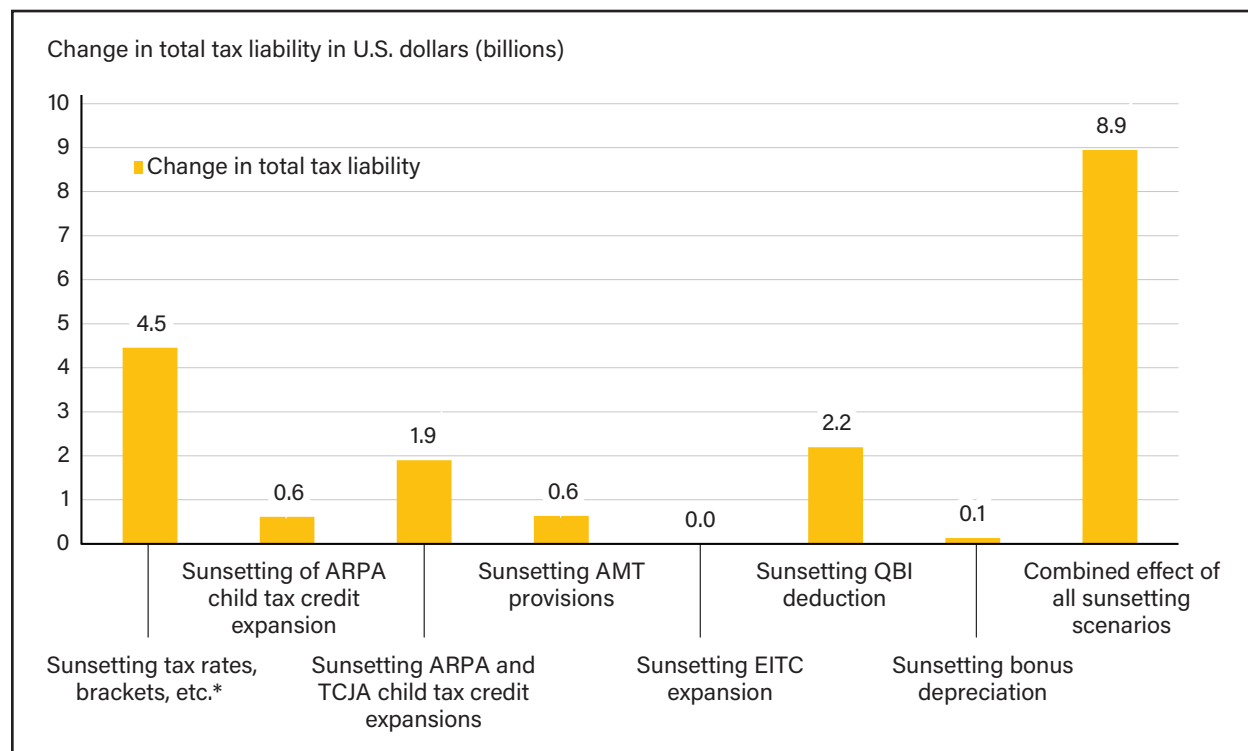
Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018--2021 Agricultural Resource Management Survey.

Because of the excess loss limits, farm households are unable to fully utilize these losses to offset income from other sources in the year in which the loss takes place. Expiration of these loss limits would allow farm households to possibly reduce the households' taxable income in the year that the loss occurred, instead of converting this income to a net operating loss to be used in other tax years.

## Summary of Expiring Individual Income Tax Provisions

The temporary income tax provisions in the ARPA and the TCJA provided significant tax relief to farm households. The sunsetting of these provisions would result in increased taxes for most farm households, with the impact varying by farm type. Figure 13 displays the average increase in tax liability across all farm households for each provision or group of provisions set to expire and also includes the combined effect if all provisions were allowed to sunset. To provide a more wholistic perspective, these values reflect the total impact for all farm households. The group of related provisions that would have the largest impact for farm households is the sunsetting of reduced income tax rates, an increased standard deduction, the cap on State and local tax deductions, and the elimination of the personal exemption. This scenario would result in an increase in total tax liability of \$4.5 billion for farm households. The scenario with the second biggest impact on tax liabilities is the sunsetting of the QBID. Elimination of the QBID would increase tax liabilities for farm households by a total of \$2.2 billion. The collective impact of the sunsetting scenarios suggests that if all provisions were allowed to expire, total tax liability for farm households would increase by \$8.9 billion. The combined effect is not equal to the sum of the impact from each individual scenario for the following three reasons: (1) the child tax credit scenarios are overlapping, (2) some of the provisions are off-setting, and (3) the bonus depreciation scenario and the combined effect scenario use a different baseline of comparison than all other scenarios.

Figure 13  
Change in total tax liability for each sunsetting provision



ARPA = American Rescue Plan Act; TCJA = Tax Cuts and Jobs Act; AMT = alternative minimum tax; EITC = earned income tax credit; QBI = qualified business income.

Note: The baseline scenario for sunsetting bonus depreciation and the combined effect of all sunsetting scenarios assumed the full use of first-year capital expensing. The effect combined effect of all sunsetting scenarios is not equal to the sum of the individual scenarios, due to interactions between the scenarios.

\* This scenario includes sunsetting income tax rates, income tax brackets, standard deductions, limits on the deduction of State and local taxes, and reinstating the personal exemption.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

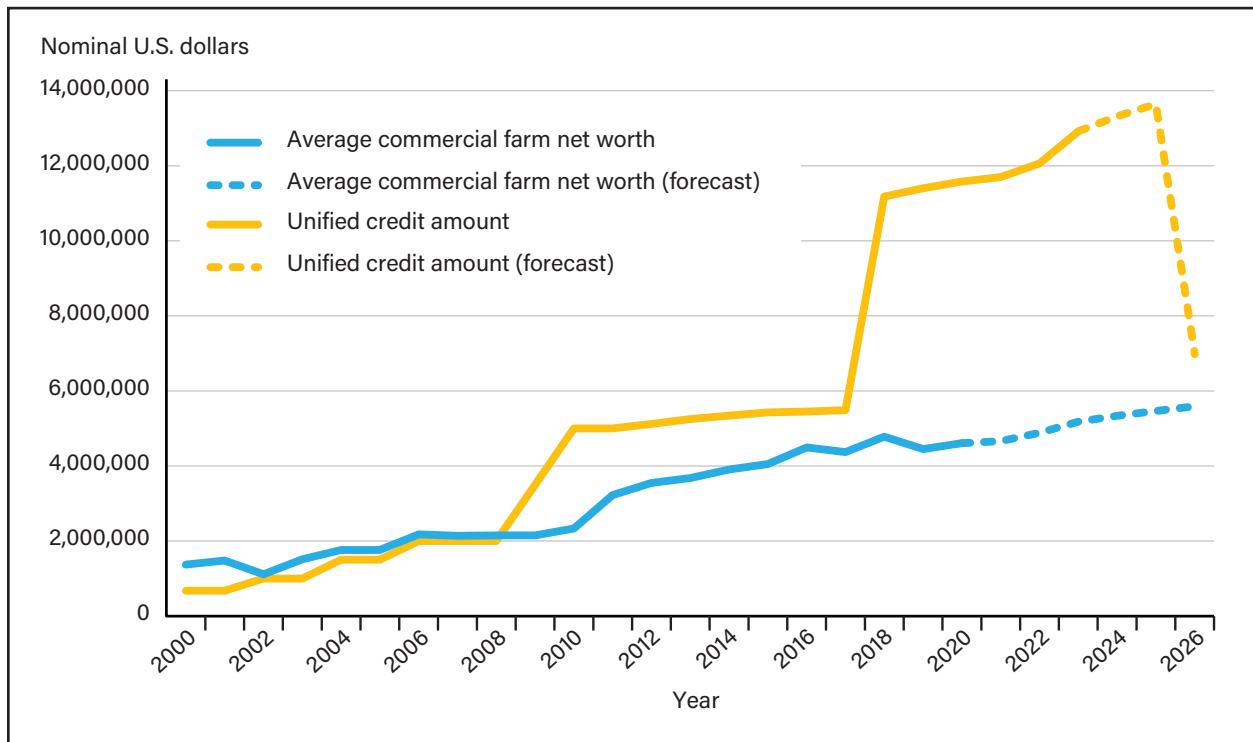
# The Federal Estate Tax

The Federal estate tax has applied to the transfer of property at death since 1916. While the tax has been amended many times, the estate tax has never directly affected a large percentage of farmers or other taxpayers. The IRS estimates that between 1934 and 2016, only 1.8 percent of adult deaths, on average, generated a taxable estate valued above the exclusion amount.<sup>12</sup> In recent years, the percent that owe Federal estate tax has dropped to about 0.1 percent.

One of the primary determinants of the scope of the estate tax is the exemption amount. Only those estates with assets in excess of the estate tax exemption amount must file a Federal estate tax return. However, only those returns that have a taxable estate above the exemption amount (after deductions for expenses, debts, and bequests to a surviving spouse or charity) are subject to tax at a graduated rate, up to a current maximum rate of 40 percent.

The exemption amount for estates has increased significantly since 2000 (see figure 14), resulting in a decrease in the number of farm and other estates that must file an estate tax return, as well as the number of estates with any Federal estate tax liability. The most recent increase doubled the exemption amount to \$11.18 million in 2018. However, this increase, along with many of the individual income tax changes in the TCJA, is set to expire in 2025. At that point, the exclusion amount will revert to the pre-TCJA level (adjusted for inflation) of \$6.98 million.

Figure 14  
**Unified credit exemption amount and average commercial farm net worth, 2000-26**



Note: Commercial farms are defined by USDA, Economic Research Service as making \$350,000 or more in gross cash farm income and include both family and nonfamily farms.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2000-2020 Agricultural Resource Management Survey, and U.S. Internal Revenue Service Estate Tax web page.

<sup>12</sup> IRS Statistics of Income (SOI) Tax Stats, historical table 17, Taxable Estate Tax Returns as a Percentage of Adult Deaths, Selected Years of Death.

In addition to the significant increase in the exemption amount, since 2011, married couples have been able to more fully utilize their combined exemption amounts by electing to allow the surviving spouse to utilize any unused portion of their exemption amount (often called portability). This election must be made on an estate tax return filed on time. This portability provision will be of increased importance if the increased exemption amount reverts to the pre-TCJA level, since more estates will be subject to tax and the estate of the surviving spouse may be able to utilize the unused portion of the higher exemption amount in effect for the 2018–25 period.

The exemption amounts and estate tax rates affect all estates, not just farm estates. But over the years, a number of targeted provisions have been enacted to reduce the burden of the estate tax on farms and other small business owners. These include a provision that allows farm real estate to be valued at its farm-use value rather than its fair-market value and a provision that allows for the installment payment of estate taxes. While the percent reduction in value available under the special-use value provision varies depending upon the location and the development potential of the real estate, the current maximum reduction in value for estate tax purposes is \$1.31 million, with the cap adjusted for inflation in future years. Farmers and other landowners may also donate an easement or other restriction on development and exclude the value of the donated easement from the estate, providing additional estate tax savings.

## Estimating the Impact of the Expiring Federal Estate Tax Provision

Using an actuarial estate tax model and ARMS data for this report, the number of farm estates that would be created in 2026 and of those, the share that would be required to file a return and would owe Federal estate tax have been estimated.<sup>13</sup> Modeling the sunset of the estate tax exemption in 2026 required two main adjustments in the existing ERS estate tax model. First, farm net worth and inflation out to 2026 needed to be forecast. Inflation needed to be included since many estate tax parameters are adjusted for inflation. Second, the period from 2011 to 2026 needed to be accounted for because a married couple may elect portability upon the death of one spouse, requiring an extension of the existing ERS estate tax model, which accounts for portability from 2011 to the current year.

To forecast farm net worth and inflation, parameters are divided into nominal and real adjustment factors. Inflation represents the nominal adjustment factor. For these inflation factors, projected inflation is used for 2022 to 2026 from the U.S. Congressional Budget Office (CBO).<sup>14</sup> For real appreciation in assets, growth in the real value of farmland from 2010 to 2020 is examined, since farmland accounts for the largest share of all assets for farm households. As figure 15 shows, growth in the real value of farmland increased precipitously from 2010 to 2015, and the real value has been fairly constant from 2015 to 2020. The calculation of the annualized growth rate helped to define three forecast assumptions: (1) an annualized real growth rate of 5.6 percent, which approximates growth in the real value of farmland from 2010 to 2015; (2) an annualized real growth rate of 2.5 percent, which approximates growth in the real value of farmland from 2010 to 2020; and (3) an annualized real growth rate of 0 percent, which approximates growth in the real value of farmland from 2015 to 2020. These three growth rates define high-, medium-, and low-growth forecast scenarios.

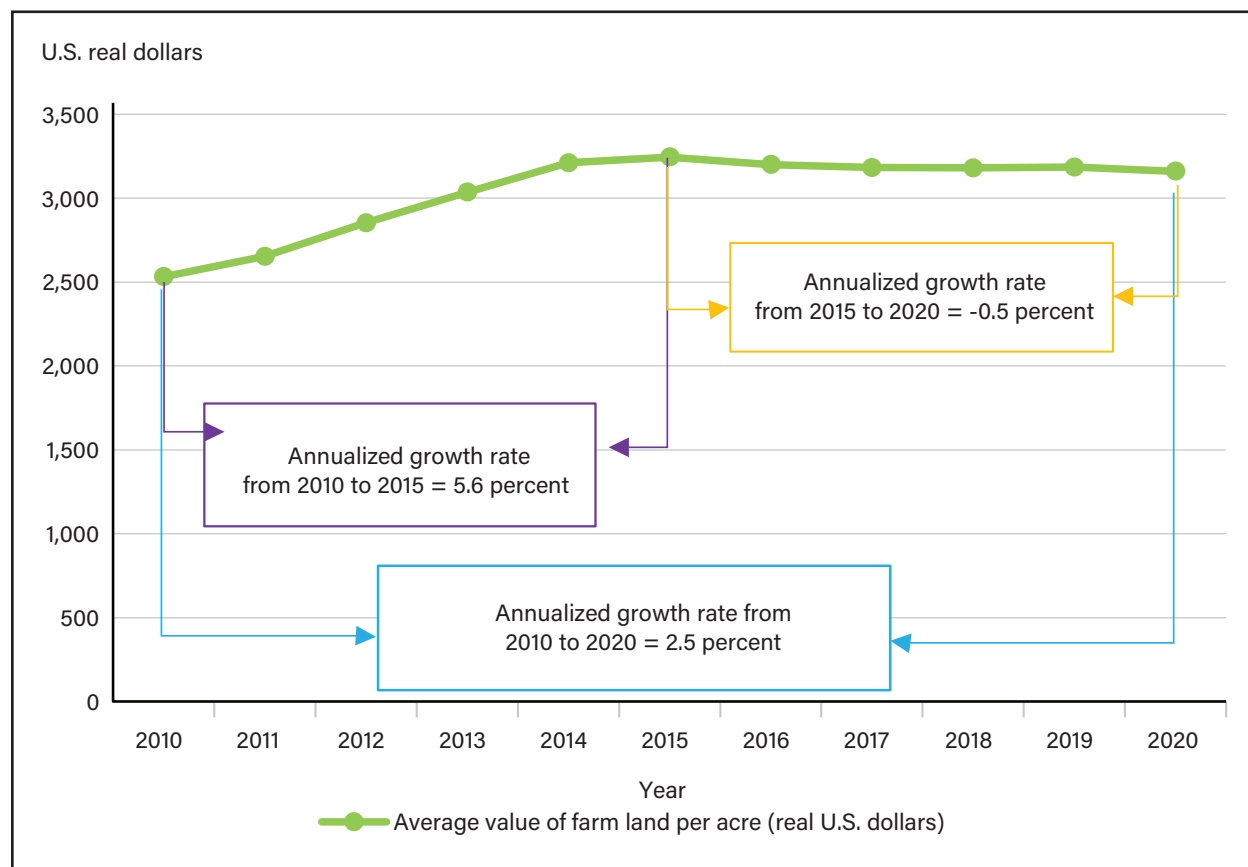
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<sup>13</sup> Estimates of estate tax liability do not take into account the possible use of trusts and other tax planning methods to reduce estate tax liability.

<sup>14</sup> The Budget and Economic Outlook: 2022 to 2032, Congressional Budget Office, May 2022.

Figure 15

**Annualized growth rate in farm real estate, 2010–20 (inflation-adjusted values)**



Note: Annualized growth reflects increases in asset value adjusted for inflation.

Source: USDA, Economic Research Service using annual national agricultural land value estimates from USDA, National Agricultural Statistics Service, Quick Stats.

The existing ERS estate tax model accounts for portability by incorporating information about how likely it is that a currently unmarried PO is widowed. The likelihood of this situation was calculated based on a series of probabilities that are conditional on the PO’s age and gender. For someone who is currently widowed, their deceased spouse may have died after 2010, when portability was available. Since no information on the year of death for the predeceased spouse is readily available, the authors calculated an expected transfer credit based on the probability of dying in a given year and the average amount of unused credit in each year. Data on the probability of dying in a given year are conditional on age and gender and come from the U.S. Social Security Administration’s Actuarial Life Tables, and data on the average amount of unused credit come from Internal Revenue Service’s Statistics of Income. For a full description of this method, please see appendix B.

This method of estimating transferred credits was extended to accommodate the 2026 sunseting date. The extension of the model to 2026 required that the possibility that a spouse may have died at any point between 2011 and 2026 be included. For the probability of death in future years, the probability of death in the most recently available year, 2019, was used as the probability of death in each subsequent year. The authors assumed that the share of the credit that is unused and transferred to the surviving spouse held constant into the future.

## Estimated Results

The medium growth forecast for all farm households shows that allowing the TCJA estate tax exemption to expire would increase the percent of farm estates that owe estate tax from 0.3 percent to 1.0 percent (table 12).<sup>15</sup> The percent of farm estates that would be required to file an estate tax return would increase from 1.1 percent to 3.9 percent. Since a lower exemption level would expose more of the estate's value to taxation, the average estate tax rate for taxable farm household estates would increase from 14.6 percent of the estate's total value to 14.7 percent.

Table 12

### Forecast results of sunseting estate tax exemption for farm estates

	Exemption = \$13.95 million (U.S. dollars)				Exemption = \$6.98 million (U.S. dollars)			
	Percent of estates required to file return	Percent of estates paying estate tax	Average net worth in U.S. dollars (millions) of estates taxed	Average tax rate (percent)	Percent of estates required to file return	Percent of estates paying estate tax	Average net worth in U.S. dollars (millions) of estates taxed	Average tax rate (percent)
<b>Farm typology</b>								
<b>Small</b>								
Retirement	0.5	0.1	35.8	11.3	2.0	0.5	20.9	10.7
Off-farm occupation	1.0	0.3	23.8	9.7	3.6	1.4	15.6	11.4
Low sales	0.5	0.1	42.5	11.2	1.9	0.5	19.5	13.5
Moderate sales	2.0	0.6	36.0	20.6	7.5	1.5	24.8	18.5
Midsize	4.9	1.4	29.6	14.6	18.0	3.3	22.9	15.8
Large	12.2	2.8	34.5	17.8	33.3	7.3	21.2	19.8
Very large	34.1	6.9	53.0	28.1	60.8	8.5	45.9	31.7
All farm households	1.1	0.3	32.5	14.6	3.9	1.0	19.6	14.7

Note: Results presented are forecasted values based on real annual growth in asset value of 2.5 percent. The average tax rate is calculated as the total tax liability divided by the total net worth of estates taxed.

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2021, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

The impact of a decreased estate tax exemption would differ by farm typology.<sup>16</sup> For retirement and off-farm occupation farm households, the sunseting of the increased estate tax exemption would increase the percent that owe estate taxes to 0.5 percent and 1.4 percent, respectively. For low-sales farms, the sunseting estate tax exemption would increase the percent that owe estate tax from 0.1 percent to 0.5 percent and increase the average tax rate from 11.2 percent to 13.5 percent. This number is contrasted with very large farms where the sunseting of the increased estate tax exemption would increase the percent taxed from 6.9 percent to 8.5

<sup>15</sup> For low growth and high growth results, see appendix C. Overall asset growth had a modest impact on the share of farm estates subject to the estate tax, with lower exemption levels. If the authors assume low asset growth, then the percent of farm estates taxed would increase from 0.2 to 0.9 percent. If the authors assume high asset growth, the percent of farm estates taxed would increase from 0.4 to 1.2 percent.

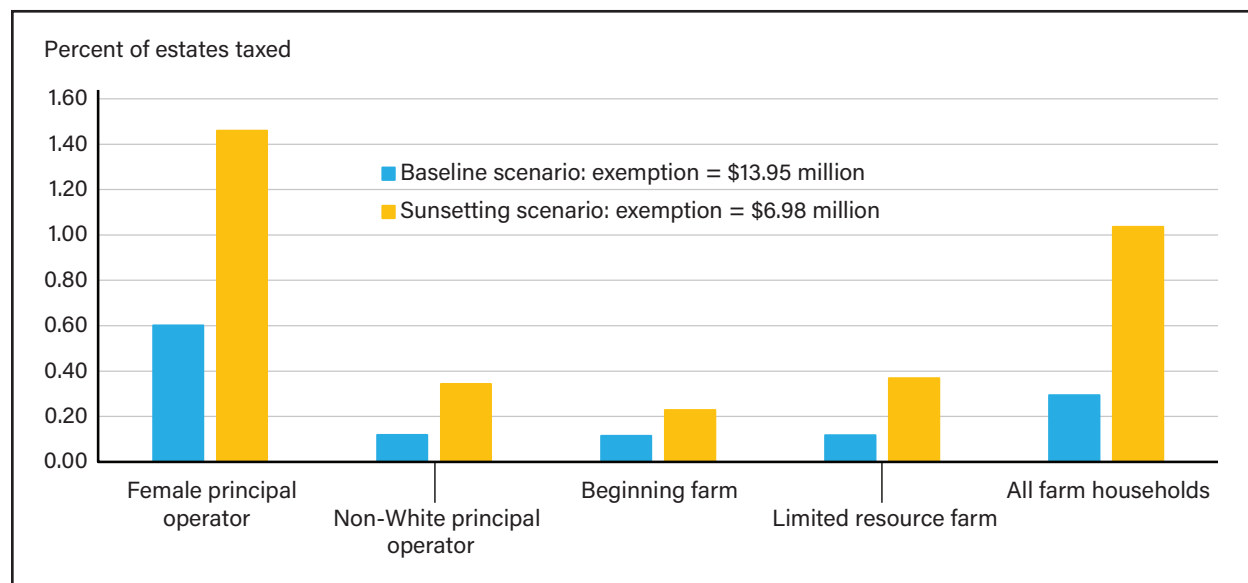
<sup>16</sup> Appendix D presents statistical tests used to underpin the discussion of differences between groups.

percent and increase the average tax rate from 28.1 percent to 31.7 percent. The largest impact in terms of percent taxed is among large farm households; the sunseting estate tax exemption would increase the percent taxed from 2.8 percent to 7.3 percent.

An analysis of the effect of a decreased estate tax exemption on underserved farms shows that a decreased exemption will increase the percent of farm estates that owe estate tax in each group; however, the size of the increase differs across groups (figure 16). For example, farm estates with female POs are estimated to experience a larger increase in the percent owing estate tax than all other farm estates. The results further show that beginning farms estates and limited resource farm estates will experience a smaller increase in the percent that owe estate taxes, compared with all other farm estates.

Figure 16

### Percent of farm estates taxed for underserved farm households



Note: Beginning farms are farms where all operators have 10 years or less of farming experience. Limited resource farm households are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

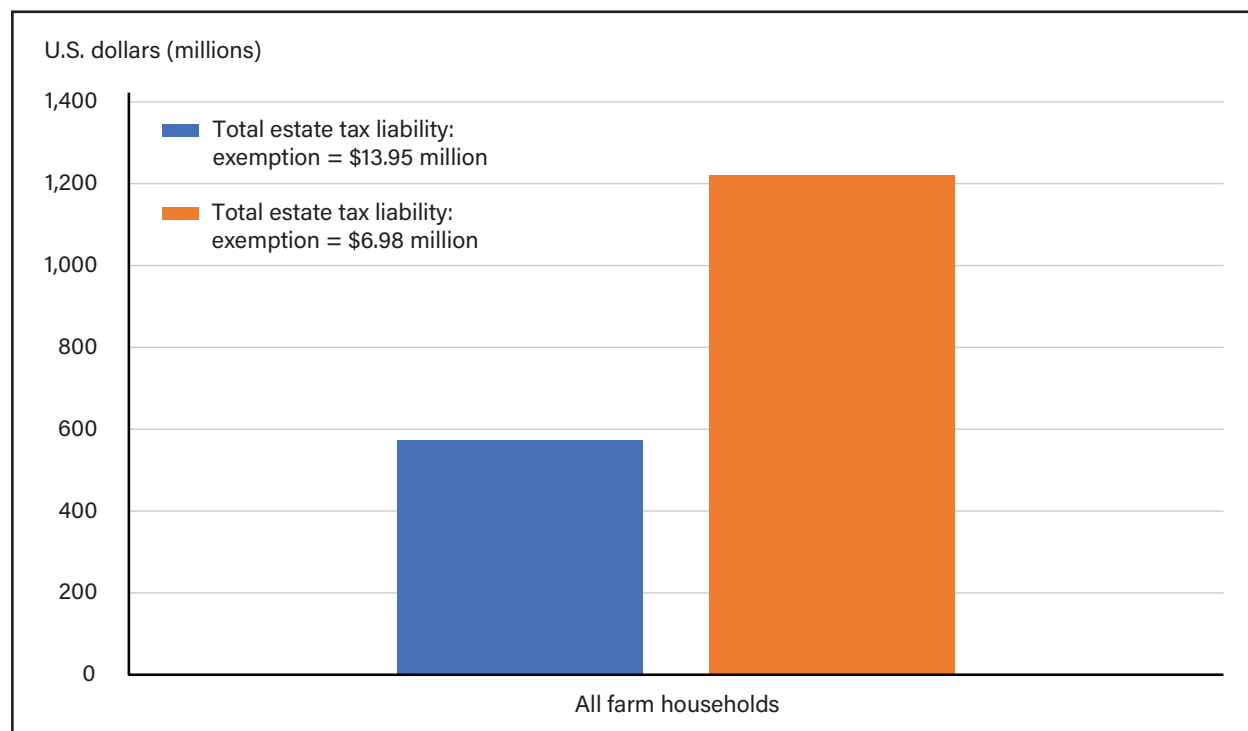
Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2020, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

## Summary of the Impact of Sunseting Estate Tax Provisions

The TCJA doubled the amount of property that can be transferred free of Federal estate tax to the next generation. As a result, only about 0.3 percent of all farm estates are estimated to owe tax under the increased exemption levels, with the share increasing with farm size—ranging from 0.1 percent for low-sales farms to 6.9 percent for very large farms. Among underserved farm households, female PO households are more likely than other farm households to owe an estate tax, with an estimated 0.6 percent of female PO households expected to owe tax. Total Federal estate taxes for all taxable farm estates are estimated at \$572 million (figure 17).

Figure 17

**The total farm estate tax liability resulting from expiring increased estate tax exemption**



Source: USDA, Economic Research Service using data from USDA’s Agricultural Resource Management Survey 2018–2021, USDA’s 2021 June Area Survey; U.S. Social Security Administration’s 2019 Actuarial Life table; U.S. Internal Revenue Service’s 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

The expiration of the elevated exemption amount provided in the TCJA would return the exempt amount to the pre-TCJA level, adjusted for inflation at an estimated \$6.98 million. As a result, the share of farm estates that would owe tax would increase from 0.3 percent to 1.0 percent. While the share of retirement, off-farm occupation, low-sales, and moderate-sales farms expected to owe tax would remain under 2 percent, the share of the large and very large farms subject to tax would increase to 7.3 percent and 8.5 percent, respectively. Regarding underserved farm households, the most significant impact would be for female PO households, with the share estimated to owe tax increasing from 0.6 percent to 1.5 percent. Limited resource and beginning farmer farms would experience the smallest increase in those households estimated to owe tax under the lower exempt amount. Total Federal estate taxes for all taxable farm estates are expected to more than double to \$1.2 billion.

## Conclusion

This report examines the impact on farm households of expiring and expired tax provisions. The expired tax provisions include temporary expansions to the child tax credit (CTC) and earned income tax credit (EITC) from the American Rescue Plan Act (ARPA). Tax provisions that are expiring come from the Tax Cuts and Jobs Act (TCJA). These provisions include the qualified business income deduction (QBID), and bonus depreciation and provisions that apply to the household, including the expansion of the CTC and decreases in income tax rates. The sunseting of these provisions will increase tax liabilities for farm households. Because most farms (97.6 percent) are structured as pass-through entities that are taxed under the individual



income tax, the sunset provisions revolving around the income tax rates (including changes to the standard deductions and personal exemptions) were estimated to have the largest increase on farm household tax liabilities (table 13). The second largest impact was from the QBID, which reduces taxable income by 20 percent of farm income. For farm households with positive farm income, this deduction offers a significant reduction in tax liability. Sunsetting this deduction would increase tax liabilities by \$2.2 billion.

Table 13

**Total change in tax liability for farm households for each sunset tax provision**

	Expiring or expired household tax provisions in U.S. dollars (millions)					Expiring business tax provisions in U.S. dollars (millions)	Expiring estate tax provision in U.S. dollars (millions)	
	Income tax rates	ARPA expansion of CTC	ARPA and TCJA expansion of CTC	AMT	ARPA expansion of EITC	QBID	Bonus depreciation	Estate tax exemption
<b>Farm typology</b>								
<b>Small</b>								
Retirement	121	17	49	24	0.01	84	0	74
Off-farm occupation	2,357	376	1,161	230	0.06	328	∅	199
Low sales	477	160	397	33	0.06	186	∅	122
Moderate sales	237	29	105	16	0	234	0	44
Midsize	550	25	138	139	0	479	0	103
Large	550	6	45	168	0	478	15	91
Very large	161	0	2	23	0	405	115	15
<b>Underserved</b>								
Non-White or Hispanic principal operator	199	38	124	24	∅	105	∅	0
Female principal operator	471	82	241	47	∅	132	∅	133
Limited resource	1	0	∅	0	0.09	1	0	35
Beginning	808	161	511	89	∅	199	2	16
<b>All farm households</b>	<b>4,454</b>	<b>615</b>	<b>1,897</b>	<b>634</b>	<b>0.13</b>	<b>2,194</b>	<b>130</b>	<b>647</b>

ARPA = American Rescue Plan Act; TCJA = Tax Cuts and Jobs Act; EITC = earned income tax credit; CTC = child tax credit; AMT = alternative minimum tax; QBID = qualified business income deduction.

Note: Retirement farms have a gross cash farm income (GFCI) less than \$350,000 and principal operators (POs) who report they are retired. Off-farm occupation farms have a GFCI less than \$350,000 and whose POs report a primary occupation other than farming. All remaining farm types have POs whose primary occupation is farming. Low-sales farms have GFCI less than \$150,000. Moderate-sales farms have GFCI between \$150,000 and \$349,000. Midsize farms have a GFCI between \$350,000 and \$999,999. Large family farms have GFCI between \$1,000,000 and \$4,999,999. Very large family farms have a GFCI greater than \$5,000,000. Beginning farms are those where all operators have less than 10 years of experience farming. Limited resource farms are defined as having low farm sales and low household income for 2 years in a row. In fiscal year 2020, low farm sales meant direct or indirect gross farms sales of not more than \$180,300. Low household income means that current-year income falls below the national poverty level for a family of 4 with 2 children or is less than half of the county median household income.

∅ = Estimate does not comply with USDA, National Agricultural Statistics Service disclosure practices

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2021, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

A pattern emerged as the authors examined the impact of sunseting tax provisions by farm size and for underserved farmers (table 13). Very large farm households would experience the largest increase in tax liability from the sunseting of the QBID. For other farm households, including underserved farm households, sunseting household provisions would have a greater impact on tax liabilities than business provisions. In particular, the sunseting provisions that would raise income tax rates and decrease the standard deduction while reinstating the personal exemption would have the largest impact on smaller and underserved farm households. The sunseting of the CTC would have the second largest impact for underserved farm households, as well as for off-farm occupations and low-sales farm households.

Another temporary provision of TCJA, the increase estate tax exemption, doubled the amount of property that individuals could pass to heirs free of estate tax. In 2026, this exemption is set to return to 2018 levels, adjusted for inflation. While lower exemption levels would increase the number of farm households that would owe estate tax, it is estimated that even with the lowered exemption level, only 1.0 percent of farm estates would owe estate taxes. While the estimated increase in tax liability of \$647 million is well below that of the most significant income tax provisions, the highly concentrated nature of the estate tax means that this increased tax liability would be owed by just 424 farm estates.

## References

- Crandall-Hollick, M., Falk, G., & Boyle, C. F. (2021). *The earned income tax credit (EITC): How it works and who receives it*, U.S. Congressional Research Service, 43805.
- Guenther, G. (2018). *The section 179 and section 168(k) expensing allowances: Current law, economic effects, and selected policy issues*. Congressional Research Service Report.
- Joint Committee on Taxation, Congress of the United States. (2023). List of expiring federal income tax provisions 2022–2034 (JCX-1-23), January 18, 2023.
- Mayol-García, Y., Gurrentz, B., & Kreider, R. M. (2021). *Number, timing, and duration of marriages and divorces: 2016*. U.S. Department of Commerce, Bureau of the Census.
- U.S. Internal Revenue Service. (2022). *Statistics of income division estate tax return study 2012–2021*, October 2022.
- Williamson, J. M., & Bawa, S. G. (2018). *Estimated effects of the tax cuts and jobs act on farms and farm households* (Report No. ERR-252). U.S. Department of Agriculture, Economic Research Service, June 2018.

## Appendix A: Statistical Tests

This section provides details of statistical tests used to underpin the discussion of differences between groups throughout the report. The information below shows statistics that test differences between groups in the groups' estimated impact of sunset provisions. Impact is measured in terms of a change in percent with tax liability and, for those farm households with a tax liability, the size of the change in tax liability. The test of differences by farm typology is presented as a pairwise t-test between each category within the typology (presented in tables A.1, A.3, A.5, A.7, A.9, and A.11). For underserved and beginning farms, the tests were conducted between the underserved or beginning group and the relevant reference group (presented in tables A.2, A.4, A.6, A.8, A.10, and A.12).

### Expiration of Tax Cuts and Jobs Act (TCJA) Tax Rates and Standard Deduction, and Restored Personal Exemptions

Table A.1

**Pairwise t-test of differences between each farm household type's change in average tax liability**

P-value of pairwise t-test of difference in means								
	Average change in tax liability in U.S. dollars	Retirement	Off-farm occupation	Low sales	Moderate sales	Midsized	Large	Very large
Retirement	531	.	<b>0.00</b>	0.73	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Off-farm occupation	2,953	<b>0.00</b>	.	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Low sales	713	0.73	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Moderate sales	2,283	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Midsized	4,951	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>
Large	10,624	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>
Very large	27,588	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.

Note: The differences between the average value for each farm household type were tested using a 2-sided t-test. Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Table A.2

**T-test of difference between the change in tax liability for each underserved group versus the relevant reference group**

	Mean change in tax liability in U.S. dollars	P-values of pairwise t-test between the underserved and reference group
Non-White or Hispanic principal operator versus	1,631	} <b>0.00</b>
White and non-Hispanic principal operator	2,305	
Female principal operator versus	1,738	} <b>0.00</b>
male principal operator	2,347	
Beginning farms versus	2,472	} 0.17
nonbeginning farms	2,222	
Limited resource farms versus	5	} <b>0.00</b>
nonlimited resource farms	2,489	

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

## Expiration of Tax Cuts and Jobs Act (TCJA) and American Rescue Plan Act (ARPA) Child Tax Credit Expansions

Table A.3

**Pairwise t-test of differences between each farm household type's change in average child tax credit**

Farm typology	Average change in child tax credit in U.S. dollars	P-value of pairwise t-test						
		Retirement	Off-farm occupation	Low sales	Moderate sales	Midsize	Large	Very large
Retirement	-3,744	.	<b>0.00</b>	0.39	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	0.19
Off-farm occupation	-4,684	<b>0.00</b>	.	<b>0.00</b>	0.33	0.89	0.86	0.53
Low sales	-3,513	0.39	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.03</b>
Moderate sales	-4,884	<b>0.00</b>	0.33	<b>0.00</b>	.	0.39	0.44	0.40
Midsize	-4,706	<b>0.00</b>	0.89	<b>0.00</b>	0.39	.	0.96	0.55
Large	-4,717	<b>0.00</b>	0.86	<b>0.00</b>	0.44	0.96	.	0.52
Very large	-4,439	0.19	0.53	<b>0.03</b>	0.40	0.55	0.52	.

Note: The differences between the average value for each farm household type were tested using a 2-sided t-test. Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Table A.4

**T-test of the difference between the change in tax liability for each underserved group versus the relevant reference group**

	Change in share receiving CTC		P-value of pairwise t-test of difference in share	Mean change in tax liability in U.S. dollars		P-value of pairwise t-test between the underserved and reference group means
Non-White or Hispanic principal operator versus	-0.07	}	<b>0.05</b>	-4,712	}	<b>0.04</b>
White and non-Hispanic principal operator	-0.09			-4,236		
Female principal operator versus	-0.08	}	<b>0.05</b>	-4,250	}	0.91
male principal operator	-0.09			-4,276		
Beginning farms versus	-0.14	}	<b>0.00</b>	-5,075	}	<b>0.00</b>
nonbeginning farms	-0.08			-4,044		
Limited resource farms versus	0.00	}	<b>0.00</b>	-3,737	}	<b>0.02</b>
nonlimited resource farms	-0.10			-4,314		

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

## Expiration of American Rescue Plan Act (ARPA) Earned Income Tax Credit (EITC) Expansions

Table A.5

**Pairwise t-test of differences between each farm household type's change in average earned income tax credit (EITC)**

Farm typology	Average change in EITC for childless EITC-eligible workers in U.S. dollars	P-value of pairwise t-test						
		Retirement	Off-farm occupation	Low sales	Moderate sales	Midsize	Large	Very large
Retirement	-452	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Off-farm occupation	-457	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Low sales	-471	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Moderate sales	-582	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Midsize	-552	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>
Large	-542	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>
Very large	-727	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.

EITC = earned income tax credit.

Note: Differences between the average value for each farm household type were tested using a 2-sided t-test. Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Table A.6

**T-test of the difference between the change in tax liability for each underserved group versus the relevant reference group**

	Share of child-less farm households with EITC	P-value of test of the difference in shares	Mean change in tax liability in U.S. dollars	P-value of test of difference in means between underserved and reference group
Non-White or Hispanic principal operator versus White and non-Hispanic principal operator	0.02 } 0.02 }	0.59	-482 } -470 }	0.89
Female principal operator versus male principal operator	0.02 } 0.02 }	0.27	-424 } -481 }	0.38
Beginning farms versus nonbeginning farms	0.01 } 0.02 }	<b>0.00</b>	-625 } -458 }	<b>0.09</b>
Limited resource farms versus nonlimited resource farms	0.08 } 0.01 }	<b>0.00</b>	-458 } -479 }	0.57

EITC = earned income tax credit.

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

**Expiration of Alternative Minimum Tax (AMT) Provisions**

Table A.7

**Pairwise t-test of the differences between each farm household type's change in average tax liability**

Farm typology	Average change in AMT tax liability in U.S. dollars	P-value of pairwise t-test						
		Retirement	Off-farm occupation	Low sales	Moderate sales	Midsize	Large	Very large
Retirement	6,047	.	0.57	0.83	0.19	0.78	<b>0.00</b>	<b>0.00</b>
Off-farm occupation	6,455	0.57	.	0.79	<b>0.01</b>	0.70	<b>0.00</b>	<b>0.00</b>
Low sales	6,231	0.83	0.79	.	0.12	0.96	<b>0.00</b>	<b>0.00</b>
Moderate sales	4,950	0.19	<b>0.01</b>	0.12	.	<b>0.02</b>	<b>0.00</b>	<b>0.00</b>
Midsize	6,266	0.78	0.70	0.96	<b>0.02</b>	.	<b>0.00</b>	<b>0.00</b>
Large	8,754	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>
Very large	12,941	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.

AMT = alternative minimum tax.

Note: The differences between the average value for each farm household type were tested using a 2-sided t-test. Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Table A.8

**T-test of the difference between the change in the tax liability for each underserved group versus the relevant reference group**

	Change in share with AMT		P-value of test of the difference in the share with AMT	Mean change in tax liability in U.S. dollars		P-value of test of difference in the means between underserved and reference groups
Non-White or Hispanic principal operator versus White and non-Hispanic principal operator	0.03	}	<b>0.00</b>	6,850	}	0.90
	0.05			6,940		
Female principal operator versus male principal operator	0.03	}	<b>0.01</b>	5,723	}	0.21
	0.05			7,055		
Beginning farms versus nonbeginning farms	0.05	}	0.98	5,917	}	<b>0.08</b>
	0.05			7,136		
Limited resource farms versus nonlimited resource farms	$\alpha$		$\alpha$	$\alpha$		$\alpha$

AMT = alternative minimum tax.

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

$\alpha$  Estimate does not comply with USDA, National Agricultural Statistics Service (NASS) disclosure practices.

Source: USDA, Economic Research Service and USDA, NASS, 2018–2021 Agricultural Resource Management Survey.

## Expiration of the Qualified Business Income Deduction (QBID)

Table A.9

**Pairwise t-test of the differences between each farm household type's change in average tax liability**

Farm typology	Change in average tax liability in U.S. dollars	P-value of pairwise t-test						
		Retirement	Off-farm occupation	Low sales	Moderate sales	Midsize	Large	Very large
Retirement	851	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Off-farm occupation	1,010	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Low sales	711	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Moderate sales	3,068	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Midsize	5,678	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>	<b>0.00</b>
Large	11,868	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.00</b>
Very large	87,219	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.

Note: The differences between the average values for each farm household type were tested using a 2-sided t-test. Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.



Table A.10

**T-test of difference between the change in tax liability for each underserved group versus the relevant reference group**

	Share with QBID		P-value of test of difference in the change in share	Mean change in tax liability in U.S. dollars		P-value of test of difference in the means between the underserved and reference groups
Non-White or Hispanic principal operator versus	0.31	}	<b>0.00</b>	2,772	}	0.49
White and non-Hispanic principal operator	0.46			2,450		
Female principal operator versus	0.38	}	<b>0.00</b>	1,267	}	<b>0.00</b>
male principal operator	0.46			2,623		
Beginning farms versus	0.39	}	<b>0.00</b>	1,564	}	<b>0.00</b>
nonbeginning farms	0.46			2,615		
Limited resource farms versus	0.04	}	<b>0.00</b>	94	}	<b>0.00</b>
nonlimited resource farms	0.49			2,483		

QBID = qualified business income deduction.

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

## Expiration of Bonus Depreciation

Table A.11

**Pairwise t-test of the differences between each farm household type's change in average tax liability**

Farm typology	Change in average tax liability in U.S. dollars	P-value of pairwise t-test						
		Retirement	Off-farm occupation	Low sales	Moderate sales	Midsize	Large	Very large
Retirement	0.0		NA	NA	NA	NA	NA	NA
Off-farm occupation	0.0	NA	.	NA	NA	NA	NA	NA
Low sales	0.0	NA	NA	.	NA	NA	NA	NA
Moderate sales	0.0	NA	NA	NA	.	NA	NA	NA
Midsize	0.0	NA	NA	NA	NA	.	NA	NA
Large	24,796	NA	NA	NA	NA	NA	.	<b>0.00</b>
Very large	199,312	NA	NA	NA	NA	NA	<b>0.00</b>	.

NA = not available.

Note: The differences between the average values for each farm type were tested using a 2-sided t-test. Values are NA if there is no difference between change in the average tax liability between groups. Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, 2018–2021 Agricultural Resource Management Survey.

Table A.12

**T-test of the difference between the change in tax liability for each underserved group versus the relevant reference group**

	Share with bonus depreciation eligible investment		P-value of test of difference in share	Mean change in tax liability in U.S. dollars		P-value of test of difference in the means between underserved and reference groups
Non-White or Hispanic principal operator versus	0.0004	}	0.21	$\alpha$	}	0.46
White and non-Hispanic principal operator	0.0008			89,019		
Female principal operator versus	0.0002	}	<b>0.00</b>	$\alpha$	}	0.42
male principal operator	0.0008			80,420		
Beginning farms versus	0.0002	}	<b>0.00</b>	29,155	}	<b>0.04</b>
nonbeginning farms	0.0009			90,656		
Limited resource farms versus	0.0000	}	<b>0.00</b>	0	}	<b>0.00</b>
nonlimited resource farms	0.0008			1,147		

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

$\alpha$  Estimate does not comply with USDA, National Agricultural Statistics Service disclosure practices.

Source: USDA, Economic Research Service and USDA, NASS, 2018–2021 Agricultural Resource Management Survey.

## Appendix B: Portability of Farm Household Estate Tax Exemption Estimation

This section details the updated portability calculation used in the USDA, Economic Research Service's (ERS) estate tax model. Portability can be an important provision for married couples with assets. When a person dies, an estate comprised of the person's assets is created. Assets that are valued greater than the estate tax exemption (called a unified credit) are subject to the estate tax. Portability allows for the transfer of any unused credit resulting from the death of the first spouse to the surviving spouse. When the surviving spouse eventually dies, the estate would be able to utilize the full unified credit for that year, as well as any remaining credit that was transferred from the predeceased spouse.

The previous portability method used estimates of the share of estates that have portability and the amount of transfer credit used from the most recently available U.S. Internal Revenue Service (IRS) data. It is important to understand the time lags that exist in these data sets which can misrepresent the usage of portability when exemption levels change. The most recently available IRS data usually lag the current year by 2–3 years. Additionally, estimates of portability applied to an estate in a given year, represent spousal deaths that occurred sometime before the current year. Instead of relying on IRS data of transfer credits applied to an estate in the most recently available year, the authors use the amount of unused credit available in each year. The amount of unused credit available in each year represents the death of a spouse and value of unified credit used in that year, which allows for the method to be more responsive to changes in the unified credit.

The full methodology and data sources used to estimate the effects of portability on farm households and a comparison of the results using the previous and updated portability methodologies are presented below.

### Method

To calculate the effects of portability, researchers would ideally have access to information about whether a person has a predeceased spouse and the amount of credit that was transferred to the surviving spouse. Since this information is not available, the authors developed a methodology for calculating the expected transfer credit for an unmarried person, based on the person's age and gender.

For unmarried, single, principal operators (S), there are three possible states: (1) never married (NM); (2) divorced (D); or (3) widowed (W). Since the probability of being in one of three of these states depends on age, the authors further condition on the age of the principal operator (age). The expected transfer credit ( $\widehat{TC}$ ) is equal to the probability of each of the three possible states, multiplied by the likely TC.

$$\widehat{TC} = TC \times (P(NM|S, age)) + TC \times (P(D||S, age)) + TC \times (P(W|S, age)) \quad (B1)$$

Given that the transfer credit for a single person who was never married or divorced is equal to zero, equation B1 collapses to:

$$\widehat{TC} = TC \times (P(W|S, age)) \quad (B2)$$

The calculation of the probability of being widowed, given a person's age (i) and that the person is currently single, is calculated using equation B3. The numerator in equation B3 is the probability of being widowed and currently unmarried, and the denominator is the probability of being currently unmarried.

$$P_i(W|S) = \frac{P(W_i \cap S_i)}{P(S_i)} \quad (B3)$$

The transfer credit available to a surviving spouse is dependent on the year the spouse died. If the spouse died prior to 2012, the transfer credit would be zero since portability was not available prior to 2012. The following approach calculates the weighted average of transfer credits available in each year, multiplied by the probability of the spouse's death in a given year ( $y$ ), given that the spouse died in a prior or current year ( $y \leq Y$ ) and given the spouse's age ( $j$ ).

$$TC_j = \sum_{y=2012}^Y [TC_y \times P_j(D_j = y | D_j \leq Y)] \quad (B4)$$

Using Bayes' Theorem, the authors can calculate the conditional probability as (for simplicity, the  $j$  subscripts are dropped but note that the probabilities depend on the age of the spouse):

$$P(D = y | D \leq Y) = \frac{P(D \leq Y | D=y) \times P(D=y)}{P(D \leq Y)} \quad (B5)$$

The probability of dying in a prior or current year, given that a person died in the current year is equal to 1, the equation collapses to:

$$P(D = y | D \leq Y) = \frac{P(D=y)}{P(D \leq Y)} \quad (B6)$$

The numerator of equation B6 implies that since a person died in the current year, the person must have been alive in the preceding years. The probability of death in the current year, given that the person was alive in preceding years, is calculated as:

$$P(D = y) = P(D = y | Alive) P(Alive) \quad (B6.1)$$

For the denominator of equation B6, the probability of having died in a prior or the current year is the cumulative probability of someone dying in each year prior to and including the current year. Since this calculation would be intensive, the cumulative probability can be calculated using the complementary probability of surviving ( $S$ ) to the current year:

$$P(D \leq Y) = 1 - P(S \leq Y) \quad (B7)$$

Since the probabilities of death for the predeceased spouse all depend on age, it is important to have some indication of the age of the predeceased spouse. This information is not directly available to the authors from the Agricultural Resource Management Survey (ARMS), since only ages of spouses who are currently living are reported in the survey. Instead, the authors use age gaps between spouses estimated by Compton & Pollock (2021). This estimated age gap is not dependent on the age of either spouse, meaning that  $j$  can be calculated as a function of the surviving spouse's age and the age gap ( $g$ ):

$$j = i - g \quad (B8)$$

Putting all of the pieces together:

$$\widehat{TC}_i = \sum_{y=2012}^Y \left[ TC_{i,y} \times \frac{P(D_{(i-g)}=y)}{1 - P(S_{(i-g)} \leq Y)} \right] \times \frac{P(W_i \cap S_i)}{P(S_i)} \quad (B9)$$

The above estimation assumes that everyone with the potential to elect portability will do so. There are two reasons that actual rates of portability election may be smaller than potential. The first is failure to meet filing time requirements and therefore not receiving portability even when eligible. The second reason for not electing portability when eligible is relevant to an estate with substantial assets. These estates may choose to fully use the credit of the predeceased spouse to pass assets directly to heirs. Passing assets directly to heirs

means that any appreciation between the first spouse's death and the death of the second spouse would be passed on to heirs tax free. Households may opt to do this if these assets could be passed on to heirs while allowing for sufficient assets for the surviving spouse.

In each year, the IRS releases estimates of the number of estate tax returns and the number of estates with portability by estate size. From these estimates, the authors calculated the share of returns<sup>17</sup> with portability and used these estimates to adjust the preliminary results from ERS's estate tax model to ensure that ERS's share estimated to have portability matches the IRS data.

## Data

Data for the demographic component of equations 3 through 6 come from a variety of Federal sources. The components of equation 3 (probability of being single and the probability of being widowed and single) are calculated from Current Population Reports produced by the U.S. Department of Commerce, Bureau of the Census. The probability of being widowed and single for people of a certain age cohort is given by the share of the population that is currently widowed. The probability of being single is available from the same source and is found by calculating the ratio of single people to total population for each age cohort. Data for the numerator of the right side of equation 6 are provided by U.S. Social Security Administration (SSA) actuarial tables. This data provide the probability of death in a given year, given that a person is alive in that year. The probability of survival (S) to the current year, equation 7, can be calculated from SSA actuarial life tables.

Values for the transfer credit available in each year (come from IRS data. The IRS reports on estimates of the amount of credit used in a given year. The average amount available for transfer credit for each year is calculated as the difference between the available credit and the average amount used in that year.

## Results

To provide context for the changes to the portability provision, the authors simulated farm estate tax liability for 2021 using four portability methods. The first simulation assumes that portability is not available for election and provides a baseline to assess the effect of portability on the number of farm estates taxed and the total estate tax liability. The second portability calculation uses the old method, which consists of using IRS historical averages to estimate the share with portability and the amount of transfer credit available. This method is adequate in situations where the available exemptions are stable, but due to the lagged nature of this measure, the method is not able to keep pace with considerable changes to exemption levels, as occurred in 2018 and are expected in 2026. The third method is the new method that is outlined above prior to the adjustment for nonelecting returns. This method represents results if all people who were eligible elected portability. The fourth method corrects for the difference between potential and actual portability elections, using IRS data on the share of returns with portability.

The results of these simulations suggest that with no portability, 73 U.S. farm estates would owe Federal estate taxes in 2021 (table B1). Using the old method to calculate portability, the results suggest that portability would not eliminate the tax liability for any estates, although portability would reduce the total tax liability from \$265 million to \$256 million. The reason that the old method has no effect on the number of taxed estates has to do with the lagged nature of the method and an underestimate of the share with portability. The preliminary results of the new method show that 64 U.S. farm estates would be taxed in 2021 and the total Federal estate tax liability would be \$239 million. This estimate likely overestimates the effect of portability since all people

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<sup>17</sup> IRS data of farm estate tax returns include nonessential filings. Farm estates are required to file if assets for a single person exceed that year's exemption or if assets of a married couple exceed double the exemption. The IRS size categories of \$10 million to \$20 million do not perfectly match the exemption level, so the authors assume farm estates in this category are uniformly distributed and calculate the number required to file (x) as,  $x = \left(\frac{n}{\$10M} * (\$20M - exemption)\right)$ , where n is the number of returns reported in IRS data in that size category.

who are eligible are assumed to elect portability. The final method adjusts for this overestimation and adjusts the estimates so that 70 U.S. farm estates would be taxed with a total tax liability of \$246 million.

Table B.1

**Comparison of tax simulation results with different methods for calculating portability**

Portability calculation methods	Number of farm estates	Number of returns	Number of taxed estates	Total tax liability in U.S. dollars (millions)
No portability available	35,683	248	73	265.36
Old method	35,683	248	73	255.9
New method, preliminary results	35,683	248	64	239.3
New method, nonelecting adjustment	35,683	248	70	245.9

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2021, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

In 2019, the IRS reported that 9 percent of returns elected portability. In contrast, the old method for calculating portability estimates that 4 percent of returns would have portability. This underestimation of the share with portability contributes to the muted effect of portability on the number of farm estates taxed using this method. The preliminary share with portability estimated using the new method is 13 percent. This estimate likely overestimates the share of returns with portability since the estimate includes all returns that are eligible. When the adjustment for eligible but nonelecting estates is applied, the results match the IRS reported share with portability.

## Appendix C: Results of Sunsetting the Farm Estate Tax Exemption While Assuming Low and High Asset Value Growth

This appendix provides the farm estate tax simulation results when low and high asset growth is assumed. For low growth, assets were assumed to grow at a rate equal to inflation, resulting in a real annual rate of 0 percent (results presented in tables C.1 and C.2). For high growth, assets were assumed to grow at a real annual rate of 5.3 percent (results presented in tables C.3 and C.4).

### Results of Sunsetting the Farm Estate Tax Exemption While Assuming Low Asset Value Growth

Table C.1

**Forecast results of sunsetting the farm estate tax exemption assuming low asset growth**

	Baseline scenario: exemption = \$13.95 million					Sunsetting scenario: exemption = \$6.98 million				
	Percent of estates required to file return	Percent of estates paying estate tax	Average estate tax liability in U.S. (millions)	Average net worth of estates in U.S. (millions)	Average tax rate (percent)	Percent of estates required to file return	Percent of estates paying estate tax	Average estate tax liability in U.S. (millions)	Average net worth of estates in U.S. (millions)	Average tax rate (percent)
<b>Farm typology</b>										
Retirement	0.3	0.0	8.4	76.0	11.0	1.7	0.4	2.0	19.3	10.3
Off-farm occupation	0.9	0.3	1.9	24.9	7.5	3.2	1.4	1.4	14.0	9.8
Low sales	0.4	0.1	4.9	32.6	15.1	1.5	0.4	2.5	19.3	12.9
Moderate sales	1.5	0.5	6.8	34.5	19.6	6.3	1.1	5.0	26.5	18.7
Midsized	3.6	0.9	5.4	37.2	14.5	15.2	3.1	3.2	20.8	15.4
Large	9.1	2.4	6.0	34.3	17.6	28.9	6.9	3.7	19.4	18.9
Very large	29.6	6.6	13.5	49.6	27.3	55.6	8.2	13.4	42.5	31.6
All farm households	0.9	0.2	4.9	33.8	14.6	3.3	0.9	2.5	18.2	14.0

Note: Results presented are forecasted values based on real annual growth in asset value of 0 percent. The average tax rate is calculated as total tax liability divided by total net worth of estates taxed.

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2021, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

Table C.2

**Percent of underserved and beginning farm estates taxed assuming low asset growth**

	Exemption = \$13.95 million	Exemption = \$6.98 million
Female principal operator	0.56	1.27
Non-White principal operator	0.11	0.32
Beginning farm	0.06	0.23
Limited resource farm	0.12	0.32
All farm households	0.23	0.93

Note: Results presented are forecasted values based on real annual growth in asset value of 0 percent.

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018--2020, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

## Results of Sunsetting the Farm Estate Tax Exemption While Assuming High Asset Value Growth

Table C.3

**Forecast results of sunsetting the farm estate tax exemption, assuming high asset growth**

	Baseline scenario: exemption = \$13.95 million					Sunsetting scenario: exemption = \$6.98 million				
	Percent of estates required to file return	Percent of estates paying estate tax	Average estate tax liability in U.S. dollars (millions)	Average net worth of estates in U.S. dollars (millions)	Average tax rate (percent)	Percent of estates required to file return	Percent of estates paying estate tax	Average estate tax liability in U.S. dollars (millions)	Average net worth of estates in U.S. dollars (millions)	Average tax rate (percent)
<b>Farm typology</b>										
Retirement	0.5	0.1	3.5	26.1	13.6	2.4	0.6	2.6	22.0	11.9
Off-farm occupation	1.9	0.4	2.8	24.4	11.5	4.0	1.5	2.4	17.8	13.4
Low sales	0.6	0.2	3.3	29.8	11.1	2.2	0.6	3.0	20.6	14.5
Moderate sales	2.2	0.6	8.1	38.1	21.2	9.9	1.8	4.4	25.0	17.6
Midsized	5.7	1.6	4.8	35.1	13.8	20.6	4.6	3.2	19.5	16.6
Large	13.7	3.4	6.4	32.8	19.3	37.9	8.1	4.5	21.6	21.0
Very large	38.9	7.1	16.6	57.4	28.9	65.3	8.8	15.9	49.3	32.3
All farm households	1.5	0.4	4.7	30.9	15.2	4.5	1.2	3.2	20.4	15.8

Note: Results presented are forecasted values based on real annual growth in an asset value of 5.3 percent. The average tax rate is calculated as the total tax liability divided by the total net worth of estates taxed.

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018--2020, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).



Table C.4

**Percent of underserved and beginning farm estates taxed, assuming high asset growth**

	Exemption = \$13.95 million	Exemption = \$6.98 million
Female principal operator	0.69	1.81
Non-White principal operator	0.14	0.38
Beginning farm	0.15	0.24
Limited resource farm	0.18	0.47
All farm households	0.38	1.16

Note: Results presented are forecasted values based on real annual growth in asset value of 0 percent.

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2020, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

## Appendix D: Statistical Tests for Differences in the Impact of Changes to the Farm Estate Tax Exemption

In this appendix, the authors report statistical tests that measure differences in the impact of decreasing the estate tax exemption among groups of farms households. To test this impact, the authors focus on the share of farm estates that would have a positive estate tax liability. The share of farm estates that have a positive estate tax liability is calculated as:

$$\frac{\sum_{i=1}^N ProbDeath_i Y_i}{\sum_{i=1}^N ProbDeath_i} \quad (D1)$$

Where  $i$  is each of  $N$  total farm households,  $\sum_{i=1}^N ProbDeath_i$  is equal to the number of expected estates in a given year, and  $Y_i$  is 1 if the farm household would have a positive estate tax liability, but zero otherwise. For example, if a principal operator, (given their age) has a 5-percent probability of death in the current year and their death would result in owing estate tax, this principal operator has a 5-percent joint probability of death and owing estate tax. Another principal operator may have the same probability of death but would not owe estate tax and would therefore have a 0 percent joint probability of death and owing estate tax. The numerator in equation D1 is, therefore, the sum of the joint probability of estate formation and having an estate tax liability which provides the expected number of estates with a positive tax liability. Taken together, the numerator and denominator provide the probability of having a positive estate tax liability, conditional on estate formation. The sum of this conditional probability provides the share of farm estates that have a positive estate tax liability.

The change in the share of farm estates that pay estate taxes when exemption levels change from high (H) to low (L) is given by:

$$\frac{\sum_{i=1}^N ProbDeath_i Y_i^H}{\sum_{i=1}^N ProbDeath_i} - \frac{\sum_{i=1}^N ProbDeath_i Y_i^L}{\sum_{i=1}^N ProbDeath_i}$$

Although the share of farm estates that pay estate tax is reported, in order to detect statistical differences between groups, the following tests analyze differences in the change in conditional probability of a positive estate tax liability between groups in response to a decrease in the estate tax exemption amount upon expiration of the Tax Cuts and Jobs Act (TCJA) estate tax provisions (results presented in tables D.1 and D.2).

Table D.1

**Pairwise t-test of the change in the conditional probability of a positive estate tax liability by typology**

Farm typology	Average change in the conditional probability of a positive estate tax liability	P-value of pairwise t-test						
		Retirement	Off-farm occupation	Low sales	Moderate sales	Midsized	Large	Very large
Retirement	0.00	.	0.78	0.72	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Off-farm occupation	0.00	0.78	.	0.37	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Low sales	0.00	0.72	0.37	.	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Moderate sales	0.01	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	.	<b>0.06</b>	<b>0.00</b>	<b>0.05</b>
Midsized	0.02	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.06</b>	.	<b>0.01</b>	0.49
Large	0.03	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	.	0.34
Very large	0.02	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.05</b>	0.49	0.34	.

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2021, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).

Table D.2

**T-test of the difference between the change in the conditional probability of a positive estate tax liability for each underserved group versus the relevant reference group**

	Average change in the conditional probability of a positive estate tax liability	P-value testing difference in the change in the conditional probability
Non-White or Hispanic principal operator versus White and non-Hispanic principal operator	0.002006 0.005302	<b>0.00595</b>
Female principal operator versus male principal operator	0.006274 0.00491	0.395372
Beginning farms versus nonbeginning farms	0.001345 0.005845	<b>0.000136</b>
Limited resource farms versus nonlimited resource farms	0.003086 0.005299	0.133715

Note: Bolded p-values represent pairwise t-tests that are significant at the 10-percent level.

Source: USDA, Economic Research Service using data from USDA's Agricultural Resource Management Survey 2018–2021, USDA's 2021 June Area Survey; U.S. Social Security Administration's 2019 Actuarial Life table; U.S. Internal Revenue Service's 2021 Farm Credit System Bank Loan Interest Rates chart; and Number, Timing, and Duration of Marriages and Divorces: 2016, U.S. Department of Commerce, Bureau of the Census (2021).