

Documentation for a Federal and State Inheritance and Estate Tax Calculator

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I. OVERVIEW, CAPABILITIES, AND LIMITATIONS

EITaxCalc is a federal and state inheritance and estate tax calculator program written in SAS. There is currently a working version of the tax calculator that calculates federal and state estate and inheritance taxes for dates of death between 1900 and 2025, based on federal and state laws enacted through July 2015. The preliminary version of *EITaxCalc* is not currently available to the public, and can only be used by permission of the author. I may make it freely available to the public at some future date. Any research making use of the calculator or results from the calculator should cite this document for the time being.

Estate taxes and inheritance taxes

An estate tax applies a single tax bracket and rate structure and a single exemption to the entire estate of a decedent, so that the total tax liability on the estate does not depend on how it is divided up among heirs (an exception is that there is sometimes a larger exemption or deduction allowed for bequests to a surviving spouse). In an inheritance tax, on the other hand, the tax is applied separately to each heir, and total tax liability on the estate as a whole depends on how it is divided up amongst heirs. The federal government has only operated estate taxes, whereas inheritance taxes were historically more common than estate taxes at the state level. Typically, state inheritance taxes included different tax brackets, tax rates, and exemptions for different classes of heirs. This tax calculator models both types of taxes.

Capabilities and limitations

Major features of federal and state inheritance and estate tax laws that are incorporated into the current version of the program include the following:

- Estate tax rates, exemptions, deductions, and credits.
- Inheritance tax rates, exemptions, deductions, and credits applying to a surviving spouse, an adult child, or a niece or nephew
- Treatment of charitable bequests.
- The federal credit for state inheritance and estate taxes.
- Deductibility of state taxes from the federal tax, or vice versa.
- Treatment of property jointly owned between spouses.
- Treatment of community property.
- Treatment of life insurance.
- “Homestead exemptions” and “family allowances” (i.e., exemptions for the value of owner-occupied housing, typically capped at a certain level, and for limited provision for living expenses for a surviving spouse).

The tax calculator incorporates a rich characterization of state and federal inheritance and estate tax laws. But to keep the data collection effort manageable, the current edition of the calculator involves some compromises.

One major area where we have not captured the complexity of the law in all of its detail is in the characterization of how different types of heirs are taxed by state inheritance taxes. In the actual state inheritance tax laws, heirs were typically grouped into three,

four, or five classes, each with its own exemptions, brackets, and rates. For example, in a typical inheritance tax there might be a first class consisting of surviving spouses, a second class consisting of direct descendants or ancestors, a third class consisting of “collateral” relatives such as brothers, sisters, nieces, and nephews, and the fourth class including more distant relatives and/or non-relatives. We have collected data on the tax rates and exemptions for surviving spouses as representative of the first class, adult children as representative of the second class, and nieces and nephews as representative of the third class, and incorporated these into the calculator. In addition, we collected data on the exemptions and rates applying to charitable bequests in the rare cases where those were taxed. Thus the calculator is only guaranteed to accurately calculate inheritance tax liabilities for these particular types of bequests. In most cases, the taxes calculated for adult children will be the same as those for other close lineal relatives, and the taxes calculated for nieces and nephews will be the same as those for other close collateral relatives, but there are always exceptions. Inheritances received by more distant relatives or non-relatives were sometimes taxed in the same way as nieces and nephews and sometimes not, so the calculator provides a less accurate approximation of the taxation of those types of inheritances. The calculator allows the user to freely choose how to allocate the decedent’s estate across a surviving spouse, charity, and up to four members of the class including adult children or the class including nieces and nephews. The dollar amounts of each type of bequest are specified in the input data set.

A few other elements of inheritance and estate taxes and related taxes are not captured in the current edition of the calculator. Some examples include:

- Special use valuation provisions for farms.
- Special deductions for closely-held businesses.
- Tax treatment of pensions.
- Gift taxes.
- Credit for tax on prior transfers.
- Generation-skipping transfer taxes.
- Tangible property located in a state other than the state of residence is subject to that other state’s estate or inheritance tax, and then the state of residence makes some adjustment to avoid double-taxation of that property (e.g., a credit, or the tax on the full estate is prorated across states in proportion to their share of the property). We cannot account for this because the data used with the calculator typically only indicates the state of residence at death, and does not provide information on the location of tangible property.

II. SOURCES OF INFORMATION

For the federal estate tax, our primary sources of information were federal estate tax forms and instructions published by the IRS. These are available for years since 1992 on the IRS web site <<http://www.irs.gov>>. Barry Johnson of the IRS Statistics of Income division graciously provided us with photocopies of all available federal and estate tax forms and instructions produced between 1917 and 1992.

For state inheritance and estate taxes, a variety of sources were used. Information for recent years was available via state tax forms and instructions posted on state revenue agency web sites. For earlier years, we used the state laws themselves, as well as a variety of secondary sources, primarily tax planning guides. Secondary sources sometimes presented essential information in a convenient format that made data entry easier than with the laws, so we relied heavily on those. The state laws were used primarily for more obscure features of the law that were not documented in the secondary sources, or to address chronological gaps or ambiguities in the available secondary sources.

The most definitive sources were the state tax laws themselves. A snapshot of all of a state's laws applying at a given point in time is provided in each state's "annotated statutes," and the laws passed by the legislature in each year are contained in the state's "session laws." "Cumulative supplements" are also published periodically; these include the up-to-date text of any sections of the law that have been amended since the last edition of the annotated statutes was published. Current annotated statutes and recent session laws for every state are available freely on the Internet, usually through the web sites of state legislatures. See, for example <<http://estate.findlaw.com/estate-planning/estate-planning-law/estate-planning-law-state-taxes.html>> for links to current laws for all 50 states and DC. The Lexis-Nexis legal research database contains a searchable collection of current annotated statutes, and state session laws going back to 1989. For earlier years, we made use of the excellent collection of historical state laws at Georgetown University's law library. We were able to find annotated statutes and cumulative supplements for numerous years spanning the 20th century for each and every state. Historical notes in the annotated statutes indicate dates of amendment and reference information for the amendments for each section of the law, and in some cases describe the amendments. The amendments themselves (contained in the session laws) were retrieved in any cases where there were gaps in information between available statutes, and they could not be definitively resolved using the other sources listed above. A complete list of all of the original state legal information we collected is very lengthy and is not included in our references section below – a list of the years for which we collected the laws for each state is available upon request.

The most useful secondary sources included the following (complete reference information is available in the references). Commerce Clearing House's (CCH) *Inheritance, Estate, and Gift Tax Reporter* is a regularly-updated looseleaf service available at many law libraries. It includes a legislative history of each state's estate and inheritance tax laws dating back to the 1800s (we copied the legislative histories up

through 1999 from the University of Michigan's Law Library). Each history includes a chronological list of major changes in the state's inheritance and estate tax laws, including a brief description of the change and references to the amending session law or section of the statutes that was amended. The legislative histories only provided limited information on the nature of the changes (for instance, they would indicate that tax rates had changed, but did not typically provide either the new or old rates), but were useful for determining when various aspects of the law changed and the effective dates. Prentice Hall's *Tax Diary and Manual* (also published under the title *Federal and State Tax Compendium and Diary* in some years), available at the Library of Congress for most years between 1924 and 1955, provided detailed information on state inheritance and estate tax rates and exemptions for all years during that period. Also invaluable for the early years was *A Treatise on the Law of Inheritance Taxation* by Gleason and Otis (Georgetown University Law Library had the 2nd and 4th editions, published 1919 and 1924, respectively), which provided full text of state inheritance and estate tax laws as of 1919 and 1924, as well as histories of how rates, exemptions, and other major features of law had changed since the inceptions of the taxes in each state. Shultz (1926) also provides some useful information on very early inheritance tax laws. Another particularly useful resource for the very early years of our data was the collection of state case law available on the Lexis-Nexis online database. During the early years of their existence, state inheritance and estate tax laws were often the subject of court cases, and the court opinions in these cases often included details about how the laws worked. U.S. Bureau of the Census (1938) and U.S. Congress, Joint Committee on Internal Revenue Taxation (1933) provided capsule descriptions of state laws at the times they were published. Prentice Hall's *Inheritance Tax Service* (available at Georgetown Law Library and Library of Congress) included full text of state inheritance and estate tax laws for the 1927-29 period and for the late 1980s and early 1990s, information on rates and exemptions (including historical information on changes between the 1970s and early 1990s), legislative histories similar to those in the CCH document described above, and commentaries written by Prentice Hall which clarified issues of interpretation and note relevant judicial and attorney general rulings. Bowe (1957) provided information on rates and exemptions as of 1956. Schoenblum (1982) provided rates and exemptions as of 1981, and also supplied very detailed discussions of issues such as how state of residence was determined for purposes of state inheritance or estate taxation, and how property of varying types located in different states would be taxed. Updates to Schoenblum in 1997 and 1999 provided further information on rates and exemptions. Various publications by Advisory Commission on Intergovernmental Relations contained information on rates, exemptions, and deductibility from federal tax at varying levels of detail between 1960 and 1995 (in many years, the information was rather limited, for instance only including top and bottom rates for a limited array of heirs). The annual *All States Tax Handbook*, published by Research Institute of America, included useful capsule descriptions of state rates, exemptions, and the ways in which state law related to federal law for recent years.

III. STRUCTURE OF THE PROGRAM

Tax law data

EITaxCalc consists of a single SAS program (EITaxCalc.sas) and three Excel spreadsheets: EITaxFed.xlsx (which contains the parameters of federal income tax laws); EITaxState.xlsx (which contains the parameters of state income tax laws); and cpidata.xlsx (which contains past and projected future values of the CPI-U price index). Each of these three Excel spreadsheets is also stored as a .csv file of the same name that is identical (except for omitting the shading of cells and converting formulas to values). It is the .csv files that are actually read into the SAS program. In the spreadsheets, cells highlighted in yellow are cases where there is some uncertainty about the true value of the cell (there are a few cases like this for state tax parameters in very early years of the 20th century, and a number of cases before the late 1980s for the value of **sannounce** where we know the year of enactment but not the exact date). Cells highlighted in green represent cells that were recently updated by research assistants since 2009. In each of the two tax law parameter text files, there is one row (record) for combination of a change in the law and a change in the tax parameters (for example, a new state law that specifies different parameters for each of the next 5 years would have 5 rows). Each column represents a different variable containing information about some aspect of the tax law. The tax law information can easily be edited, updated, or changed for policy simulation purposes by editing one or both of the tax parameters spreadsheets (or copies thereof) and then saving copies as .csv files (see section VIII on “updating”) below.

Input data set with taxpayer information

The user must supply an input data set containing information on each taxpaying unit. The variables included in the input data set represent various characteristics of the decedent (date of death, size of gross estate, distribution of estate among different types of heirs and charity, etc.). The input data set is described further in section V below.

How it works

The program works by taking each individual taxpayer record, which contains individual-specific information on date of death, age, value of estate, and disposition of estate, and then merging it with the applicable federal and state tax law parameters from EITaxFed.csv and EITaxState.csv. To speed processing, the calculator actually uses the “lookup table” approach in SAS (relying on the “key=” feature of the “set” statement and indexed data sets) instead of the “merge” statement. The calculator then runs through the records all at once to calculate tax liabilities and other variables of interest. The entire process is then repeated after adding an increment to a bequest to a particular heir or to charity in order to calculate marginal tax rates. Finally, the program produces an output data set with tax liability and tax rate information.

User-selected options within the SAS program

At the bottom of the program, the user can select a variety of options by choosing the values of the “parameters” of the *EITaxCalc* SAS macro command, which is reproduced below:

```

%EITaxCalc(
programpath= ,
inputpath= ,
outputpath= ,
inputset= ,
outputset= ,
detail= ,
inputformat= ,
outputformat= ,
statecodetype= ,
fedparam= ,
stateparam= ,
loadparam= ,
cpiaadjust= ,
spMTR= ,
chMTR= ,
h1MTR= ,
h2MTR= ,
incrementkind= ,
incrementquantity= ,
reverseMTR= ,
checkMTR= ) ;

```

Each name to the left of an equals sign within the parentheses above is a macro “parameter.” Options can be chosen by filling in values to the right of each equals sign. The meaning of each parameter, and its possible values, are given below.

programpath	Pathname of directory where program and federal and state tax law parameter data sets, and StateCross.dat, are stored. (Example: C:\files\taxcalc).
inputpath	Pathname of directory where data on individual taxpayers are stored.
outputpath	Pathname of directory where output data sets containing calculated tax rates, tax liabilities, and details of tax calculation are sent.
inputset	Name of input data set with individual taxpayer information. Do not include any file extension.
outputset	Name of output data set containing calculated tax rates and liabilities and other output. Do not include any file extension.
detail	Indicator for whether to produce an output file containing only the basic tax results, or an output file containing the details of the tax calculations. <i>0</i> = Produce basic output data set. <i>1</i> = Produce detailed output data set.

inputformat	Format of input data set. 0 = Comma delimited text 1 = Excelspreadsheet 2 = SAS data set
outputformat	Format of output data set. 0 = Comma delimited text file 1 = Excel spreadsheet. 2 = SAS data set
fedparam	Name of data set containing parameters of federal law. Do not include file extension. For baseline federal tax parameters use <i>EITaxFed</i> .
fedformat	Format of federal tax parameter data set. 0 = Comma delimited text file 1 = Excel spreadsheet. 2 = SAS data set
stateparam	Name of data set containing parameters of state law. Do not include file extension. For baseline state tax parameters use <i>EITaxState</i> .
stateformat	Format of state tax parameter data set. 0 = Comma delimited text file 1 = Excel spreadsheet. 2 = SAS data set

NOTE: SAS may have compatibility issues with certain versions of Excel and Excel files. It is recommended to use .csv files or SAS data sets.

loadparam	Specify whether to load the federal and state tax law parameter data sets. 0 -- No, do not load the text tax law parameter data sets. You may want to choose this option if you have already run the <i>EITaxCalc</i> macro at least once during this SAS session and do not want to change the parameters of federal or state laws. In that case, the program will just read the temporary SAS data sets for federal and state tax law parameters that are already in the working directory, which will slightly reduce processing time. 1 = Yes, do load the text tax law parameter data sets. Always choose this the first time you are running <i>EITaxCalc</i> during this SAS session, or if you want to change the tax law parameters.
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statecodetype	Type of state code in input data set. <i>0</i> = Two-letter postal code abbreviation for state, lower-case. <i>1</i> = IRS Statistics of Income 2-digit numeric code.
cpiadjust	If this parameter is set to 1, then all dollar amount variables in the input data set will be multiplied by cpi_s / cpi_t , where cpi_s is the annual consumer price index at dateofdeath , and cpi_t is the annual consumer price index at dateofdata . <i>Not yet implemented in the program.</i> <i>0</i> = Do not adjust input variables for inflation between dateofdata and dateofdeath . <i>1</i> = Do adjust input variables for inflation between dateofdata and dateofdeath .

The remaining variables govern the calculation of marginal tax rates. Each marginal tax rate is calculated by adding an incremental amount to a specific bequest (as well as to the gross estate), and then dividing the resulting change in tax liability by the increment. See documentation for input data set for the meaning of “heir 1” and “heir 2.”

spMTR Calculate marginal tax rate for bequest to surviving spouse?
0 = No.
1 = Yes.

chMTR Calculate marginal tax rate for bequest to charity?
0 = No.
1 = Yes.

h1MTR Calculate marginal tax rate for bequest to heir 1?
0 = No.
1 = Yes.

h2MTR Calculate marginal tax rate for bequest to heir 2?
0 = No.
1 = Yes.

incrementkind Type of marginal tax rate increment. The marginal tax rate is calculated by adding an increment to each bequest for which a marginal tax rate calculation is requested. The increment can be either a fixed dollar amount (**incrementkind=dollar**), or a percentage of net worth (**incrementkind=pct**). If the latter is chosen, the increment applied will be the maximum of $(pct/100)*\mathbf{networth}$ or \$0.10, to deal with situations where net worth is non-positive.

- incrementquantity** Size of increment used to calculate marginal tax rate. If **incrementkind=dollar**, then put the dollar amount here. If **incrementkind=incpct**, then put the percentage here (e.g., if the increment is 10% of income, then write 10).
- reverseMTR** Optional alternative marginal tax rate calculation to eliminate notches. If set to 0, marginal tax rate will be calculated simply by adding an increment. If it is set to 1, then marginal tax rates will be computed first by adding an increment to the initial value, and then, if the absolute value of the marginal rate is greater than the value of **checkMTR** below, it will be calculated again by subtracting the increment from the initial value. Results will be reported for the case where the overall marginal tax rate is smallest in absolute value.
- checkMTR** Absolute value of marginal tax rate, expressed as a decimal, above which the "reverseMTR" calculation described above will be performed.

Storing the program as a compiled macro

Note that it is possible to store the whole program as a compiled macro and then to call it from within another SAS program using the SAS Autocall facility. To do this, take the following steps:

- 1) Create a directory to store SAS macros (e.g., C:\SASmacros).
- 2) Copy EITaxCalc.sas into that directory
- 3) In the SAS program where you want to invoke the tax calculator, write the following lines of code at the top of the program:

```
filename macs "c:\SASmacros" ;
options maautosource ;
options sasautos=macs ;
```

- 4) Write a line of code in your program that invokes the EITaxCalc macro, i.e.,

```
%EITaxCalc( ) ;
```

Where all of the parameters noted above are included in the parentheses.

IV. INPUT DATA SET

The input data set is either a tab-delimited flat ASCII text file or a SAS data set, with the following variables arranged in columns. For a text file, the variables must be in the order listed below. All dollar amounts should be entered in nominal terms.

- id** Identification number
- dateofdeath** Date of death (yyyymmdd). Must be greater than 18999999.
- datenow** Date at which expectation is taken (yyyymmdd). In some cases, you may want to calculate the expected estate or inheritance tax for some future date of death. In that case, **datenow** is the date at which the expectation is taken, and **dateofdeath** is the contemplated future date of death. In the event that a change in tax law has already been announced as of **datenow** and is being gradually phased in over time, the calculator will apply the tax parameters that are scheduled to apply at **dateofdeath**, including the effects of any amendments that have been signed into law by **datenow**. If the tax law is already fully phased in and no further changes are scheduled, then the calculator applies the tax parameters from **datenow** at the date of death – i.e., it assumes that future tax law will be the same as current tax law. Note that in some rare cases, a bill was signed into law and then applied retroactively to deaths that occurred before the date of signing. Because of this, if you want to always obtain the actual tax liability imposed on the decedent for a given **dateofdeath**, you can set **datenow** to some very large number such as 99999999.
- dateofdata** The date used to determine the applicable definitions of certain variables below (in yyyymmdd format). In the federal estate tax, the definitions of certain items such as “gross estate” and “jointly owned property includable in the gross estate” changed over time. The program uses **dateofdata** to interpret the meaning of such variables in the input data set. For example, if **dateofdata** = 19760701, then the program will interpret **grossest** according to the definition of gross estate for federal tax purposes that applied as of July 1, 1976.
- state** This can be the two-letter postal abbreviation for state of residence, lower case. In that case, abbreviations for all 50 states and *dc* are all valid entries, and the code for unknown state is *zz*. Alternatively, **statecode** can be the IRS Statistics of Income two-digit code number for each state, with zero serving as the missing value. The user must specify which type of state code is being used when the *EITaxCalc* macro is called.
- networth** Dollar value of net worth. This variable is only used as the denominator for the average tax rate calculation.

grossest	Dollar value of gross estate for federal tax purposes. This should be exactly as reported on the federal estate tax return, except that any federal conservation easement exclusion should be added back in. Given that the definition of gross estate for federal tax purposes has changed over time, the exact meaning of this variable will be interpreted by the SAS code depending on the value of dateofdata .
debt	Dollar value of debts and expenses that are generally deductible.
male	Gender of decedent. 0 = female 1 = male
marst	Marital status. 1 = married 2 = widow or widower 3 = single 4 = legally separated 5 = divorced 6 = unknown
unusedexcl	Unused exclusion amount of pre-deceased spouse. Starting in 2011, the federal estate tax began to allow a decedent whose spouse died previously, but after December 31, 2010, to use the portion of the exclusion created by the unified credit that was not used by the pre-deceased spouse. So consider the following example. In 2011 the total exclusion amount was \$5 million. If a husband died early in 2011 and left \$3 million to his heirs (other than his spouse), there would be \$2 million of unused exclusion. If his wife died later in 2011, she would be eligible for a \$7 million exclusion: \$5 million of her own exclusion, plus \$2 million of exclusion carried over from her pre-deceased spouse. Enter the dollar value of the portion of the exclusion that was not used by the previous spouse here, if that information is available.

The next set of variables allows the user to allocate the estate across charity and different types of heirs. Use the gross-of-tax value of each bequest. The sum of **spbeq**, **charbeq**, and **heir1beq** through **heir4beq** should always equal **grossest** minus **debt**.

spbeq	Dollar value of bequest to surviving spouse.
charity	Dollar value of bequest to charity
heir1beq	Dollar value of bequest to first heir (other than spouse).
heir1type	Type of first heir. 0 = No first heir.

1 = Member of class including adult children.
2 = Member of class including nieces and nephews.

heir2beq Dollar value of bequest to second heir (other than spouse).

heir2type Type of second heir.
0 = No second heir.
1 = Member of class including adult children.
2 = Member of class including nieces and nephews.

heir3beq Dollar value of bequest to third heir (other than spouse).

heir3type Type of third heir.
0 = No third heir.
1 = Member of class including adult children.
2 = Member of class including nieces and nephews.

heir4beq Dollar value of bequest to fourth heir (other than spouse).

heir4type Type of fourth heir.
0 = No fourth heir.
1 = Member of class including adult children.
2 = Member of class including nieces and nephews.

comprop Dollar value of the decedent's share of community property -- i.e., this is always 50% of the value of total community property owned by a married couple. During 1942-1948 the federal gross estate included 100% of the couple's total value of community property (i.e., it included both spouses' community property), and in all other years the federal gross estate included 50% of the couple's total value of community property (i.e., it just includes the decedent's 50% of the couple's community property).

jointprop Dollar value of property owned jointly with a spouse (this is the full value of the property owned by both spouses).

jointinclude Dollar value of property owned jointly with a spouse that is includable in the gross estate for federal tax purposes. Note that the federal rules governing how much joint property to include in the gross estate changed over time. From 1916 to 1981, jointly held property was included in the gross estate in proportion to the decedent's contribution to the property's purchase. From 1982-present, 50% of property held jointly with spouse is included in gross estate. When constructing the variable **jointinclude**, use the amount that would be includable in the gross estate under federal law as of **dateofdata**.

realestate Dollar value of real estate. In rare cases,

states taxed bequests of real estate differently than other property.

homestead Full value of homestead (that is, the primary personal residence of the deceased). This should be the full value, not just the portion included in the federal gross estate. In some cases, some portion of the value of the homestead was exempt from state taxation. The program assumes that the homestead is bequeathed to the surviving spouse, if there is one.

lifeins Value of life insurance for named beneficiaries on the life of the decedent, where decedent had incidents of ownership (i.e., the type generally taxable under the federal estate tax in recent years). This is included because historically some states treated life insurance differently than the federal estate tax did, and because federal estate tax treatment of life insurance changed over time.

easementex Value of conservation easement eligible for exclusion from federal gross estate.

Things to consider adding to the set of input variables for the future:

- Adjusted taxable gifts for federal estate tax purposes.
- Federal gift taxes paid
- Market value of farm and business property subject to special use valuation
- Special use value of farm or business property subject to special use valuation
- Value of closely held business
- Value of pensions

V. OUTPUT DATA SET

The basic output file contains the following variables:

id	Identification number
dateofdeath	Date of death (yyyymmdd)
statename	Two-letter state abbreviation

Tax liabilities and credits

eitaxf	Tax liability, federal
eitaxfns	What federal tax liability would be if there were no state EI tax.
eitaxs	Tax liability, state
FmaxStateCred	Maximum allowable federal credit for state taxes (minimum of credit limit and federal liability)
eitaxsi	Tax liability, state, incremental burden relative to soak up (or relative to no tax in years when there is no federal credit for state EI taxes).
eitax	Total combined federal and state EI tax liability.

Average tax rates

All average tax rates represent tax liability divided by **networth**.

eiatrf	Federal average EI tax rate.
eiatrfns	Federal average EI tax rate if there were no state tax.
eiatrs	State average EI tax rate.
eiatrsi	State average EI tax rate, incremental burden relative to soak up (or relative to no tax when there is no federal credit for state EI taxes).
eiatr	Total combined federal and state EI average tax rate.

Marginal tax rates

Note: if you do not request a marginal tax rate calculation for a particular type of bequest, all of the marginal tax rate variables for that type of bequest will be set to zero.

eimtrf_sp	Federal marginal tax rate on bequest to spouse
eimtrfns_sp	Federal marginal tax rate on bequest to spouse, if there were no state tax.
eimtrs_sp	State marginal tax rate, bequest to spouse
eimtrsi_sp	State marginal tax rate, bequest to spouse, incremental relative to soak up (or relative to no state tax if there is no federal credit for state death taxes).
eimtr_sp	Total combined federal and state marginal tax rate on a bequest to spouse.
eimtrf_h1	Federal marginal tax rate, bequest to heir 1
eimtrfns_h1	Federal marginal tax rate, bequest to heir 1, if there were no state tax.
eimtrs_h1	State marginal tax rate, bequest to heir 1

eimtrsi_h1	State marginal tax rate, bequest to heir 1, incremental relative to soak up (or relative to no state tax if there is no federal credit for state death taxes).
eimtr_h1	Total combined federal and state marginal tax rate on bequest to heir 1.
eimtrf_h2	Federal marginal tax rate, bequest to heir 2
eimtrfns_h2	Federal marginal tax rate, bequest to heir 2, if there were no state tax.
eimtrs_h2	State marginal tax rate, bequest to heir 2.
eimtrsi_h2	State marginal tax rate, bequest to heir 2, incremental relative to soak up (or relative to no state tax if there is no federal credit for state death taxes).
eimtr_h2	Total combined federal and state marginal tax rate on a bequest to heir 2.
eimtrf_ch	Federal marginal tax rate, bequest to charity
eimtrfns_ch	Federal marginal tax rate, bequest to charity, if there were no state tax.
eimtrs_ch	State marginal tax rate, bequest to charity.
eimtrsi_ch	State marginal tax rate, bequest to charity, incremental relative to soak up (or relative to no state tax if there is no federal credit for state death taxes).
eimtr_ch	Total combined federal and state marginal tax rate on a bequest to charity.

VI. STATE TAX LAW PARAMETERS

The parameters of state tax laws are contained in the file EITaxState.dat. There is one row for each state and for each distinct set of tax parameters. Each state has at least one row, and the earliest row starts no later than the date 18999999. The state tax parameter data must be sorted in ascending order by: (1) state; (2) sannounce; (3) statechange.

PROGRAMMER'S NOTES: Arrays are used to deal with heirs. Currently, the program allows for 4 heirs other than the spouse. To modify the number heirs to n heirs in the SAS code, the arrays with "heir" in their variable name need to be adjusted accordingly, and all "do i=1 to 4" codes need to be replaced with "do i=1 to n ".

Generally, exemption and deductions are added to a running count of exemptions, of which there are two types in the code: running counts that count for estate taxes, and running counts that count for inheritance taxes. Exemption types that can apply to either type of tax (such as **e_a_type**=1) usually add to both exemption counts. Since only one will be used when calculating the actual tax, the exemption is not double-counted. The exception is **taxtype** that have both an estate and inheritance tax portion, such as **taxtype=both,both2**. These exceptions need to be coded for specifically to avoid double-counting. Some exemption and deduction types specify the state and years that these types were in effect. Generally, the code only accounts for those exemption and deduction types for the applicable **taxtype** during those years and for those states. So if a certain exemption or deduction type was only in effect alongside inheritance taxes, the code will not account for the (future) possibility of the exemption or deduction type being used alongside an estate tax. The code needs to be adjusted when these situations are realized.

- state** State code (2-letter postal code)
- statechange** Date of death at which this particular set of tax parameters began to apply.
- sannounce** Date when the law imposing the state tax parameters in this row of data was "announced." From 1989 on, we use the date the act was signed into law by the governor, which we obtained from Lexis-Nexis. For earlier years, we rely primarily on the legislative histories provided by Commerce Clearing House and Prentice Hall. From these sources, we almost always have the effective date of the legislation and the year the law was enacted. For years before 1989, when in doubt, we use a date the law became effective when the bill was signed in the same year as the effective date, or July 1 if the bill was signed in a year earlier than the effective date.
- taxtype** Type of tax. Note that in all cases, each state is assumed to have a backup soak-up tax in any years when the federal credit for state taxes existed. In some early years of the 20th century this was not always the case, but assuming that a soak-up tax existed has no effect at all on the combined federal-state tax liability, it just affected the division of revenue between federal and state.

none = State either has no tax on inheritances or estates, or only operates a tax to soak up the maximum federal credit for state taxes.

inherit = State inheritance tax – separate tax on the amount received by each heir.

inheritchar = State inheritance tax that also taxes charity

inhcoll = State inheritance tax that exempts spouse and adult children, but taxes collateral relatives (in particular, nieces and nephews).

inheritnotch = Inheritance tax, but if inheritance is in a particular bracket, the marginal rate in that bracket applies to the entire inheritance, which creates large marginal rate notches. This applies in Colorado 1913-1927, Maine 1909-1933.

estate = State estate tax

both = Two taxes. The first tax is inheritance tax, and the second tax is an estate tax (which allows an exemption and possibly a charitable deduction). Variables pertaining to the second (estate) tax are distinguished through the use of an “x” (for example, tax brackets are **bx1-bx7**).

both2 = Both an estate tax and an inheritance tax. The estate tax exemptions and rates are coded in **b1-b21, r1-r21...** The inheritance tax only applies to collateral relatives, and is coded into the variables for nieces and nephews. The variable **dedfed** applies to both taxes.

inhclass = Inheritance tax that works like a separate estate tax for each class of heirs, where spouses and adult children are in one class, and nephews and nieces are in another class. Brackets and rates for the class including spouse and adult children are in **b1-b21** and **r1-r21**. Brackets and rates for the class including nephews and nieces are in **bn1-bn16** and **rn1-rn16**. This applied for many years in Connecticut, Tennessee, and Washington. It also applied briefly around 1900 in a few other states.

inhclass2 = Inheritance tax that works like a separate estate tax for each class of heirs, where spouses, adult children, and nieces and nephews are each in a separate class. Brackets and rates for a surviving spouse are in **b1-b21** and **r1-r21**. Brackets and rates for the class including adult children are in **bc1-bc20** and **rc1-rc20**. Brackets and rates for the class including nephews and nieces are in **bn1-bn16** and **rn1-rn16**. This applied in certain years in Connecticut.

inhclass3 = Inheritance tax where direct relatives are taxed like a regular inheritance tax, and collateral relatives are taxed as a class. For surviving spouse and adult children, this works exactly like **taxtype** = inherit. For members of the class including nieces and nephews, the parameters coded for the members of that class apply to the aggregate bequest to that class as a whole. This applies in certain years in Iowa.

inhclass4 = Inheritance tax where aggregate bequest to collateral relatives and charities is taxed as a class (with rates and exemption in the niece / nephew section applied to both as a single class), and where direct relatives including spouse and adult children are exempt (Kentucky 1906-1915).

inhclass5 = Inheritance tax where spouses and adult children are taxed as one class (with brackets and rates in **b1-b21** and **r1-r21**), and nieces, nephews, and charities are taxed together in another class (with the niece / nephew tax parameters applying here). (Tennessee, 1909-1915).

pctfed = Percentage of federal tax. Only applies in Vermont, 1971-1979.
State estate tax liability = $(r1/100) * \max(0, \text{fed tax after state credit}) * \{1 - \min[1, e_a / \text{fed taxable estate before exemption}]\}$

decoup = State tax that is related to the former federal credit for state taxes, but which is decoupled from federal law during the period when the federal credit is being phased out or has been eliminated. In general, tax liability in a decoupled state is the minimum of the maximum federal credit for state death taxes under pre-2001 law, and some measure of federal tax liability. If **taxtype** = *decoup*, then the program assumes that the measure of federal tax liability used is based on the current year's federal unified credit and bracket and rate structure. In some cases, however, the state tax uses a measure of federal tax liability from some previous year (for example, the unified credit may be frozen at a value that keeps the effective exemption at \$1 million). When federal tax parameters used to calculate the state tax differ from actual current federal tax parameters, set **taxtype** = *decoup2*, *decoup3*, or *decoup4* (see below).

In the event that **taxtype** = *decoup*, parameters are coded as follows:

- The exemption, brackets and rates from the former federal credit for state taxes (**FCe_a**, **FCb1-FCb21**, **FCr1-FCr21**, **FCbracknum**) are coded into the following variables for the state tax, in order: **e_decoupled**, **b1-b21**, **r1-r21**, **bracknum**.
- If the value of federal tax liability used to compute the state tax allows the state tax itself to be deducted, then **statededftax** is set equal to one. If federal tax liability is re-computed without the state tax deduction for purposes of calculating state tax liability, then **statededftax** is set equal to zero.

- If the base that is run through the bracket and rate structure for what was formerly the federal credit for state taxes allows a deduction for the state tax itself, then **statededcred** is set equal to one. If not, then **statededcred** is set equal to zero.

Note that this coding scheme is only necessary if the state tax computation involves a comparison of some measure of the former maximum allowable federal credit for state death taxes with some measure of federal estate tax liability in order to determine state tax; if the state tax does not depend at all on what federal estate tax liability would have been under some year's law, then typically **taxtype** = *estate* would be used instead. Note also that certain variables such as **pe_s** are ignored when **taxtype** = *decoup* because the base for computing the federal credit for state taxes, and for computing federal tax liability, is assumed to be the same as federal (except for the possible exceptions relating to deductibility of state taxes noted above), but these other variables such as **pe_s do** matter if **taxtype** = *estate*.

decoup2 = State tax that is related to the former federal credit for state taxes, but which is decoupled from federal law during the period when the federal credit is being phased out or has been eliminated, *and* which uses federal tax bracket, rate, or unified credit parameters from some year other than the current year to construct the measure of federal tax liability used to compute the tax. Coding is the same as for **taxtype** = *decoup*, except for the following. The relevant federal unified credit (**Fcredit_a** in the federal tax parameter data set) is coded into the state variable **uc_decoup**. The relevant federal brackets and rates are coded in **bc1-bc20**, **rc1-rc20**, and **bracknum_c**. Note that it is possible that for purposes of calculating the decoupled state tax, a state could freeze the federal tax brackets and rates at, say, the ones applying to 2001 deaths, yet at the same time allow the effective exemption level created by the unified credit to increase over time as specified by EGTRRA 2001. In that case, using the federal unified credit could create a different exemption level than is specified under current federal law, because the exemption-equivalent of the unified credit depends on the tax rates and brackets. If this is the case, then in the state tax parameter data set, the unified credit (**uc_decoup**) can be set to zero, the top of the first bracket (**bc2**) can be set to the exemption level, the first tax rate (**rc1**) can be set to zero, and then only the brackets and rates that apply above the exemption level are included beyond that.

Note that this coding scheme is only necessary if the state tax computation involves a comparison of some measure of the former maximum allowable federal credit for state death taxes with some measure of federal estate tax liability in order to determine state tax; if the state tax does not depend at all on what federal estate tax liability would have been under some year's law, then typically **taxtype** = *estate* would be used instead. Note also that certain variables such as **pe_s** are ignored when **taxtype** = *decoup* because the base for computing the federal credit for

state taxes, and for computing federal tax liability, is assumed to be the same as federal (except for the possible exceptions relating to deductibility of state taxes noted above), but these other variables such as **pe_s** do matter if **taxtype** = *estate*.

decoup3 = A state which has both a decoupled estate tax *and* an inheritance tax (e.g., NE 2003-, NJ 2002-, PA 2002-2003 but decoupled estate tax was retroactively repealed). Any inheritance tax on adult children is in **e_x_type**, **e_x**, **bx1-bx7**, **rx1-rx7**, and **bracknum_x**. Parameters for inheritance tax on collateral relatives are in the usual location. The estate tax is the *larger* of the tax determined by **e_decoupled**, **b1-b21**, and **r1-r21**, or the actual federal credit for state death taxes applying at that time. The inheritance tax is a credit against the decoupled estate tax (i.e., the estate effectively pays the larger of the two taxes).

Note that this coding scheme is only necessary if the state tax computation involves a comparison of some measure of the former maximum allowable federal credit for state death taxes with some measure of federal estate tax liability in order to determine state tax; if the state tax does not depend at all on what federal estate tax liability would have been under some year's law, then typically **taxtype** = *estate* would be used instead. Note also that certain variables such as **pe_s** are ignored when **taxtype** = *decoup* because the base for computing the federal credit for state taxes, and for computing federal tax liability, is assumed to be the same as federal (except for the possible exceptions relating to deductibility of state taxes noted above), but these other variables such as **pe_s** do matter if **taxtype** = *estate*.

decoup4 = A state which has both a decoupled estate tax *and* a collateral inheritance tax (e.g., MD, KS 2002-2003 but inheritance tax retroactively repealed). Parameters for inheritance tax on collateral relatives are in the usual location, except that **dedfed**, **e_a**, and **e_a_type** are parameters of the inheritance tax and not the estate tax. The estate tax is the *smaller* of (a) the tax calculated using **e_decoupled**, **b1-b21**, **r1-r21**, and (b) the tax calculated using **uc_decoup**, **bc1-bc20**, **rc1-rc20**. The inheritance tax is a credit against the estate tax. In addition, if **bracknum_x** > 0, then the estate tax cannot exceed **rx2** % of the amount by which the net estate (**grossest-debt**) exceeds **bx2**.

Note that this coding scheme is only necessary if the state tax computation involves a comparison of some measure of the former maximum allowable federal credit for state death taxes with some measure of federal estate tax liability in order to determine state tax; if the state tax does not depend at all on what federal estate tax liability would have been under some year's law, then typically **taxtype** = *estate* would be used instead. Note also that certain variables such as **pe_s** are ignored when **taxtype** = *decoup* because the base for computing the federal credit for

state taxes, and for computing federal tax liability, is assumed to be the same as federal (except for the possible exceptions relating to deductibility of state taxes noted above), but these other variables such as **pe_s do** matter if **taxtype = estate**.

statechange First date of death for which the state tax parameters contained in this row were effective.

dedfed Is federal estate tax deductible from state tax?
0 = no
1 = yes; in inheritance taxes, this deduction is divided among inheritors proportional to their share of the total bequest amount
2 = increases in the federal estate tax starting in 1932 are not deductible – only the tax that would have been due under the 1926 federal estate tax may be deducted (this amount can be recovered by multiplying the maximum federal credit for state death taxes by 1.25). (NC, 1933-56)

e_a_type Defines **e_a** (an exemption variable).
First, here is some terminology. Exemptions for estate or inheritance can work in a variety of ways. To illustrate, suppose a state has an estate tax where the tax is 10% on the first \$100,000 of taxable estate, and 20% of any portion of the taxable estate that is above \$100,000. Suppose there is a \$50,000 exemption, and the gross estate is \$300,000. One type of exemption is subtracted from the gross estate to get to the taxable estate, and then the bracket and rate structure described above is applied to the taxable estate. So in this example, the taxable estate would be \$300,000 - \$50,000 = \$250,000, and the tax is $10\% * (\$100,000) + 20\% * (\$250,000 - \$100,000) = \$40,000$. In the documentation, we generally call this an exemption that is "subtracted from the top brackets," meaning it reduces the portion of the estate that is taxed at the marginal rate (20%) by the exemption amount. In other words, the tax saving from this exemption is $20\% * \$50,000 = \$10,000$. Another kind of exemption is "subtracted from the bottom brackets." In this case, taxable estate is \$300,000, and the tax is 0% of the first \$50,000, 10% of the amount between \$50,000 and \$100,000, and 20% of the amount above \$100,000. So in that case the tax bill is $10\% * (\$100,000 - \$50,000) + 20\% * (\$300,000 - \$100,000) = \$45,000$. In this case, the exemption is really like another, initial tax bracket with a 0% rate, which overrides the lowest tax brackets up to the value of the exemption. A given exemption is worth less tax saving in this scheme. In this example, the exemption reduces the tax bill by only $\$50,000 * 10\% = \$5,000$. Possible values for **e_a** are given below.

PROGRAMMER'S NOTE: under **taxtype=decoup4**, **e_a_type** refers to the exemption applying in the inheritance tax. For now, the only **e_a_type** allowed for **taxtype=decoup4** is **e_a_type=2**, which is in the SAS code under the **e_a_type** section. If different **e_a_types** begin to be

used with **taxtype=decoup4** in the future, the SAS code will need to be modified to allow for these other **e_a_type** cases.

0 = In an estate tax, **e_a** is an exemption for the entire return deducted from the top brackets. In an “inhclass” tax, **e_a** is an exemption for the class including surviving spouse and adult child that is deducted from the top brackets.

1 = In an inheritance tax, **e_a** is an exemption for each surviving spouse and adult child and deducted from the bottom brackets. In an estate tax, **e_a** is an exemption for the entire return deducted from the bottom brackets. In an “inhclass” tax, **e_a** is an exemption for the class including surviving spouse and adult child that is deducted from the bottom brackets.

2 = If the value of the entire net estate (**grossest-debt**) is less than **e_a**, then there is no tax on the estate as a whole or on any inheritance. If the value of the entire net estate is greater than **e_a**, then **e_a** does not apply.

3 = If value of entire net estate (**grossest-debt**) is less than **e_a**, then there is no tax on members of class including surviving spouse and adult child, but there may still be tax on others such as class including nieces and nephews. If the value of the entire net estate is greater than **e_a**, then **e_a** does not apply.

4 = If share going to class including surviving spouse and adult children is less than **e_a**, no tax for surviving spouse and adult children. If share going to class including surviving spouse and adult children is greater than **e_a**, then **e_a** does not factor into the tax calculation (Michigan before 1903).

5 = See **taxtype = pctfed**.

6 = A single exemption (recorded in **e_a**) is shared among all members of the class including spouse and adult children, in proportion to their share of the total amount inherited by all heirs (including charity when **taxtype=inheritchar**). Each heir *i* who is in the class including spouse and adult children gets an exemption equal to $e_a * [\text{inheritance}_i / (\text{spbeq} + \text{heir1beq} + \text{heir2beq} + \text{heir3beq} + \text{heir4beq} + \text{charity})]$, where “inheritance_{*i*}” is the inheritance received by heir *i*. (New Mexico 1919-1973).

7 = There is no tax for the whole estate if the net estate (**grossest-debt**) minus exemptions taken by spouse and children is less than **e_a** (NY 1932 - 1950).

8 = If net estate is below **e_a**, then no tax. If net estate is above **e_a**, then the exemption for the estate is **e_x**, and there is a credit equal to **credit** (if **credit** is nonzero). In addition, estate tax liability may not exceed **bx1** percent of the amount by which the net estate exceeds **e_a**. “Net estate” is defined as gross estate minus debts minus funeral expenses. (Massachusetts, 1976 – 1996).

10 = See **e_s_type** = 10. (West Virginia 1933-1941).

11 = Exemption for whole estate is larger of: (a) the sum of exemptions for individual heirs (from **e_s**, **e_c**, and **e_n**) (b) the federal estate tax exemption (recorded in **e_a**). If (a) is larger, then state exemptions are deducted from top bracket. If (b) is larger, then the federal exemption is divided proportionately among heirs and deducted from top bracket. If **pe_s** = 100, then spouse is removed from comparison of and calculation of exemptions (Idaho, 1981-1988).

14 = Entire estate is exempt from tax if net estate is *larger* than **e_a**. Net estate is defined as gross estate minus debts. (Kentucky, 1948-1966).

15 = Entire estate is exempt from tax if net estate is *larger* than **e_a**. Net estate is defined as gross estate minus debts, federal estate tax, and charity. (Kentucky, 1966-1978).

17 = See **e_s_type** = 17 and **e_c_type** = 17 (Kansas 1919-1982).

29 = A single exemption in **e_a** is allowed against the estate tax, deducted from top brackets, but the exemption only applies to bequests to the class including surviving spouse and adult children, not to the class including nieces and nephews. Thus, the exemption allowed is the smaller of **e_a** and the sum of the bequests to the class (Oklahoma, 1935 - 1939).

30 = A single exemption in **e_a** is allowed against the estate tax, deducted from top brackets, but the exemption only applies to bequests to the class including surviving spouse and adult children not to the class including nieces and nephews. In addition, if the net estate (**grossest-debt**) is less than \$100, there is no tax (Oklahoma, 1939 - 1973).

33 = Exemption in **e_a** is divided among all members of the class including spouse and adult children *in proportion to each heir’s share of bequests to this class*, and is deducted from top brackets (Colorado 1901-1909, Washington state before 1929).

34 = A single exemption **e_a** is divided among all members of the class including spouse and adult children in proportion to each heir’s share of

bequests to that class, and is deducted from the top brackets. If the portion of the exemption allocated to an individual heir in this class is less than \$25,000, the exemption for that heir is increased to \$25,000 (without reducing exemptions to other heirs in this class). (Texas 1978-1981).

35 = Exemption for whole estate is $\max(\min(\text{bequest to spouse or children, } e_x), e_a)$, and is deducted from bottom brackets (Utah 1947-1969).

36 = Total state inheritance tax on estate cannot exceed e_a . (Virginia, 1924 – 1932).

39 = The total exemption for the class including spouse and adult children is e_a , plus e_s (if there is a surviving spouse), plus e_c for each other surviving member of the class including spouse and children. The sum of these is then deducted from the first brackets. Eligibility for each of the exemptions noted above does not depend on the amount actually bequeathed to each of surviving member of the class including spouse and adult children, it just depends on whether they are alive. (Washington, 1943-1979).

40 = Tax on each inheritance is limited to a maximum of e_a percent of the inheritance (Wisconsin 1917-1921 and 1923-1985).

41 = The total amount of estate tax is capped at dollar amount e_a . The cap amount recorded in e_a is reduced any gift taxes and any estate taxes paid earlier on the estate of a deceased spouse, in the event that those gift taxes or estate taxes were paid after January 1, 2016 (so in other words, the cap recorded in e_a applies to the sum total of gift taxes and estate taxes paid by both spouses).

e_a Value of the exemption defined by **e_a_type**. In some cases, this this parameter is automatically indexed for inflation, in which case we project future values using a formula in the EITaxState.xlsx spreadsheet, using the variable **infcpiu** and state rounding rules. Examples include Delaware, Hawaii

exclusioncarry Is the basic exclusion amount portable across spouses? Or, in other words, Can the portion of the basic exclusion amount that went unused by the first spouse to die be carried over to supplement the exclusion of the second spouse to die? So far, the only states where this equals 1 are Delaware (starting in 2011), Hawaii (starting in 2012), and Maryland (starting in 2019). The SAS code for this assumes that if **taxtype** = *estate*, the basic exclusion amount is stored in **e_a** (as is the case in DE and HI), and if **taxtype** = *decoup4* then the basic exclusion amount is stored

in **uc_exclusion** (as is the case in MD). If **taxtype** does not equal **estate** or **decoup4**, then **exclusioncarry** is currently ignored in the SAS code. The SAS code for this assumes that the unused exclusion amount left over from the predeceased spouse is equal to the value of **unusedexcl** from the input data set on taxpayer characteristics.

0 = No, the basic exclusion amount is not portable.

1 = Yes, the basic exclusion amount is portable.

e_s_type

Defines **e_s** (exemption for the spouse). Unless otherwise specified, the exemption is deducted from the top brackets (see below). Note that if **taxtype** is *inhcoll*, *inhclass4*, or *none* (in the case where there is no federal credit for state taxes), complete spousal exemption is assumed, so **e_s_type**, **e_s**, and **pe_s** are ignored and can be set to zero. If **taxtype** equals *none* (in cases of a soak-up tax), *decoup*, *decoup2*, *decoup3*, *decoup4*, or *pctfed*, then treatment of spousal bequest is assumed to be the same as in the federal estate tax, and **e_s_type**, **e_s** and **pe_s** are ignored and can be set to zero. For any other **taxtype** (including for example *estate* or *inheritance*, among others), the values of **e_s_type**, **e_s** and **pe_s** are important and must be specified accurately.

0 = Exemption deducted from the top brackets, or already reflected in bracket structure, or not applicable. “Deducted from the top brackets” means that the exemption is subtracted from the estate or inheritance value in order to get to the taxable estate or inheritance, and then the bracket and rate structure is applied to that taxable base. This effectively means the exemption reduces the amount subject to the highest tax rates.

1 = Exemption deducted from the bottom brackets, and not already in bracket structure. “Deducted from the bottom brackets” means that the exemption reduced the portion of the estate or inheritance that was subject to the lowest rates, in effect creating an initial zero rate bracket. For instance, if the tax rate schedule was 2% between \$0 and \$50,000 and 4% on amounts above \$50,000, and there was an exemption of \$10,000 that was deducted against the lowest bracket, then the tax would be 0% of the amount between \$0 and \$10,000, 2% on the amount between \$10,000 and \$50,000, and 4% on the amount above \$50,000. Frequently, we incorporated this sort of exemption directly into the bracket structure as an initial zero rate bracket, in which case the exemption will be coded as zero.

2 = If net estate (**grossest-debt**) is larger than exemption then no exemption. If net estate is less than exemption then share is totally exempt.

3 = If share passing to heir is less than exemption, then there is no tax. If the share passing to the heir is larger than the exemption then there is no exemption.

4 = If inheritance minus tax calculated without exemption is smaller than exemption, no tax. If inheritance minus tax calculated without exemption is larger than exemption, no exemption. (Arkansas).

10 = If inheritance is less than **e_s**, exemption is **e_s**. If inheritance is greater than **e_a**, no exemption. If inheritance is in between **e_s** and **e_a**, exemption is reduced by one dollar for each dollar that the inheritance exceeds **e_s**. Exemption is deducted from lowest bracket (West Virginia 1933-40).

11 = Exemption for whole estate is larger of: (a) the sum of exemptions for individual heirs (from **e_s**, **e_c**, and **e_n**) (b) the federal estate tax exemption (recorded in **e_a**). If (a) is larger, then state exemptions are deducted from top bracket. If (b) is larger, then the federal exemption is divided proportionately among heirs and deducted from top bracket. If **pe_s** = 100, then spouse is removed from comparison of and calculation of exemptions (Idaho, 1981-1988).

13 = Exemption is deducted from bottom brackets. If inheritance is greater than three times the exemption, then the exemption is reduced by \$1 for every dollar that the inheritance exceeds three times the exemption (Kentucky 1936-48).

17 = Exemption **e_s** is deducted from top brackets, but in addition, if inheritance minus **e_s** is smaller than **e_a**, no tax. If inheritance minus **e_s** is greater than **e_a**, then **e_a** does not factor into tax calculation (Kansas 1919-1982).

19 = If inheritance is less than **e_s**, no tax. If inheritance is greater than **e_s**, then no exemption, except that tax is capped so that it cannot push inheritance minus tax below **e_s** (Massachusetts 1907-1976).

24 = Spousal bequests are exempt up to a maximum of **pe_s** percent of the net estate, or **e_s** dollars, whichever is larger. Net estate is defined as gross estate less debts and expenses (this applied in many states, as it was the federal practice for numerous years).

25 = Spousal bequests are exempt up to a maximum of **pe_s** percent of the net estate, or **e_s** dollars, whichever is larger. Net estate is defined here as gross estate less debts, expenses, federal estate tax, and charitable bequests (North Dakota, 1951-1971).

28 = Spousal deduction equal to the minimum of the spousal bequest and **pe_s** percent of the net estate (**grossest-debt**), deducted from the top brackets. In addition, there is an exemption of **e_s** less the spousal deduction described above, deducted from the bottom brackets (NY, 1950 – 1978).

39 = The total exemption for the class including spouse and adult children is **e_a**, plus **e_s** (if there is a surviving spouse), plus **e_c** for each surviving child. The sum of these is then deducted from the first brackets. (Washington, 1943-1979).

42 = Exemption **e_s** is deducted from bottom brackets, and $(\text{pe_s} / 100) * \text{spbeq}$ is deducted from the top brackets. (Montana, 1977-1978)

e_s Exemption defined by **e_s_type**.

pe_s Refer to **e_s_type** for the definition of **pe_s**, when **e_s_type** is 24,25,28, or 42. For any other value of **e_s_type** where use of **pe_s** is not specified and spousal exemption includes **e_s**, **pe_s** percent of the spousal bequest is exempt. Therefore, spousal exemption is the sum of **e_s** and $(\text{pe_s}/100) * \text{spbeq}$.

e_c_type Defines **e_c** (exemption for adult child). Unless otherwise specified, exemption is deducted from top brackets (see below).

0 = Exemption deducted from the top brackets, or already reflected in bracket structure, or not applicable. “Deducted from the top brackets” means that the exemption is subtracted from the estate or inheritance value in order to get to the taxable estate or inheritance, and then the bracket and rate structure is applied to that taxable base. This effectively means the exemption reduces the amount subject to the highest tax rates.

1 = Exemption deducted from the bottom brackets, and not already in bracket structure. “Deducted from the bottom brackets” means that the exemption reduced the portion of the estate or inheritance that was subject to the lowest rates, in effect creating an initial zero rate bracket. For instance, if the tax rate schedule was 2% between \$0 and \$50,000 and 4% on amounts above \$50,000, and there was an exemption of \$10,000 that was deducted against the lowest bracket, then the tax would be 0% of the amount between \$0 and \$10,000, 2% on the amount between \$10,000 and \$50,000, and 4% on the amount above \$50,000. Frequently, we incorporated this sort of exemption directly into the bracket structure as an initial zero rate bracket, in which case the exemption will be coded as zero.

2 = If net estate is larger than exemption then no exemption. If net estate is less than exemption then share is totally exempt.

3 = If share passing to heir is less than exemption, then there is no tax. If the share passing to the heir is larger than the exemption then there is no exemption.

4 = If inheritance minus tax calculated without exemption is smaller than exemption, no tax. If inheritance minus tax calculated without exemption is larger than exemption, no exemption. (Arkansas).

8 = Exemption in **e_c** is divided among adult children and is deducted from bottom brackets (RI 1978-1980).

9 = Exemption in **e_c** is divided among class including husband, adult children, and nieces and nephews, and is deducted from bottom brackets (Rhode Island before 1926).

10 = If inheritance is less than **e_c**, exemption is **e_c**. If inheritance is greater than **e_c**, then exemption is reduced by \$1 for each dollar that inheritance exceeds **e_c**, until the exemption is fully phased out. Exemption is deducted from lowest bracket (West Virginia 1933-1940).

11 = Exemption for whole estate is larger of: (a) the sum of exemptions for individual heirs (from **e_s**, **e_c**, and **e_n**) (b) the federal estate tax exemption (recorded in **e_a**). If (a) is larger, then state exemptions are deducted from top bracket. If (b) is larger, then the federal exemption is divided proportionately among heirs and deducted from top bracket. If **pe_s** = 100, then spouse is removed from comparison of and calculation of exemptions (Idaho, 1981-1988).

13 = Exemption is deducted from bottom brackets. If inheritance is greater than three times the exemption, then the exemption is reduced by \$1 for every dollar that the inheritance exceeds three times the exemption (Kentucky 1936-48).

16 = Adult child receiving inheritance has a choice between **e_c** and **pe_c** (Kentucky 1995-97).

17 = Exemption **e_c** is deducted from top brackets, but in addition, if inheritance minus **e_c** is smaller than **e_a**, no tax. If inheritance minus **e_c** is greater than **e_a**, then **e_a** does not factor into tax calculation (Kansas 1919-1982).

19 = If inheritance is less than **e_c**, no tax. If inheritance is greater than **e_c**, then no exemption, except that tax is capped so that it cannot push inheritance minus tax below **e_c** (Massachusetts 1907-1976).

37 = Exemption of **e_c** for each adult child heir is deducted from top brackets. But if both parents are deceased and only one child survives, the child receives an exemption of **e_s** (Washington state, 1929 – 1931).

38 = Exemption of **e_c** for each adult child heir is deducted from top brackets except that if there is only one heir in the class including adult children then that heir gets an exemption of $2 * e_c$. (Washington state, 1931 – 1935).

39 = The total exemption for the class including spouse and adult children is **e_a**, plus **e_s** (if there is a surviving spouse), plus **e_c** for each surviving child. The sum of these is then deducted from the first brackets. (Washington, 1943-1979).

e_c Exemption defined by **e_c_type**.

pe_c Percentage of inheritance of each adult child that is exempt (in a state inheritance tax only).

diffexh Is there a different exemption for bequests to husband than for bequests to wife? If **diffexh** = 0, then **exh** and **e_h_type** are ignored. Note that in some cases where the husband's exemption differed from the wife's, but where the exemption was the same as for adult children, this is taken care of through **diffrateh**, as the exemption is already incorporated into the bracket structure for the adult child. In these cases, **diffrateh** will be zero even though the exemption for husbands differs from that for wives.

0 = No (exemptions are the same for husband and wife, or are taken care of through **diffrateh**).

1 = Yes (exemptions for husband and wife differ, and are not taken care of through **diffrateh**).

e_h_type Defines **e_h** (exemption for surviving husband, if different from that for surviving wife). This variable is ignored unless **diffexh** > 0. Note that unless otherwise specified, exemption is deducted from top brackets (see below).

PROGRAMMER'S NOTE:

If `e_h_type` applies (`diffexh>0`) to an estate tax, the coding will need to be adjusted as currently the code only accounts for inheritance taxes.

0 = Exemption deducted from the top brackets, or already reflected in bracket structure, or not applicable. “Deducted from the top brackets” means that the exemption is subtracted from the estate or inheritance value in order to get to the taxable estate or inheritance, and then the bracket and rate structure is applied to that taxable base. This effectively means the exemption reduces the amount subject to the highest tax rates.

1 = Exemption deducted from the bottom brackets, and not already in bracket structure. “Deducted from the bottom brackets” means that the exemption reduced the portion of the estate or inheritance that was subject to the lowest rates, in effect creating an initial zero rate bracket. For instance, if the tax rate schedule was 2% between \$0 and \$50,000 and 4% on amounts above \$50,000, and there was an exemption of \$10,000 that was deducted against the lowest bracket, then the tax would be 0% of the amount between \$0 and \$10,000, 2% on the amount between \$10,000 and \$50,000, and 4% on the amount above \$50,000. Frequently, we incorporated this sort of exemption directly into the bracket structure as an initial zero rate bracket, in which case the exemption will be coded as zero.

2 = If net estate is larger than exemption then no exemption. If net estate is less than exemption, then the share is totally exempt.

3 = If share passing to heir is less than exemption, then there is no tax. If the share passing to the heir is larger than the exemption then there is no exemption.

4 = If inheritance minus tax calculated without exemption is smaller than exemption, no tax. If inheritance minus tax calculated without exemption is larger than exemption, no exemption. (Arkansas).

9 = Exemption in `e_c` is divided among class including husband, adult children, and nieces and nephews, and is deducted from bottom brackets (Rhode Island before 1926).

10 = If inheritance is less than `e_h`, exemption is `e_h`. If inheritance is greater than `e_h`, then exemption is reduced by \$1 for each dollar that inheritance exceeds `e_h`, until the exemption is fully phased out. Exemption is deducted from lowest bracket (West Virginia 1933-40).

13 = Exemption is deducted from bottom brackets. If inheritance is greater than three times the exemption, then the exemption is reduced by \$1 for

every dollar that the inheritance exceeds three times the exemption (Kentucky 1936-48).

- e_h** Exemption defined by **e_h_type**. Only applies if **diffexh** > 0.
- diffrateh** Does a bequest to husband face different rates than a bequest to wife?
- 0 = No.
- 1 = Yes, they are the same as for an adult child.
- 2 = Yes, and they are also different from those for an adult child, but rates and brackets for child are the same as those for a wife. In these cases, the rates and brackets for both wife and child are coded into **b1-b21** and **r1-r21**, and the rates and brackets for the husband are coded into **bc1-bc16** and **rc1-rc16**.
- e_n_type** Defines **e_n** (exemption for class including nieces and nephews). Note that unless otherwise specified, exemption is deducted from top brackets.
- 0 = Exemption deducted from the top brackets, or already reflected in bracket structure, or not applicable. “Deducted from the top brackets” means that the exemption is subtracted from the estate or inheritance value in order to get to the taxable estate or inheritance, and then the bracket and rate structure is applied to that taxable base. This effectively means the exemption reduces the amount subject to the highest tax rates.
- 1 = Exemption deducted from the bottom brackets, and not already in bracket structure. “Deducted from the bottom brackets” means that the exemption reduced the portion of the estate or inheritance that was subject to the lowest rates, in effect creating an initial zero rate bracket. For instance, if the tax rate schedule was 2% between \$0 and \$50,000 and 4% on amounts above \$50,000, and there was an exemption of \$10,000 that was deducted against the lowest bracket, then the tax would be 0% of the amount between \$0 and \$10,000, 2% on the amount between \$10,000 and \$50,000, and 4% on the amount above \$50,000. Frequently, we incorporated this sort of exemption directly into the bracket structure as an initial zero rate bracket, in which case the exemption will be coded as zero.
- 2= If the net estate is larger than **e_n**, then no exemption is allowed for heirs in the class including nieces and nephews (except for any exemption which is coded directly into the bracket and rate structure (**bn1-bn16** and **rn1-rn16**)). If the net estate is less than the exemption, then the

inheritances received by members of the class including nieces and nephews are totally exempt.

3 = If share passing to heir is less than exemption, then there is no tax. If the share passing to the heir is larger than the exemption then there is no exemption.

4 = If inheritance minus tax calculated without exemption is smaller than exemption, no tax. If inheritance minus tax calculated without exemption is larger than exemption, no exemption. (Arkansas).

5 = **e_n** is a single exemption shared among the whole class including nieces and nephews, deducted from the top brackets, and the exemption for this class is not allowed if the exemption for the class including a surviving spouse or adult children is used. (New Mexico).

6 = **e_n** is a single exemption shared among the whole class including nieces and nephews, deducted from the bottom brackets, and the exemption for this class is not allowed if the exemption for the class including a surviving spouse or adult children is used. (Washington state 1979-82).

8 = Exemption in **e_n** is divided among members of the class including nieces and nephews and is deducted from bottom brackets (RI 1978-1980).

9 = Exemption in **e_c** is divided among class including husband, adult children, and nieces and nephews, and is deducted from bottom brackets (Rhode Island before 1926).

11 = Exemption for whole estate is larger of: (a) the sum of exemptions for individual heirs (from **e_s**, **e_c**, and **e_n**) (b) the federal estate tax exemption (recorded in **e_a**). If (a) is larger, then state exemptions are deducted from top bracket. If (b) is larger, then the federal exemption is divided proportionately among heirs and deducted from top bracket. If **pe_s** = 100, then spouse is removed from comparison of and calculation of exemptions (Idaho, 1981-1988).

13 = Exemption is deducted from bottom brackets. If inheritance is greater than three times the exemption, then the exemption is reduced by \$1 for every dollar that the inheritance exceeds three times the exemption (Kentucky 1936-48).

19 = If inheritance is less than **e_n**, no tax. If inheritance is greater than **e_n**, then no exemption, except that tax is capped so that it cannot push inheritance minus tax below **e_n** (Massachusetts 1907-1976).

21 = If share going to class including nieces and nephews is less than **e_n**, no tax. If the share going to class including nieces and nephews is greater than **e_n**, then there is no exemption (Michigan before 1903).

e_n Exemption defined by **e_n_type**.

e_x_type Defines **e_x** (exemption in the “extra” tax).

PROGRAMMER’S NOTE:

Under `taxtype=decoup3`, **e_x_type** refers to the inheritance tax portion of the `taxtype` and needs to be specifically coded for.

0 = Exemption deducted from the top brackets, or already reflected in bracket structure, or not applicable. “Deducted from the top brackets” means that the exemption is subtracted from the estate or inheritance value in order to get to the taxable estate or inheritance, and then the bracket and rate structure is applied to that taxable base. This effectively means the exemption reduces the amount subject to the highest tax rates.

1 = Exemption deducted from the bottom brackets, and not already in bracket structure. “Deducted from the bottom brackets” means that the exemption reduced the portion of the estate or inheritance that was subject to the lowest rates, in effect creating an initial zero rate bracket. For instance, if the tax rate schedule was 2% between \$0 and \$50,000 and 4% on amounts above \$50,000, and there was an exemption of \$10,000 that was deducted against the lowest bracket, then the tax would be 0% of the amount between \$0 and \$10,000, 2% on the amount between \$10,000 and \$50,000, and 4% on the amount above \$50,000. Frequently, we incorporated this sort of exemption directly into the bracket structure as an initial zero rate bracket, in which case the exemption will be coded as zero.

2 = If net estate is larger than exemption **e_x** then no exemption is given to this class. If net estate is less than exemption then share of the estate going to the class subject to the tax recorded in the **bx1-bx7** and **rx1-rx7** variables is totally exempt.

3 = If share passing to heir is less than exemption, then there is no tax. If the share passing to the heir is larger than the exemption then there is no exemption.

7 = Spouse and adult children in an inheritance tax each have the choice of an additional exemption deducted from the top brackets (**e_x**) or a credit (**credit**). (Illinois 1978-82).

8 = See **e_a_type** = 8 (Massachusetts 1986-1998).

18 = If net estate is less than **e_a**, then inheritance received by charity is exempt, but if estate is above **e_a**, then **e_a** does not factor into the tax calculation. Also if the inheritance received by charity is less than **e_x**, it is completely exempt; **e_x** does not factor into tax calculation if inheritance is above **e_x**. (Massachusetts before 1901).

35 = Exemption for net estate is $\max(\min(\text{bequest to spouse or children}, \mathbf{e_x}), \mathbf{e_a})$, and is deducted from bottom brackets (Utah 1947-1969).

e_x Exemption defined by **e_x_type**.

credtype Type of credit or surtax. Unless otherwise specified, the dollar amount of the credit is stored in the variable **credit**.

0 = No credit.

1 = A single credit for the entire estate (applies in estate tax only).

2 = A credit in an inheritance tax that goes to the surviving spouse if there is one. If there is no surviving spouse, the credit is divided up amongst other heirs in class A (including adult children) in proportion to their tax liabilities. (North Carolina, 1979-1984).

3 = A credit in an inheritance tax that is divided up amongst other heirs in class A (including adult children; spouse is exempt) in proportion to their tax liabilities. (North Carolina, 1984-1998).

4 = A credit against the tax paid on a bequest to a surviving spouse in an estate tax. The estate tax is computed on the aggregate value of the taxable estate, and is then allocated to each heir in proportion to that heir's share of the aggregate amount of inheritances received from this estate (not including charitable bequests). The credit will then be the smaller of **credit** and the spouse's allocated share of the estate tax liability before credits. (Oregon, 1978-1987).

5 = In an inheritance tax, a surviving spouse receives a credit equal to **rx1** percent of the bequest to the spouse, up to a maximum of **rx1** percent of **bx2** (PA 1991-2002).

6 = New York unified credit, 1978-2000. Credit applies to whole estate. If tax before credit is less than **bx2**, then there is no tax. If tax before credit is greater than **bx2** but less than **bx3**, then credit equals **bx1** + **bx3** minus tax before credit. If tax before credit is greater than **bx3**, then credit is **bx1**.

7 = Spouse and each adult child in an inheritance tax have the choice of an additional exemption **e_x** or a credit (**credit**). (Illinois 1977-1982).

8 = See **e_a_type** = 8 (Massachusetts 1986-1992).

9 = A surtax of **rx2** % on each individual heir's inheritance tax in excess of **bx2**. (Wisconsin).

10 = Credit system applying in New York starting in 2014. The variable **credit** stores the "basic exclusion amount," which is effectively like an exemption, but is implemented as a credit that phases out very quickly as the taxable estate rises above the basic exclusion amount. If the taxable estate is less than or equal to the basic exclusion amount stored in **credit**, then the applicable credit amount will be the full amount of tax that is computed on the taxable estate. If the taxable estate is greater than the basic exclusion amount in **credit**, but not greater than 105% of the basic exclusion amount, then the applicable credit is what the NY estate tax would be if the taxable estate were:

credit*{1 - [(taxable estate - **credit**)/(0.05***credit**)]}. If the New York taxable estate is greater than 105% of the basic exclusion amount, then there is no applicable credit, and the full taxable estate is subject to tax using the brackets and rates specified in **r1-r21** and **b1-b21**.

credit Defined by **credtype** (usually, the dollar value of a credit).

chnd Is charity not deductible from state estate tax? Note that this only applies to idiosyncratic state estate taxes, and not "soak up" taxes or inheritance taxes.

0 = Charity is deductible

1 = Charity is not deductible from state estate tax.

2 = Charity is not deductible from the "extra" state estate tax (applies when **taxtype=both**).

3 = Estate tax is calculated on the entire net estate including any charitable bequests. The estate tax is then apportioned to each heir in proportion to the share of the estate received, and any tax owed by charity is not paid or cancelled by a credit (Oregon, 1935-1985).

statededftax In the case of a decoupled tax based on the former federal credit for state taxes, is the state tax itself deductible from the measure of federal tax liability used to compute the state tax?

0 = No. The measure of federal tax liability used to compute the federal credit for state taxes is re-computed, disallowing the deduction for state taxes. The state tax liability is then the smaller of the maximum credit for state taxes, and federal tax liability recomputed in this way.

1 = Yes. The measure of federal tax liability used to compute the federal credit for state taxes allows a deduction for state taxes. The state tax liability is then the smaller of the maximum credit for state taxes, and federal tax liability computed in this way. Thus, computing federal and state tax liability require the solution of a simultaneous equation. This is approximated in the tax calculator program via repeated iterations.

statededcred In the case of a decoupled tax based on the former federal credit for state taxes, is the state tax itself deductible from the base used to compute the federal credit for state tax?

0 = No. The estate value that is run through the bracket and rate structure of what was formerly the federal credit for state tax does *not* allow a deduction for the state tax itself.

1 = Yes. The estate value that is run through the bracket and rate structure of what was formerly the federal credit for state tax *does* allow a deduction for the state tax itself. Thus, computing federal and state tax liability require the solution of a simultaneous equation. This is approximated in the tax calculator program via repeated iterations.

e_decoupled The exemption from the former federal credit for state taxes (**FCe_a** from the federal data set prior to the enactment of EGTRRA in 2001). This is only relevant in the case of a state with a former soak-up estate tax that has been decoupled from federal law, for 2002 and later years. In all other cases set this to zero.

bracknum Number of tax brackets in first bracket structure.

b1-b21 Bottom of tax bracket, first bracket structure. In an estate tax, this applies to the taxable estate. In an inheritance tax, these are the brackets applying to the inheritance of a spouse, unless **diffrateh** > 0; if **diffrateh** = 1, they apply only to a surviving wife, and if **diffrateh** = 2, they apply to both a surviving wife and a surviving adult child. In a decoupled tax based on the former federal credit for state taxes, these are the brackets in the schedule used to compute the maximum credit for state taxes. [Note that in DC starting in 2016, the size of the initial zero-rate bracket, recorded in **b2**, which effectively creates an exemption, can vary depending on how much tax revenue the DC government

collects. See section 47-181 of the DC code. We need to watch out for this in subsequent updates of the tax parameters.]

- r1-r21** Tax rate (%), first bracket structure. In an estate tax, this applies to the taxable estate. In an inheritance tax, these are the rates applying to the inheritance of a spouse, unless **diffrateh** > 0; if **diffrateh** = 1, they apply only to a surviving wife, and if **diffrateh** = 2, they apply to both a surviving wife and a surviving adult child. In a decoupled tax based on the former federal credit for state taxes, these are the rates in the schedule used to compute the maximum credit for state taxes.
- uc_decoup** Value of unified credit used to compute the measure of federal tax liability for purposes of computing the decoupled state estate tax. This is only relevant if **taxtype** = *decoup2*, *decoup3*, or *decoup4*. As of 2015 this was only indexed for inflation in Maryland for 2019 and later years, and we project future inflation adjusted values using a formula in the EITaxFed.xlsx spreadsheet by adding the unified credit implied by an exclusion of \$1 million (which is the threshold for the top tax bracket), and then multiplying the amount by which **uc_exclusion** exceeds \$1 million by the applicable top marginal tax rate used to compute the measure of federal tax liability that is involved in the decoupled credit calculation (currently 40 percent).
- uc_exclusion** Value of basic exclusion amount implied by **uc_decoup** in cases where **taxtype** = *decoup*, *decoup2*, *decoup3*, or *decoup4*, and **exclusioncarry** = 1. In all other cases this can be set to zero. So far, this is only non-zero for Maryland in 2019 and later years, in which case **taxtype** = *decoup4*. In Maryland in 2019 and later years this parameter is automatically indexed for inflation, in which case we project future values by adjusting future values for projected CPI-U inflation (using the variable **infcpui**) and applying rounding rules specified in the state law.
- bracknum_c** Number of tax brackets in the second bracket structure (**bc1-bc20**).
- bc1-bc20** Second set of brackets. In an inheritance tax, these are the dollar values of at the bottom of each tax bracket applying to each adult child, unless **diffrateh** > 0; if **diffrateh** = 1, they apply to both adult child and surviving husband, and if **diffrateh** = 2, they apply to surviving husband. If **taxtype** = *decoup2* or *decoup3*, these are the brackets from whatever version of federal law is used to compute the measure of federal tax liability used in the computation of state tax.
- rc1-rc20** Second set of rates. In an inheritance tax, these are rates applying to each adult child, unless **diffrateh** > 0; if **diffrateh** = 1, they apply to both adult child and surviving husband, and if **diffrateh** = 2, they apply to surviving

husband. If **taxtype** = *decoup2* or *decoup3*, these are the rates from whatever version of federal law is used to compute the measure of federal tax liability used in the computation of state tax.

bracknum_n Number of brackets applying to niece / nephew.

bn1-bn16 Dollar value of bottom of each tax bracket for the class including nieces and nephews; **bn1** should always be zero.

rn1-rn16 Tax rates in each tax bracket. For example, **rn1** is the percentage tax rate applied to the value of the inheritance or estate between **bn1** and **bn2**. If the tax rate is 7%, for example, enter 7.

bracknum_x Number of tax brackets in "extra" tax.

bx1-bx7 Bottom of tax brackets in "extra" tax, typically a tax on charitable bequests or a second wealth transfer tax on top of the primary one. These brackets apply to charity if **taxtype** = *inheritchar*, or to taxable estate if **taxtype** = *both*. It applies to the inheritance tax if **taxtype** = *decoup3*. These variables may also contain parameters of complicated credits -- see **credtype** above.

rx1-rx7 Tax rates in "extra" tax. These brackets apply to charity if **taxtype** = *inheritchar*, or to taxable estate if **taxtype** = *both*. It applies to the inheritance tax if **taxtype** = *decoup3*. These variables may also contain parameters of complicated credits -- see **credtype** above.

jointex Treatment of property held jointly between two spouses ("tenancy by the entirety") or community property.
0 = State does not have an inheritance or estate tax, does not tax spousal bequests, or only has a soak-up tax.
1 = Purchaser: Property is attributed to the spouse who purchased it (which would often mean 100% included in the gross estate of husband, 0% in gross estate of wife, at least in the early years when this type of provision was applicable). This was the federal treatment until 1982.
2 = 50% included: 50% of property held jointly with spouse is included in gross estate.
3 = Law says property held jointly with spouse is treated the same as "tenancy in common." Based on CT 1927, it appears that in the case of property owned jointly between spouses, 50% is included in the gross estate.
4 = 0% included: property held jointly with a spouse is completely excluded from the gross estate for state tax purposes.
5 = Community property state. In general, this means that property jointly owned by spouses will not show up as "joint property" on the federal estate tax return; rather, 50% of it will show up as community property;

the other 50% is considered the surviving spouse's own property and is exempt from tax both at the federal and state levels.

6 = Jointly owned property is not allowed.

7 = 100% of joint property is included, regardless of who purchased it.

8 = Property owned jointly by spouses is not taxed if it is real estate; 50% of the total value of property owned jointly by spouses that is *not* real estate is taxed (e.g., MA 1916-1948). If surviving spouse could prove that decedent did not contribute anything to the purchase of the non-real-estate property held jointly with spouse, then it would not be taxable, but calculator assumes such proof is not possible.

9 = Community property state, but if wife is first to die, 100% of community property goes to husband tax free. If husband is first to die, 50% of community property goes to wife tax free, and the other 50% may go to anyone and is taxed (e.g., NM 1927-1972).

10 = A homestead owned jointly by spouses is exempt from tax; other property owned jointly by spouses is attributed to purchaser. (Massachusetts 1950-1975).

11 = Homestead treated as 2, other property treated as 1.

12 = Community property state where 50% of "separate property" (that is, property other than community property) is exempt from tax if transferred to a surviving spouse (California 1950-1961).

13 = Same as 12, but in addition, 100% of community property is exempt from tax if transferred to spouse – that is, decedent's share of community property is not taxable if transferred to spouse (California 1961-1981).

14 = 100% of community property transferred to a surviving spouse is exempt (Idaho starting in 1947).

15 = Tenancy by entirety and all real property transferred to spouse is exempt (Maryland, 1985-2000).

lifeinstype

Type of life insurance exclusion. Note that this applies only to life insurance payable to named beneficiary. Life insurance payable to the estate (usually for purposes of covering the estate tax bill) is generally taxable. The program assumes that the total life insurance amount (**lifeins**) is divided among heirs in proportion to their share of total inheritances.

0 = No exclusion, or no tax.

1 = Percentage exclusion, applies to all.

2 = Percentage exclusion, 1st class includes spouse and lineal descendants, 2nd class includes others.

3 = Percentage exclusion, 1st class includes spouse, 2nd class includes others.

4 = Dollar amount exclusion for all life insurance bequests combined.

5 = Dollar exclusion amount for each heir.

6 = Dollar exclusion amount, total for each class, 1st class includes spouse and lineal descendants, 2nd class includes others.

7 = Dollar exclusion amount, total for each class, 1st class includes spouse, 2nd class includes children, others get no exemption.

8 = Dollar exclusion amount, per capita amount per heir, 1st class includes spouse and lineal descendants, 2nd class includes others.

9 = Dollar exclusion amount, per capital amount per heir, 1st class includes spouse, 2nd class includes others.

10 = Deduction for life insurance for the whole estate equals

$\min(\mathbf{lifeins},$

$\max(0, \mathbf{lifeins1}$

$-\max(\min(\mathbf{spbeq}, (\mathbf{pe_s}/100)*(\mathbf{grossest-debt})), \mathbf{e_s})$

$-\max(0, \min(\mathbf{heir1beq}*(\mathbf{heir1type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir2beq}*(\mathbf{heir2type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir3beq}*(\mathbf{heir3type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir4beq}*(\mathbf{heir4type}=1), \mathbf{e_c}))$. This exclusion is deducted against the bottom brackets. Applied in NY 1930-1952.

11 = Dollar life insurance deduction amount for the whole estate equals $\mathbf{lided1} + \mathbf{lided2}$, deducted against the bottom bracket, where $\mathbf{lided1}$ and $\mathbf{lided2}$ are defined below. First, let \mathbf{lisp} be the portion of $\mathbf{lifeins}$ received by the surviving spouse (which we assume to be proportional to the surviving spouse's share of bequests to all heirs). Then

$\mathbf{lided1} = \min(\mathbf{lisp},$

$\max(0, \mathbf{lifeins1}$

$-\max(\min(\mathbf{spbeq}, (\mathbf{pe_s}/100)*(\mathbf{grossest-debt})), \mathbf{e_s})$

$-\max(0, \min(\mathbf{heir1beq}*(\mathbf{heir1type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir2beq}*(\mathbf{heir2type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir3beq}*(\mathbf{heir3type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir4beq}*(\mathbf{heir4type}=1), \mathbf{e_c}))$.

$\mathbf{lided2} = \min(\max(0, \mathbf{lifeins} - \mathbf{lisp}),$

$\max(0, \mathbf{lifeins1} - \min(\mathbf{spbeq}, \mathbf{e_s})*$

$(\min(\mathbf{spbeq}, (\mathbf{pe_s}/100)*(\mathbf{grossest-debt})) < \mathbf{e_s})$

$-\max(0, \min(\mathbf{heir1beq}*(\mathbf{heir1type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir2beq}*(\mathbf{heir2type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir3beq}*(\mathbf{heir3type}=1), \mathbf{e_c})$

$-\max(0, \min(\mathbf{heir4beq}*(\mathbf{heir4type}=1), \mathbf{e_c})$

$-\mathbf{lided1}$

$-\min(\max(\min(\mathbf{spbeq}, (\mathbf{pe_s}/100)*(\mathbf{grossest-debt})), \mathbf{e_s}), \mathbf{lifeins2}))$

This applied in NY 1952-1978.

lifeins1 Life insurance exclusion amount or percentage for 1st class or members of 1st class (unless $\mathbf{lifeinstype} = 10$ or 11 , in which case see documentation for those above).

lifeins2 Life insurance exclusion amount or percentage for 2nd class or members of 2nd class, where applicable (unless $\mathbf{lifeinstype} = 10$ or 11 , in which case see documentation for those above).

dower Exclusion for dower? Dower is wife's right to inherit a certain share

(usually 1/3rd) of husband's real estate. The calculator assumes that the surviving spouse takes the inheritance specified in the will as opposed to taking the dower, which in some cases means that there is no dower exemption (see below). Only cases 5 and 6 are coded due to this assumption.

0 = No exclusion for dower, or dower does not exist in this state.

1 = Percentage exclusion. Treatment if spouse takes under will is unclear.

2 = \$ exclusion. Treatment if wife takes under will is unclear.

3 = Percentage exclusion, but not allowed if wife takes under will.

4 = \$ exclusion, but not allowed if wife takes under will.

5 = % exclusion, appears to apply even if taking under will.

6 = \$ exclusion, appears to apply even if taking under will.

curtesy Exclusion for curtesy? Curtesy means husband's right to inherit a certain share (traditionally 100%, later reduced) of wife's real estate. The calculator assumes that the surviving spouse takes the inheritance specified in the will as opposed to taking the curtesy, which in some cases means that there is no curtesy exemption (see below). Only cases 5 and 6 are coded due to this assumption. Curtesy is assumed to include 100% of wife's real estate.

0 = No exclusion for dower, or dower does not exist in this state.

1 = Percentage exclusion. Treatment if spouse takes under will is unclear.

2 = \$ exclusion. Treatment if wife takes under will is unclear.

3 = Percentage exclusion, but not allowed if wife takes under will.

4 = \$ exclusion, but not allowed if wife takes under will.

5 = % exclusion, appears to apply even if taking under will.

6 = \$ exclusion, appears to apply even if taking under will.

dowerex Dollar amount or percentage of husband's real estate that must be bequeathed to wife and is exempt.

curtesyex Dollar amount or percentage of wife's real estate that must be bequeathed to husband and is exempt.

elshexw Elective share percentage exemption for widow. In some cases, a surviving spouse was guaranteed a percent of the net estate (**grossest-debt**), and that share was exempt from tax (e.g., Iowa 1927). The percent of net estate that is exempt is listed here. Elective share is also known as distributive share.

elshexh Elective share percentage exemption for surviving husband.

homexype Type of homestead exemption. The program assumes that the full value of homestead goes to surviving spouse. If no surviving spouse exists, then the homestead amount is allocated to heirs proportionate to each heir's share of inheritance. Homestead amount is included in **realestate**. Thus, if

surviving spouse exists, spouse is given **homestead** and **realestate-homestead** is divided among heirs (including spouse). Else, all of **realestate** is divided among heirs.

0 -- None.

1 -- Exemption of all homestead property passing to a spouse up to maximum dollar amount in **homex**.

2 -- Exemption of **homex** percent of the value of all real property passed on to a spouse.

3 -- Exemption up to a maximum of **homex** dollars for homestead passed to any heir.

4 -- Choice of deduction of **homex** dollars for spouse, or deductions for life insurance and 100% of value of homestead (Oregon 1973-1974).

5 -- Real estate passing to heirs in the class A (the class including surviving spouse and adult children) is taxed at **homex** % of the normal tax rates. Note that when this provision was in effect in Michigan, property held jointly with a spouse was already completely exempt from tax... This can be implemented by adjusting the statutory rates in each bracket in the following manner. Let f be the fraction of the bequest passing to class A that is in real estate (aside from real estate held jointly with spouse), and let r be the statutory rate in a particular bracket. Then the effective rate in that bracket is $[(\mathbf{homex}/100) \times f \times r] + [(1-f) \times r]$. (Michigan 1925 - 1971).

6 -- All real estate given to any heir is exempt from tax. (North Carolina and New York before 1905).

homex Value of homestead exemption (exact meaning determined by **homex**type).

famallowtype Type of family allowance. The calculator assumes there are no minor dependent children for now, so currently this variable only affects tax liability in the SAS code if it equals 2 or 3, and in the case of 3 it only affects tax liability if there is a surviving spouse.

0 = None.

1 = A single tax-exempt allowance for families that include both surviving spouse and minor dependent children.

2 = A single tax-exempt allowance for families that include either surviving spouse and/or any children.

3 = A single tax-exempt allowance for families that include either a surviving spouse or any minor children.

famallow Dollar value of maximum family allowance (deduction from taxable estate for purposes of supporting spouse and children during the year after taxpayer's death).

infcpiu Projected CPI-U inflation rate used to index state tax parameters that are

tied to indexed federal parameters. Section 1 of the Internal Revenue Code (26 U.S. Code Section 1), specifies that the inflation rate used to index a given year's tax parameters is the percentage change in the average Consumer Price Index for all urban consumers (CPI-U) over "the 12-month period ending on August 31 of each year." So for example, the percentage change in the 2016 federal parameters relative to the 2015 federal parameters will be based on the percentage change in the CPI-U from the 3rd quarter of 2014 to the 3rd quarter of 2015. Our projections of inflation rates for future years are based on the latest available baseline forecast by the Congressional Budget Office (which at the time of writing is January 2016, available at:

[https://www.cbo.gov/sites/default/files/51135-2016-01-](https://www.cbo.gov/sites/default/files/51135-2016-01-Economic%20Projections.xlsx)

[Economic%20Projections.xlsx](https://www.cbo.gov/sites/default/files/51135-2016-01-Economic%20Projections.xlsx)). This variable is set to zero in prior years when projections are not needed (because we know the actual value of the parameter that ended up applying). The inflation rate is recorded in decimal terms (e.g., a 2.3 percent inflation rate is recorded as 0.023).

VII. FEDERAL TAX LAW PARAMETERS

Parameters of federal tax law are contained in EITaxFed.xls. There is one row for each change in the law. The federal tax law parameters data set must be sorted in ascending order by: (1) Fannounce; (2) Fedchange.

entity	Always equals “fd” for federal.
Fedchange	First date of death at which the tax parameters in this row began to apply (yyyymmdd).
Fannounce	Date that relevant bill was signed into law (yyyymmdd).
Foptional	Was the federal estate tax in this year optional? Specifically, was the executor of the estate given the choice of paying the federal estate tax according to the parameters coded into this row, or alternatively paying no estate tax, but carrying over the basis on property with built-in capital gains to the heirs? 0 = No. (1916-2009, 2011 - ?) 1 = Yes. (2010)
Fe_a	Federal exemption, to be subtracted from gross estate in order to calculate taxable estate.
Fexclusion	Federal “basic exclusion amount” corresponding to the unified credit, in cases where portability of the basic exclusion amount across spouses applies. This is set to zero for all rows with values of Fannounce less than 20101217, and in the rows where Fannounce = 20101217 and Fedchange = 20100101 or 20130101.
Fcredit_a	Federal unified credit (replaces exemption starting in 1977).

Note on updating both **Fexclusion** and **Fcredit_a**: Starting in 2011, the basic exclusion amount (**Fexclusion**) is adjusted automatically for CPI-U inflation, and the unified credit is defined as what the estate tax liability on a taxable estate equal to the basic exclusion amount would be. Projections of inflation-adjusted values for future years are implemented through formulas in the EITaxFed.xlsx spreadsheet. The formulas take the following form, which will need to be modified when we do updates:

Fexclusion: $F61 = \text{ROUND}(F60 * (1 + DK61/100), -4)$

Fcredit_a: $G61 = (F61 - 10^6) * 0.4 + 3.458 * 10^5$

green: Adjusts previous year’s basic exclusion amount for inflation to arrive at initial current year exclusion

blue: Rounds initial current year exclusion amount to nearest multiple of 10,000 (see [here](#) for further info)

red: Transforms current year exclusion amount into equivalent current year unified credit.

Notes:

1. 3.458×10^5 : The credit amount equivalent to a \$1 million exclusion. The portion of the taxable estate above \$1 million is subject to a flat marginal rate (currently 40%).
2. F60: the basic exclusion amount from the previous year. The law adjusts the basic exclusion amount for inflation, not the unified credit; the unified credit is then computed on the form as the tax liability that otherwise would be do on a taxable estate equal to the basic exclusion amount.
3. DK61: percentage change in CPI-U during the previous year. Projected inflation rates are from *Budget of the U.S. Government for Fiscal Year 2016* Table S-12 on p. 137, and are measured in percentage points.
4. F61: Current year basic exclusion amount
5. 0.4: Top marginal rate
6. 10^6 : Taxable estate amount at the bottom of the top estate tax bracket

Relevant portion of 26 U.S. Code Section 2010,

<<https://www.law.cornell.edu/uscode/text/26/2010>>, part (c)(3)

(A) In general

For purposes of this subsection, the basic exclusion amount is \$5,000,000.

(B) Inflation adjustment

In the case of any decedent dying in a calendar year after 2011, the dollar amount in subparagraph (A) shall be increased by an amount equal to—

(i) such dollar amount, multiplied by

(ii) the cost-of-living adjustment determined under section [1\(f\)\(3\)](#) for such calendar year by substituting “calendar year 2010” for “calendar year 1992” in subparagraph (B) thereof. If any amount as adjusted under the preceding sentence is not a multiple of \$10,000, such amount shall be rounded to the nearest multiple of \$10,000.

Fexclusioncarry

Can the portion of the exclusion created by the federal unified credit that is unused by the first spouse to die be carried over to the second spouse to die? (See **unusedexcl** above for further information).

0 = No (1916-2010)

1 = Yes (2011 - ?)

Fspded	<p>Type of deduction for spousal bequests:</p> <p>0 = No deduction (1916-1948).</p> <p>1 = Spousal bequests are deductible up to a maximum of 50% of the adjusted gross estate. Adjusted gross estate is defined as gross estate, minus the decedent's share of community property, minus prorated debts and expenses. "Decedent's share of community property" includes community property included in the gross estate and held by the decedent at death, community property included in the gross estate that was transferred to a surviving spouse during life, and life insurance on the life of the decedent that was paid for out of community property. "Prorated debts and expenses" equals total debts and expenses allowed as deductions against the gross estate, times $[1 - (\text{decedent's share of community property}) / (\text{gross estate})]$. (1948-1976).</p> <p>2 = Same as 1, but maximum deductible spousal bequest is the larger of 50% of adjusted gross estate and \$250,000. In the event of community property, the \$250,000 is reduced to \$250,000 times $[1 - (\text{decedent's share of community property}) / (\text{gross estate})]$. (1977-1981).</p> <p>3 = 100% of spousal bequests are deductible (1982 – present).</p>
Fcomprop	<p>Federal treatment of community property.</p> <p>0 = Surviving spouse's 50% share of community property is not included in gross estate of decedent (1916-1942, 1948-present).</p> <p>1 = Surviving spouse's 50% share of community property is included in gross estate of decedent (1942-1948).</p>
Fjointex	<p>Federal treatment of property held jointly between two spouses ("tenancy by the entirety").</p> <p>0 = Not applicable (no tax).</p> <p>1 = Purchaser: jointly held property is attributed to the decedent in proportion to the decedent's contribution to the property's purchase (1916-1981).</p> <p>2 = 50% included: 50% of property held jointly with spouse is included in gross estate (1982-present).</p>
Finsurex	<p>Federal exclusion for life insurance paid to a named beneficiary, (in dollars). Only applies to cases where the decedent had an "incident of ownership" of the life insurance policy.</p>
Fstateded	<p>Deduction for state inheritance or estate taxes.</p> <p>0 – No deduction for state taxes allowed (1916-2004; was scheduled to resume in 2010 and then again in 2011, but this was superseded by subsequent amendments to the law).</p>

I – Deduction for state taxes is allowed (2005-present).

Fb1-Fb28 Bottom of each tax bracket.

Fr1-Fr28 Tax rate in each bracket.

Fbracknum Number of tax brackets.

Federal credit for state taxes

FCe_a Exemption in federal credit for state taxes
Subtract from (federal taxable estate + **Fe_a**) to get “adjusted taxable estate” to which the bracket structure and rates are applied.

FCb1-FCb21 Brackets for federal credit for state taxes.

FCr1-FCr21 Rates for federal credit for state taxes.

FCbracknum Number of brackets for federal credit for state taxes.

Finfcpiu Projected CPI-U inflation rate used to index federal estate tax parameters. Section 2001 of the Internal Revenue Code (26 U.S. Code Section 2001), through a reference to Section 1 of the IRC, specifies that the inflation rate used to index a given year’s tax parameters is the percentage change in the average Consumer Price Index for all urban consumers (CPI-U) over “the 12-month period ending on August 31 of each year.” So for example, the percentage change in the 2016 federal parameters relative to the 2015 federal parameters will be based on the percentage change in the CPI-U from the third quarter of 2013 to the 3rd quarter of 2014. Our projections of inflation rates for future years are based on the latest available baseline forecast by the Congressional Budget Office (which at the time of writing is January 2016, available at: <https://www.cbo.gov/sites/default/files/51135-2016-01-Economic%20Projections.xlsx>). This variable is set to zero in prior years when projections are not needed (because we know the actual value of the parameter that ended up applying). The inflation rate is recorded in decimal terms (e.g., a 2.3 percent inflation rate is recorded as 0.023).

VIII. UPDATING

To update tax law parameters, edit the *EITaxFed.xlsx* and *EITaxState.xlsx* spreadsheets, and then save each one as a .csv file with the same name. The first row (with variable names) should be omitted from the .csv file.

IX. NOTCHES

We are aware of some “notches” that can create astronomically high marginal tax rates. In Colorado 1913-1927, and in Maine 1913-1933, an inheritance in a particular tax bracket had the marginal rate in that bracket applied to the entire inheritance. This created enormous marginal tax rates at the bracket boundaries. Another major notch applied from 1948 through 1978 in Kentucky. If the "net estate" was less than \$3 million, the Kentucky inheritance tax applied. But if net estate was greater than \$3 million, only the soakup credit applied. This could cause an enormous negative marginal tax rate as net estates passed \$3 million. There were also many states where an estate or inheritance below a certain threshold was exempt from tax, but then no exemption (or a smaller exemption) was granted if the estate or inheritance was above that amount. In all of these cases, the notch marginal rates can generally be avoided by setting **reverseMTR** = 1 in the *EITaxCalc* macro.

X. APPENDIX: SOME DETAILS ON HOW FEDERAL AND STATE INHERITANCE AND ESTATE TAXES WORK

Overviews and historical information on the federal estate tax and its interaction with state inheritance and estate taxes can be found in Johnson et al (2001), Joulfaian (2000), and Bakija and Slemrod (2004). This section presents some basic background information, as well as some technical details not addressed in those other documents.

The federal estate tax

The federal estate tax is a tax on the total value of bequests made at death, less deductions for bequests to a spouse, bequests to charity, and a few other miscellaneous items. It applies exclusively to estates that exceed an exemption level (for example, \$1.5 million in 2004) that is effectively created by a “unified credit.” A return is required on behalf of any decedent whose “gross estate” (assets before subtracting debts or deductions) exceeds the exemption level. Above the exempt level, substantial marginal tax rates are imposed, ranging from 45 to 48 percent in 2004. The top marginal rate increased from 10 percent at the modern tax’s inception in 1916 to 77 percent in 1941, where it stayed until 1977. Since then, the top rate has declined in gradual steps. The exemption level has fluctuated significantly in value over time. In nominal terms, the exempt level was \$60,000 from 1954 to 1976, after which it increased in steps to \$600,000 by 1987, where it stayed until 1997 before beginning to increase again.

Federal credit for state inheritance and estate taxes

From 1924 through 2004, the Federal estate tax provided a limited credit to the inheritance and estate taxes paid to state governments. The maximum allowable credit was a function of the size of the taxable estate – the credit schedule that was in place between 1954 and 2001 is illustrated in Table 1. Historically, most states operated their own idiosyncratic estate and / or inheritance tax systems, and there was significant variation across states in the combined federal-state tax burden at death. By the late 1990s, the vast majority of states had switched to a tax equal to exactly the maximum amount of credit allowable under the federal tax -- these are often called "soak up" states, as the state tax simply soaks up the intergovernmental transfer provided by the federal credit. If a state were to cut its tax below this level, the reduction in state tax liability would be exactly offset by an increase in federal liability, making the taxpayer no better off. States that operated their own estate or inheritance taxes may have higher liabilities than the maximum credit over certain ranges of estate or inheritance size. But in any cases where the total tax liability to the state was less than the maximum allowable credit, the remaining credit was "soaked up" by a backup estate tax provision, so that the total tax payment to the state was at least equal to the credit. As a result, residents of a state that employed only the "soak up" tax faced the same average and marginal combined federal and state tax rates at death as they would in any other soak up state. States that operated their own inheritance or estate taxes, on the other hand, imposed at least as much of a tax liability at death as the soak up states in all cases, and sometimes more. Federal and state death taxes were also subject to other interactions in some cases; for

instance, in many states, federal estate tax payments were deductible from the state death tax base (this is taken into account where appropriate in the tax calculator).

Implications of federal-state interactions for effective tax rates

The net result of all these interactions was that although the statutory rates in state death taxes could sometimes be quite high, the effective rates were often considerably lower. State taxes tended to have their largest bite at lower levels of wealth when the state exemption level was lower than that implied by the credit in the federal tax. In those cases, taxpayers would not be able to offset their state liabilities with federal credits, because the credits only kicked in once positive federal liabilities began to accrue. The effects of these interactions on effective marginal tax rates at death could be quite different from the effects on average rates. The combined federal and state average tax rate is an indicator of how much the taxes reduce the decedent's disposable wealth, and is thus relevant to estimating how the taxes influence behavior through a wealth or income effect. Residents of states that operated their own inheritance or estate taxes always faced an average overall tax rate at death that was at least as high as they would face in a soak-up state. The marginal death tax rate, on the other hand, is what affects the incentive to do more or less of some activity, such as give to charity. The interactions between federal and state taxes were such that residents of a state that operated its own estate or inheritance tax faced a combined federal and state marginal death tax rate that could be higher, the same, or lower than they would face in a soak-up state, depending on the circumstances. In general, there were four possible cases.

- 1) If the taxable estate were below the exempt level for the federal tax, and the state exemption was lower than the federal exemption, then the effective marginal tax rate would simply be the statutory state marginal tax rate.
- 2) If the taxable estate were above the federal exemption, the cumulative state tax liability were larger than the maximum allowable federal credit for state taxes, and the state marginal statutory state tax rate was higher than the marginal credit rate shown for that estate size in Table 1, then the effective combined federal-state death tax rate would be higher than in a soak-up state. For example, consider someone with a taxable estate between \$2,040,000 and \$2,540,000. Based on Table 1, each additional dollar of estate in that range increases the maximum allowable federal credit for state taxes by 8 cents. Suppose further that this person faced a marginal state tax rate of 10 percent, and federal estate tax payments were not deductible from this state's death tax. In that case, increasing the estate by \$1 would increase the state tax bill by 10 cents, but the federal credit would only reduce the federal tax liability arising from that extra dollar by 8 cents, so the state tax would push the combined marginal rate up by two percentage points. In the event that the federal estate tax is deductible from the state tax base, the increase in the marginal rate would be smaller than two percentage points, the exact reduction depending partly on the size of the marginal federal estate tax rate at that point.
- 3) If the taxable estate were above the federal exemption level, and the tax liability under the state's own idiosyncratic inheritance or estate tax were less than the maximum

allowable federal credit for state taxes, then the combined federal-state marginal tax rate was the same as it would have been in a soak-up state, regardless of the size of the state's statutory marginal state tax rate. If the state had a backup soak-up provision, as eventually all states did, then the combined federal and state tax liability and marginal tax rate in this situation was simply equal to the statutory federal liability and rate, and the credit rate simply determined how the additional revenue raised was divided between the federal and state governments. If the state did not have a backup soak-up provision, then the combined federal-state liability and marginal rate was still equal to the federal liability and rate, but the state got a smaller share of the revenue.

4) If the taxable estate were above the federal exemption, the tax liability under the state's own idiosyncratic inheritance or estate tax were above the maximum credit, and the marginal statutory state tax rate were below the marginal federal credit rate, then the combined federal and state marginal tax rate was *lower* than in a soak-up state. For example, suppose that for a given taxpayer, the marginal maximum credit rate from Table 1 was 8 percent, the statutory marginal state tax rate was 6 percent, and state tax liability to that point was greater than the maximum credit allowable for that estate size from Table 1. In the absence of state taxation, a \$1 increase in estate size would increase the tax burden by the statutory marginal federal tax rate at that point. With the state tax, in this case, an additional \$1 of estate increases the state tax liability by 6 cents, but reduces the federal liability by 8 cents. The federal tax liability is reduced by 8 cents because the taxpayer gets credit not only for the 6 extra cents of state tax paid due to the extra \$1 of estate, but also for 2 cents of inframarginal state tax that was not previously eligible for a credit. So on net, the combined federal-state marginal tax rate at death drops by 2 percentage points relative to what it would be in a soak up state. As above, this reduction is partly mitigated if the federal estate tax is deductible from the state tax base.

Charitable Bequests

The federal estate tax has allowed a full deduction for charitable bequests for nearly its entire history--since 1918. Since 1962, all states that operated their own estate or inheritance taxes have also allowed deductions for charitable giving. Prior to that, there were a handful of states that taxed charitable bequests to some extent – including Maryland and Utah until 1943, and New Jersey until 1962. As of the 1930s, many states only allowed deductions for bequests to charities that were chartered in that particular state, or that would spend the proceeds in that state. Over the next couple of decades those states gradually extended the deductions to cover out-of-state charities, sometimes specifying only charities in states that offered reciprocal treatment.

Community Property, Jointly Held Property, and Spousal Bequests

At both the federal and state levels, state laws regarding “community property” and “jointly held property” could affect the share of a couple's wealth that was subject to tax at both the federal and state levels when the first spouse died. Before 1982, this could have important implications for federal and state tax liabilities and rates. Once a 100% deduction for spousal bequests was adopted at the federal level in 1982, and once the

states followed suit, it ceased to matter significantly for the determination of estate and inheritance tax liabilities and rates.

“Community property” means property that was acquired while married and living in a community property state. Eight states have been community property states since before the inception of the federal estate tax: Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington. Wisconsin became a community property state in 1986. In a community property state, all property that is acquired by a married couple while married is considered to be owned 50% by each.

In addition, in most states, property may be held “jointly” with a spouse or with other people. This tends to apply to housing, real estate, and bank accounts. Property owned jointly with a spouse is also known as “tenancy by entirety.” Community property states typically do not allow property to be owned jointly with a spouse, since all property purchased during a marriage is community property. Community property and jointly held property are mutually exclusive. The federal estate tax has always had a special schedule (currently Schedule E) on which all “jointly held property” is reported. It has also always been required that any community property be reported on the various other schedules for particular types of property (such as Schedule A for real estate). The instructions for the jointly held property schedule have always explicitly said not to include community property there, but rather on the other schedules.

The portions of community property and jointly held property that were included in the federal gross estate have changed over time.

History of federal estate tax treatment of community property

1916 – 1942. During this period, 50% of community property was included in the gross estate. During this period, if the husband was the first to die, he would typically have a smaller gross estate for federal tax purposes, and would pay less federal estate tax, than if he lived in a non-community property state. If the wife was the first to die, she would typically have a larger gross estate for federal tax purposes, and would pay more federal estate tax, than if she lived in a non-community property state.

1942 – 1948. During this period, 100% of community property was included in the gross estate, in an effort to equalize treatment between states with and without community property.

1948 - 1981: During this period, only 50% of community property was again included in the gross estate. In 1948, a deduction for gifts to a spouse was instituted, with the maximum deductible gift being 50% of the “adjusted gross estate.” This was explicitly designed to equalize treatment between states with and without community property. People from community property states got a smaller maximum spousal deduction. For decedents from non-community property states, “adjusted gross estate” was defined as the gross estate less debts and expenses. For decedents from community property states,

the adjusted gross estate was defined as the gross estate, less the decedent's share of community property, less a pro-rated share of debts and expenses.

1982-present: Starting in 1982, 100% of bequests to a spouse became deductible from the federal tax. Since 1982, it is still true that only 50% of community property is included in the federal gross estate. But because 100% of bequests to a spouse are now deductible, there is no longer any special reduction in the allowable spousal bequest for decedents from a community property state, and there is no longer any significant difference in the way the federal estate tax treats people in community property states and other states.

History of federal estate tax treatment of jointly held property

1916-1976: During this period, when the first spouse in a couple died, any property the decedent owned jointly with a spouse would be included in the estate to the extent that the decedent was responsible for earning the income that was used to purchase the asset. In practice, this usually meant that much or all of the value of the asset it would be included in the taxable estate if the husband was the first to die, but not if the wife was the first to die. For example, if the wife had contributed to the purchase of the property, then only the portion that the husband had purchased would be included in his gross estate; if the wife were first to die, the portion that she had purchased would be included in her gross estate. If the husband and wife had jointly received the property as a gift or bequest from someone else, then 50% of the property would be included in the gross estate of the first spouse to die. For property that was jointly owned between the decedent and someone else who was not the spouse, 100% of that decedent's share of the property was included in the gross estate. For property that was jointly owned between the couple and someone else besides the spouse, 100% of the couples' entire share of the property was included in the gross estate.

1977-1981: The treatment of joint property during this period was essentially the same as before. The only difference was that during 1977-1981, if the decedent had given the other spouse a gift of a portion of a property while alive, and had declared it for gift tax purposes, then that portion of the property would not be included in the gross estate. This was intended to avoid double-counting of any property in the new unified estate-gift tax framework. Initially, this applied only to gifts made after Jan. 1, 1977, but in 1988 it was extended to pre-1977 gifts.

1982-present: Since 1982, for property that is jointly held between the spouses (and no one else), only 50% of the value of the jointly held property is included in the gross estate of the first spouse to die. As it turns out, however, there is now a tax incentive to not declare property as joint property. Since there is now a 100% spousal deduction, property that is left to the surviving spouse will not be taxable in any event (although it will be included in the gross estate, which matters for our purposes of measuring wealth). If only 50% of a particular property that is left to a surviving spouse is counted as part of the gross estate, however, then only 50% of that property is eligible for immediate step-up-in basis for purposes of the income taxation of capital gains. So there can actually be a tax advantage to having 100% of the property included in the gross estate, which would

require that while both spouses were alive, the property was legally owned by just one spouse, the one who would turn out to be the first to die. The treatment of property jointly owned with someone other than the spouse is the same as before. If only the decedent, and not the spouse, owned a share of the property, then 100% of the decedent's share is included in the gross estate. If both spouses owned a share of the property along with someone else, then 100% of the combined couple's share is included in the gross estate.

State tax treatment of community and jointly held property

In community property states, generally only the decedent's half of any community property would be included in the estate of the first spouse to die, although there were some exceptions. See documentation for the variable **compropex**. In other states, there was great variety regarding what share of property owned jointly with a spouse would be included in the taxable estate. Many states followed federal practice in this regard, but a number of states treated property owned jointly with a spouse either more or less generously than the federal estate tax did. See documentation for the variable **jointex**.

Table 1 – Maximum federal credit for state inheritance and estate taxes, 1954-2001

Adjusted taxable estate (\$)	Amount of credit (\$)	Rate on excess (%)
40,000	0	0.8
90,000	400	1.6
140,000	1,200	2.4
240,000	3,600	3.2
440,000	10,000	4.0
640,000	18,000	4.8
840,000	27,600	5.6
1,040,000	38,800	6.4
1,540,000	70,800	7.2
2,040,000	106,800	8.0
2,540,000	146,800	8.8
3,040,000	190,800	9.6
3,540,000	238,800	10.4
4,040,000	290,800	11.2
5,040,000	402,800	12.0
6,040,000	522,800	12.8
7,040,000	650,800	13.6
8,040,000	786,800	14.4
9,040,000	930,800	15.2
10,040,000	1,082,800	16.0

“Adjusted taxable estate” is the taxable estate (gross estate less debts, expenses, and deductions for items such as charity and gifts to a spouse), less \$60,000.

XI. REFERENCES

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