Use These Math Shortcuts in Estate Planning

By Amy Albert and Austin Bramwell
Milbank LLP

When a client asks what amounts a given estate plan might cost or save, and a reliable approximation would require some complex math, you don't have to say "Let me get back to you on that," say Amy Albert and Austin Bramwell of Milbank LLP.

To the dismay of many young lawyers, estate planning inevitably requires some math — and it can get tricky. For example, see the annuities valuation formula at Reg. §25.2512-5(d)(2)(v)(A)(1)(i) Figure 1. A century ago, in *Edwards v. Slocum*, Supreme Court Justice Oliver Wendell Holmes, Jr., sardonically warned (quoting the Second Circuit's decision) that "algebraic formulae are not lightly to be imputed to legislators." Not long after, perhaps piqued by the Court's insult, Congress passed legislation effectively requiring algebraic formulae to compute estate tax in some cases. To quote Reg. §20.2055-3(a)(2): "[T]he computation becomes highly complicated."

Trust and estate lawyers, like most other professionals, can spend their entire careers oblivious to the math they had learned in high school. Quite often, when a client asks what amounts a given plan might cost or save, the only possible response in the moment is "Let me get back to you on that."

We would like to make that a less frequent occurrence. This article provides some useful mental shortcuts or heuristics that even the most math-averse planners can use to quickly give clients reliable ballpark answers that will help them round the bases without delay.

Math Shortcuts

(1) The effective gift tax rate isn't 40% but rather is about 30% if the donor survives three years.

As a starting consideration, both the estate tax and the gift tax, despite being nominally progressive as set forth in I.R.C. §2001(c) and §2502(a), are imposed at an effective flat rate of 40% (exceptions apply for transfers by nonresident noncitizen donors or decedents) on amounts exceeding the gift and estate tax exemption, which exceeds the highest bracket threshold many times over. However, while the estate tax is imposed on the taxable estate, including the portion used to pay estate tax, the gift tax is imposed only on the amount of the gift. In tax jargon, the estate tax is computed on a "tax-inclusive" basis while the gift tax is "tax-exclusive." The difference makes the gift tax cheaper.

Example: Suppose that a client who has used up all of his lifetime gift tax exemption (which for 2024 is $13.61 million) makes a $10 million gift. The gift tax is 40% of that amount, or $4 million. Thus, the total expenditure by the client (gift plus gift tax) is $14 million. The effective tax rate, therefore, is $4 million / $14 million = 28.57% (for heuristic purposes, round to 30%).

By contrast, if the client dies with $14 million, 40% or $5.6 million will go to taxes. The gift saves $1.6 million of tax.

Proof: To put it algebraicly:
Gift tax rate = 0.4
Let x = amount of a gift
Gift tax on gift = $0.4x$
Gift plus gift tax = $x + 0.4x = 1.4x$
Effective rate = gift tax / (amount of gift + gift tax) = $0.4x / 1.4x = 0.4 / 1.4 = 0.2857$

Caveat: The lower gift tax rate is eliminated if the donor dies within three years of the gift. In that case, the gift tax is included in the donor's gross estate under §2035(b). In the example above, if the donor dies within three years of making a $10 million gift, the estate tax on the $4 million of gift tax is $1.6 million. The total taxes are thus $5.6 million ($4 million of gift tax plus $1.6 million of estate tax on the gift tax), which is 40% of the sum of the $10 million gift and $4 million of gift tax — i.e., the same amount of tax that would be imposed if the donor had done nothing and died with $14 million.

(2) To compare the cost of paying estate tax on a certain amount versus giving it away during life and paying gift tax, subtract 30% from the amount.

The quick calculation is the same as for (1). Subtracting 30% is just a way of approximating gift tax in a way that compares it to an estate tax on the same amount.

Example: Suppose a client has used up all of his gift tax exemption. If he dies with $10 million in his taxable estate, the estate tax will be $4 million, or 40% of $10 million. If instead he uses the $10 million to make a gift and pay gift tax, he would make a gift of about $7 million — i.e., $10 million less 30% of $10 million — and pay about $3 million of gift tax.

Nota bene: More precisely, the amount of that gift tax is $2.8 million. The 30% rule just quickly gets you in the ballpark.

The actual amount: The "correct" amount of a gift that, combined with gift tax, uses up exactly $10 million of wealth, is $7,142,857.14, computed as follows:

Let x = the amount of the gift

Gift tax = $0.4x$

$x + 0.4x = 10,000,000$

$1.4x = 10,000,000$

$1.4x/1.4 = 10,000,000/1.4$

$x = 10,000,000/1.4 = \$7,142,857.14$

More generally, to compare estate tax and gift tax, you can give away 71.43% of a given amount and use the balance to pay gift tax. By contrast, if you die holding the same amount, the beneficiaries will only receive 60%; the balance must be used to pay estate tax.

(3) In a state with a 16% estate tax rate, the effective combined federal and state estate tax rate is about 50%.

State death taxes are deducted from the federal taxable estate under §2058. Thus, the net cost of state death taxes is less than the amount of state death taxes actually paid because the state death taxes reduce the federal estate tax.

Example: Suppose that a decedent, having used up his federal estate tax exemption amount, dies with $50 million in a state with a 16% flat estate tax rate. The state estate tax is $50 million × 16% = $8 million. The $8 million in state death tax is subtracted from the federal taxable estate, so that the federal taxable estate is $50 million – $8 million = $42 million. The 40% federal estate tax on $42 million is $16.8 million. Thus, the combined federal and state estate taxes are $16.8 million + $8 million = $24.8 million. That's an effective rate of 49.6% (round to 50%), or $24.8 million divided by $50 million.

For those who want the proof:

State estate tax rate = 0.16

Let x = taxable estate before the state death tax deduction

State estate tax = $0.16x$

Federal taxable estate = $x – 0.16x = 0.84x$

Federal estate tax = $0.4 × 0.84x = 0.336x$

State plus federal estate tax = $0.16x + 0.336x = 0.496x$

Combined estate tax rate = $0.496x / x = 0.496$

An even more precise formula is that the combined estate tax rate = 40% + 60% × (state estate tax rate).

Caveat 1: Most if not all states with estate taxes have an exemption amount and a progressive bracket structure, with the 16% top rate reached (for historic reasons) at $10,100,000. Thus, the 49.6% rate is most accurate with very large estates. For smaller estates, 49.6% is less accurate. For example, the estate tax on a $10.1 million New York taxable estate is $1,082,800, which is an average rate of only about 10.7%.

Historically, the $10,100,000 threshold came from now-repealed §2011, All states had "pick-up" taxes that used up the state death tax credit, which was designed as an increasing percentage of the "adjusted taxable estate," with the percentage topping out at 16% for adjusted taxable estates of $10,040,000, which was equivalent to a $10,100,000 taxable estate.

Caveat 2: Not all states with estate taxes have a maximum rate of 16%. Maine's, for example, tops out at 12%. Using the formula 40% + 60% × (state estate tax rate), the combined estate tax rate in that case is 47.2%, after disregarding (for simplicity) progressive rates and any exemption amount.

(4) If a state has 16% estate tax rate and adds gifts made before death into the state taxable estate, that amounts to an additional 6.4% of estate tax.

Some states add gifts before death into the taxable estate for estate tax purposes. New York, for example, adds gifts made within three years of death. Unfortunately, §2058 does *not* allow a deduction for state death taxes unless the state death tax is "in respect of any property included in the gross estate." Thus, a gift by a New Yorker made within three years of death can actually cause an artificial increase in federal estate tax.

Example: A New York domiciliary has $50 million of assets and has used up all of his federal gift and estate tax exemption. If he does nothing, the combined federal and New York estate tax will be about 49.6%, as we have seen, or $24.8 million (assuming, for simplicity, a flat New York estate tax rate of 16%). By contrast, if he makes a $10 million gift but dies less than three years later, the total taxes will be $25,440,000, determined as follows:

Gift tax (federal) on $10 million: $4 million

Remaining assets at death: $50 million – ($10 million + $4 million) = $36 million

Gross estate: $36 million + $4 million = $40 million

New York taxable estate: $40 million + $10 million = $50 million

New York estate tax: $50 million × 16% = $8 million

Deductible portion of New York estate tax = $40 million × 16% = $6.4 million

Federal taxable estate: $40 million − $6.4 million = $33.6 million

Federal estate tax = $33.6 million × 40% = $13,440,000

Total taxes (gift tax + NY estate tax + federal estate tax): $4 million + $8 million + $13.44 million = $25.44 million

The $10 million gift caused total wealth transfer taxes to increase by $640,000, or 6.4% of the amount of the gift.

Show me the algebra:

State estate tax rate = 0.16

Let x = amount of the gift

State estate tax on the gift = $0.16x$

Reduction of federal state death tax deduction = $0.16x$

Federal tax cost of reduced deduction = $0.4 × 0.16x = 0.064x$

Rate = $0.064x / x = 0.064$

Caveat: If the gift appreciates in value, the artificially increased rate may be more than offset by savings from the appreciation escaping both federal and state estate tax.

Comment: It may be possible to achieve the best of both worlds — i.e., make a gift during one's lifetime in order to avoid state estate tax *and* avoid the risk of an artificially increased tax at death if dying within three years — by granting the donor a contingent special power of appointment over the initial corpus. A description of this type of planning is beyond the scope of this article.

(5) If a 40% estate tax is charged against the charitable share of an estate, then the effective federal estate tax on the noncharitable portion is 2/3.

Some clients, perhaps after years of successful wealth transfers, may wish to leave their remaining estates primarily to charity. If such a client makes a bequest, such as a cash legacy, to a noncharitable beneficiary and charges estate tax against the charitable residue, then the estate tax is *not* simply 40% of the noncharitable legacy. Rather, a "circular" computation is necessary to compute the tax. The reason is that paying estate tax out of the charitable residue reduces the charitable deduction, which increases the taxable estate, which further increases the estate tax, which further reduces the charitable deduction, and so forth.

Example: Suppose that a decedent, having used up his federal estate tax exemption amount, dies with $50 million, bequeaths $10 million to a friend, and leaves the balance, after estate taxes, to charity. Because of the circular computation, the estate tax is $6,666,667.

Reality check: $10 million + $6,666,667 = $16,666,667 × 40% = $6,666,667. Thus, $10 million goes to the friend and $6,666,667 goes to the Treasury.

Proof: Although one can think of the computation of estate tax, when charged against a charitable (or marital) share as a "circular" computation and compute the tax with an Excel spreadsheet using brute force, the effective rate can also be computed with first-year algebra:

Let x = the amount of the noncharitable legacy

Let y = the amount of estate tax

Taxable estate = $x + y$

$y = 0.4 (x + y)$

$y = 0.4x + 0.4y$

$y − 0.4y = 0.4x + 0.4y − 0.4y$

$0.6y = 0.4x$

$0.6y / 0.4 = 0.4x / 0.4$

$1.5y = x$

$1.5y / 1.5 = x / 1.5$

$y = x / 1.5$ or $2/3 × x$

Caveat: If there is a state estate tax as a result of the non-charitable bequest, the calculations are more complicated.

(6) If a 50% estate tax is charged against the charitable share of an estate, then the effective estate tax on the noncharitable portion is equal to the amount of the noncharitable portion — in other words, 100%.

As discussed above, the effective rate in a state with a 16% estate tax is nearly 50%. As also discussed above, a "circular" computation is necessary to compute estate tax when estate taxes on the noncharitable portion of an estate are charged against the charitable portion. If a client in such a state makes a bequest, such as cash legacy, to a noncharitable beneficiary and charges estate tax against the charitable residue, then the estate tax rate is simply 100% of the noncharitable bequest.

Example: Suppose that a decedent in a state with a 16% estate tax, having used up his federal estate tax exemption amount, dies with $50 million, bequeaths $10 million to a friend, and leaves the balance, after estate taxes, to charity. Because of the circular computation, the estate tax is approximately equal to the amount of the noncharitable legacy, i.e., $10 million.

Proof: The same calculation as in (5), except substituting 0.5 for 0.4. The result, in that case, is that the estate tax equals the noncharitable legacy. You can also think of it this way:

Taxable estate = noncharitable legacy + estate tax

Estate tax = 50% × taxable estate

If the estate tax is one-half of the taxable estate, then the noncharitable legacy must be the other half.

3

That is to say, the noncharitable legacy = taxable estate – estate tax = taxable estate – (50% × taxable estate) = 50% × taxable estate.

The two halves are necessarily equal. So, with a 50% estate tax rate, the amount of estate tax must be equal to the amount of the noncharitable portion of the estate.

(7) If an individual makes a gift subject to a 35% valuation discount, the effective gift tax rate is only about 20%.

As much as it makes tax policy experts and some lawmakers seethe, it is well-established that valuation discounts, such as for lack of control or marketability, are permitted, even if the basis for the discounts is meaningless to the family. See Rev. Rul. 93-12; *Buck v. United States* (summarizing and following case law allowing minority interest discounts). Valuation discounts for lack of control and marketability tend to cluster around 35%, which, in an astounding coincidence, just so happens to be the threshold beyond which undervaluation penalties may apply under §6662.

Example: Suppose that a client has used up all of his lifetime gift tax exemption and makes a $10 million gift. Suppose further that a 35% valuation discount applies, so that, for gift tax purposes, the property transferred is only considered to be worth $6.5 million. The gift tax is 40% of that amount, or $2.6 million. Thus, the total expenditure by the client (gift plus gift tax) is $12.6 million. The effective rate, therefore, is $2.6 million / $12.6 million = 20.6%.

Proof: For those who want the proof, it is as follows:

Gift tax rate = 0.4

Let x = pre-discount amount of a gift

Discount = 0.35

Amount of gift = $x \times (1 - 0.35) = 0.65x$

Gift tax on gift = $0.4 \times 0.65x = 0.26x$

Gift plus gift tax = $x + 0.26x = 1.26x$

Effective rate = gift tax / (amount of gift + gift tax) = $0.26x / 1.26x = 0.26 / 1.26 = 0.2063 = 20.63\%$

Nota bene: A 20% effective tax rate compares very favorably to the approximately 50% rate that applies in some states if a wealthy individual does no estate planning. Mental shortcuts, such as this one, can be used to make a quick and compelling case for wealth transfer planning.

(8) If the donee pays the gift tax (net gift), the effective rate is the same as if the donor pays it: about 30%.

Sometimes a donor may be reluctant to pay gift tax, perhaps no longer being able to reduce the effective rate from 40%. In that case, the donee(s) may agree to pay the gift tax. This effectively reduces the amount of the gift and the tax that one party or the other needs to pay on it, same as in (1) above.

Example: Suppose that a client has used up all of his lifetime gift tax exemption and makes a $10 million gift. The donee agrees to pay all the gift tax. The gift tax is $2,857,143.

Reality check: $10 million – $2,857,143 = $7,142,857 × 40% = $2,857,143 (again, round to 30%)

Proof:

Gift tax rate = 0.4

Let x = gross amount of gift

Let y = gift tax

$y = 0.4 \times (x - y)$

$y = 0.4x - 0.4y$

$y + 0.4y = 0.4x - 0.4y + 0.4y$

$1.4y = 0.4x$

$y = 0.4x / 1.4 = 0.2857x$

Nota bene: The effective gift tax rate with a net gift is the same as if the donor pays (as discussed above in (1)). That parity makes conceptual sense. In both cases, the donee's net is whatever is left over from a given fund after gift taxes are paid.

(9) By the "Rule of 72," a fund doubles in value in a number of years equal to 72 divided by the assumed return.

Okay, this is not an estate planning-specific shortcut, but it is such a useful heuristic that every estate planner should know it.

Example: A $10 million fund that earns 7% returns will double in value every 10 years. The same fund that earns 10% returns will double in value every seven years.

(10) If property earns 7% annual returns, then the estate tax savings from fixing value today are equal to the property's current value multiplied by the estate tax rate, if the donor survives 10 years; at 10% annual returns, the same savings are achieved in seven years.

Estate and gift taxes are imposed on the value of property at the time of transfer. The IRS is generally not able to reassess tax if the property transferred increases in value (even substantially) after a gift or estate tax is imposed. Given those principles, one of the most effective ways to transfer wealth tax-efficiently is to fix value so that future returns on transferred property can pass tax-free to the donees.

Example: Suppose that an individual with a $10 million fund has a remaining lifespan of 10 years and lives in a state that causes the combined federal and state estate tax rate to be approximately 50%. If the fund earns 7%

investment returns, then, by the Rule of 72, the fund will be worth $20 million at the time of that individual's death.

Think of the $20 million at death as consisting of the $10 million starting value plus $10 million of investment returns. With no planning, the estate tax on the latter — i.e., the $10 million of investment returns — is 50% of the $10 million, or $5 million. If instead the donor makes a gift of $10 million, then the future $10 million of investment returns will not be taxed at all. The effective tax rate is 0%.

To be sure, in order to make the gift, the individual either needs to use up lifetime gift tax exemption or pay gift tax. The $10 million starting value is going to be taxed eventually, either as a gift during lifetime or as part of the estate at death; the only question is when it will be taxed and at what rate. In fact, as we have seen, paying gift tax is less expensive than paying estate tax, which is a separate, distinct advantage to making a gift early. In addition, by fixing value in the form of a gift, the effective wealth transfer tax rate on future returns can be reduced to 0%.

(11) Assuming an effective income tax rate of 20%, grantor trust status turns an effective 8% rate of after-tax return into a 10% rate of return; every seven years, that's the difference between returns of approximately 70% and 100%.

We are out of elegant shortcuts; this one, you just need to memorize. Still, we think it is useful for demonstrating the power of grantor trust status. Grantor trust status effectively permits an irrevocable trust for descendants to earn tax-free returns, even as the grantor pays tax on the trust's income. If we assume 10% pretax returns and a 20% effective tax rate on those returns (taking into account that much of the returns may be in the form of untaxed, unrealized income), then the after-tax returns are 8%. Using a compound interest calculator, that turns out over

seven years to be the difference between a fund that increases by approximately 70% and a fund that increases by approximately 100%.

Grantor trust status reduces the effective tax rate on the difference to 0%. Effectively, the payment of income taxes is an uncodified exclusion from gift tax.

Example: A client uses up his remaining lifetime gift tax exemption amount by making a $10 million gift to an irrevocable grantor trust. The grantor trust is able to earn 10% pre-tax returns annually. Over a seven-year period, the $10 million will approximately double in value to $20 million. If instead the donor made an outright gift, so that donees could only earn 8% returns, the fund would only be worth approximately $17 million after seven years.

Note also that the difference in returns is attributable to taxes paid by the grantor. The grantor thereby depletes his eventual estate by $3 million over the seven-year period.

Conclusion

There you have it: Eleven easy mental heuristics to help you get specific in helping estate planning clients in real time. Memorize the shortcuts and, even if you started from a most math-averse place, you can get to a deeper understanding of the wealth transfer tax system and better advise clients.

This article does not necessarily reflect the opinion of Bloomberg Industry Group, Inc., the publisher of Bloomberg Law and Bloomberg Tax, or its owners.

Author Information

Amy Albert is an associate in the Trusts, Estates, and Exempt Organizations Group of Milbank LLP in New York. Austin Bramwell is a partner in that same group and its co-practice group leader.