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ECONOMIC IMPACT OF THE ESTATE TAX: EFFECTS OF VARIOUS POSSIBLE REFORM OPTIONS

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Introduction and summary

The federal unified estate and gift tax (a.k.a. the federal transfer tax) was altered by Congress in 2001. Its rates were gradually reduced, and the unified credit that the law allows against the tax to shelter small estates was increased. As of 2009, the top rate is 45%, and the credit effectively exempts up to $3.5 million in lifetime gifts and bequests per individual. The estate portion of the tax is scheduled to expire for one year, 2010, and then reappear in 2011 at pre-2001 law tax rates (up to 55%) with a credit that would shelter $1 million per individual.

Congress is considering various alternatives for the future of the tax. It is not likely to allow the tax to return to pre-2001 levels in 2011. Options range from keeping the tax in place at 2009 rates and credits (our base case for comparison) to allowing the estate tax portion of the tax to expire permanently, with various possibilities in between. This paper seeks to determine what effects various options would have on the economy and on federal tax revenue.

The transfer taxes are highly distortive of economic activity. In fact, they probably do the most damage to output and income per dollar of revenue raised of all the taxes in the U.S. tax system. There are two reasons. First, they are an additional layer of tax on saving and investment, activities that are highly sensitive to taxation and very likely to shrink in response to the tax. Second, the transfer taxes are levied at very high, steeply graduated marginal tax rates on a very narrow tax base. The high rates discourage saving and investment at the margin, while the average tax rate and tax revenues are held down by the credit. A tax that has a large differential between its average and marginal tax rates does far more damage per dollar of revenue raised than a flatter rate tax on a broader base.

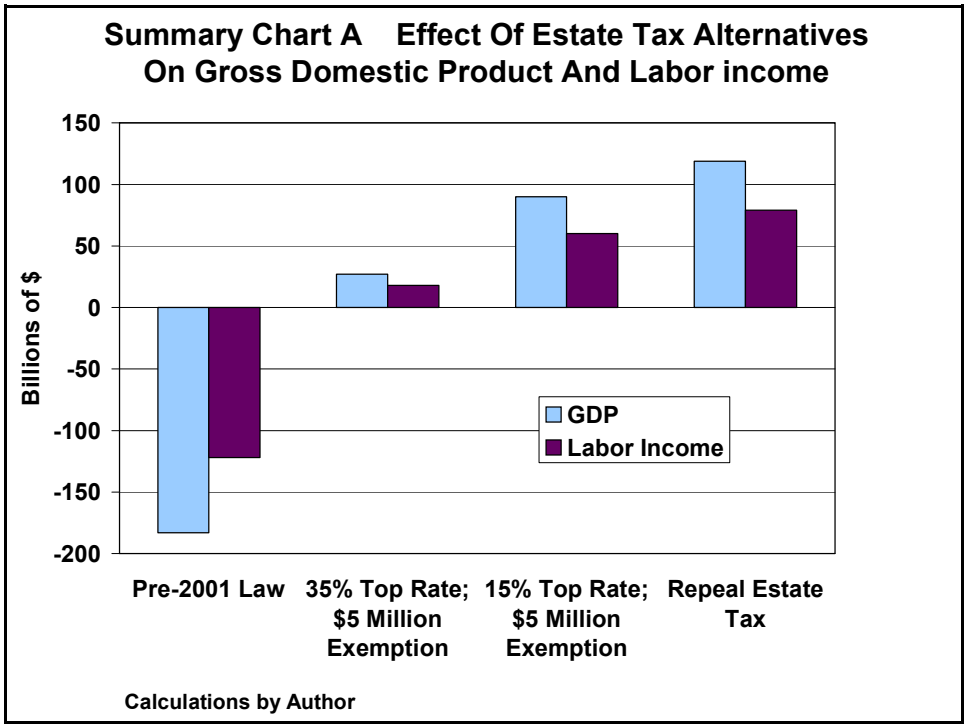
Key findings:

- The estate and gift tax (federal transfer tax) reduces annual GDP, income, and wages by a substantial amount. Allowing the rates to revert to pre-2001 law would eventually reduce GDP by $183 billion and labor income by about $122 billion. By contrast, ending the estate tax would add $119 billion to GDP and boost labor income by $79 billion.

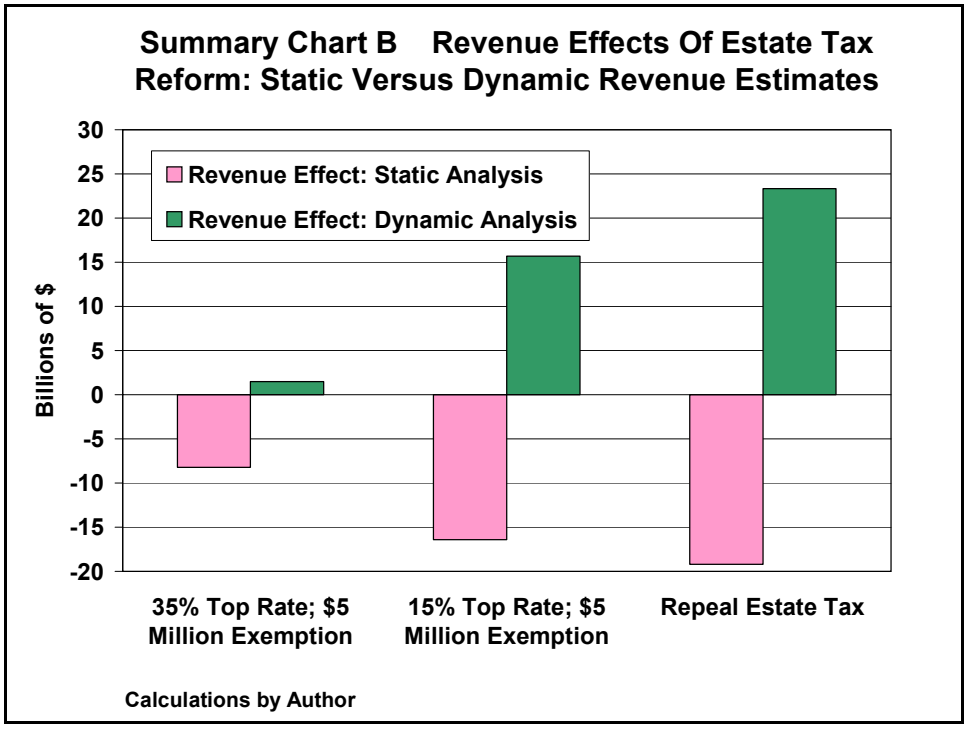
- Lowering the top rate to 35% and raising the credit to exempt $5 million from tax would add nearly $27 billion to annual GDP and nearly $18 billion to labor income. Lowering the rate to 15% with $5 million exempt would add $90 billion to GDP and nearly $60 billion to labor income.

- The estate and gift (transfer) tax loses revenue. The damage that the transfer tax does to GDP, wages, and other income reduces other tax collections by more than the transfer tax brings in, in some cases by more than twice as much, resulting in a net revenue decrease from having the tax.

- Lowering the top rate to 35% with $5 million exempt would appear to cost $8.2 billion in yearly estate tax revenue, but total federal yearly revenues would eventually rise by $1.5 billion. A 15% rate with a $5 million exempt amount would seem to cost $16.4 billion in estate tax revenue, but would eventually raise yearly total revenues by $15.7 billion. Ending the estate portion would appear to cost $19.2 billion, but total revenues would rise by $23.3 billion.



- Changes in the transfer tax rates and credits interact in odd ways due to the distribution of estates of various sizes across the tax bracket structure. An estate tax alternative with a top rate of 28% and an exempt amount of $3.5 million would have the



same apparent initial revenue loss as the 35% rate with a $5 million exempt amount, but would allow a gain of $45 billion in GDP versus $27 billion.

The economy, the pre-tax and post-tax incomes of workers, savers, and investors, and federal, state, and local revenue would all be higher if the estate and gift taxes were eliminated.

The Federal unified estate and gift tax

The Federal government imposes a unified estate and gift tax on transfers of property by lifetime gift or at death. These taxes are also known formally as the federal transfer taxes, and the estate portion is by far the larger share of the total. The transfer tax rates are graduated (that is, they rise with the size of the estate and lifetime gifts). (See Chart 1.) Prior to the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA), the bottom marginal tax rates were offset by a credit (exempting the first $625,000 of the total of lifetime gifts plus the estate in 2001). Once the gift and estate total reached taxable levels, the tax rate started at 37%. The use of a portion of the credit against the gift tax during life lowered the remaining amount applicable against the estate tax after death. The estate tax had a flat top rate of 55% on the largest estates. The lower graduated tax rates on estates below $3 million were offset by a higher rate of 60% (i.e., 55% plus a 5% surtax)

Chart 1
Marginal Tax Rate Schedule Of Federal Estate And Gift Tax

For 2001

If Taxable Estate/Gift is: Over:	But not over:	The Marginal Tax Rate is:
$ 0	$10,000	18%*
10,000	20,000	20%*
20,000	40,000	22%*
40,000	60,000	24%*
60,000	80,000	26%*
80,000	100,000	28%*
100,000	150,000	30%*
150,000	250,000	32%*
250,000	500,000	34%*
500,000	750,000	37%*
750,000	1,000,000	39%
1,000,000	1,250,000	41%
1,250,000	1,500,000	43%
1,500,000	2,000,000	45%
2,000,000	2,500,000	49%
2,500,000	3,000,000	53%
3,000,000	10,000,000	55%
10,000,000	17,184,000	60%
Over 17,184,000		55%

*** A Credit offsets the tax on the first $675,000 of lifetime transfers in 2001, effectively making the tax rate zero on transfers below $675,000.**

Changes in Future Years

	Estate Tax		Gift Tax	
Year	Top Tax Rate	Lifetime Amount Exempted by Credit	Top Tax Rate	Lifetime Amount Exempted by Credit
2001	60%	675,000	60%	675,000
2002	50%	1,000,000	50%	1,000,000
2003	49%	1,000,000	49%	1,000,000
2004	48%	1,500,000	48%	1,000,000
2005	47%	1,500,000	47%	1,000,000
2006	46%	2,000,000	46%	1,000,000
2007	45%	2,000,000	45%	1,000,000
2008	45%	2,000,000	45%	1,000,000
2009	45%	3,500,000	45%	1,000,000
2010	Estate Tax Repealed†		35%*	1,000,000
2011	Old Estate and Gift Tax Returns‡			

Estate Tax Credit reduced by amt of Credit used against Gift Tax.

***Gift tax only**
† Estate Tax repealed but bequests may be subject to capital gains tax.
‡ As in 2001 table, except the amount exempted by credit rises to $1 million (a provision of previous law).

applied to estates between $10 million and $17.184 million. Estates were allowed a federal tax credit (up to 16% of the estate) for estate taxes levied by the states, in effect transferring some of the federal tax to the states without adding to the total the estate had to pay.

Beneficiaries were allowed a "step-up in basis" for future capital gains on inherited assets. "Step-up" sets the beneficiary's acquisition price of an inherited asset as the market value of the assets at the death of the decedent (or at the time of receipt by the beneficiary), rather than the original purchase price of the decedent. This effectively prevented the double taxation of the asset by the capital gains tax as well as the estate tax.

In 2001, EGTRRA provided for a gradual lowering of the tax's top rate and an increase in the credit, and the immediate elimination of the 5% surtax. Since 2007, the top marginal rate has been 45%. The amount of estate exempted from the estate tax by the credit was $2 million in 2007 and 2008, and has risen to $3.5 million in 2009. The credit for the gift tax shelters only the first $1 million. The credit for state estate taxes was gradually replaced by a deduction, which offers only partial relief from the state levies. (A number of states have eliminated their estate taxes to reduce the resulting hardship on the beneficiaries and to maintain their competitive edge relative to other states that have no estate tax.)

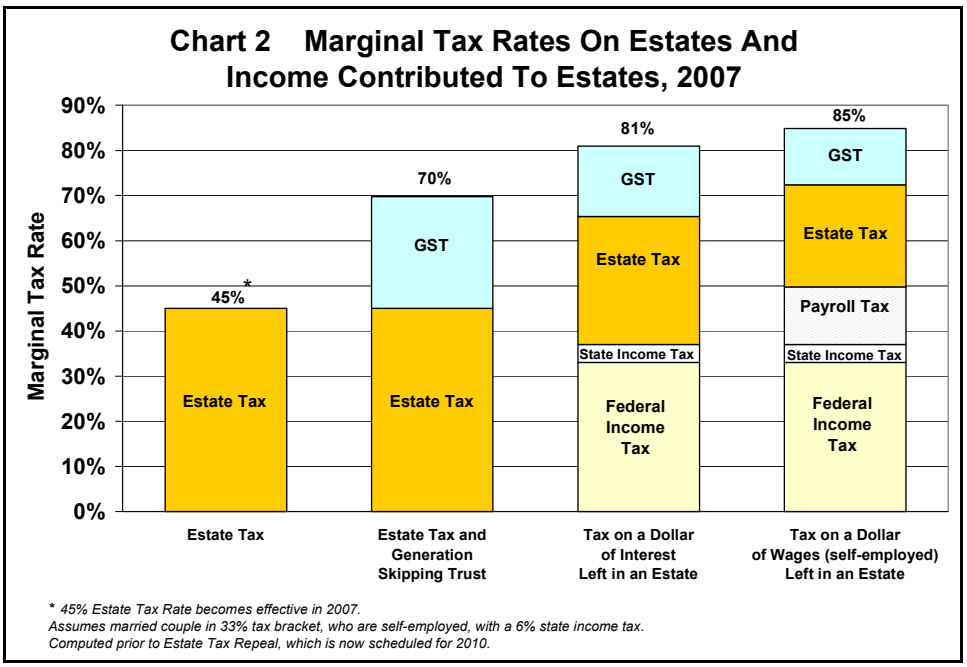
Under the terms of EGTRRA (the 2001 Tax Act), the estate tax (but not the gift tax) will vanish in 2010, but it will reappear in 2011 as EGTRRA sunsets, unless the Congress votes to extend the 2001 provisions. In 2010, beneficiaries will lose the step-up in basis. It will be replaced by a capital gains basis adjustment of $1.3 million per estate, plus $3 million for a surviving spouse. When the tax reappears in 2011, the tax rates will revert to those in effect under prior law. The credit, however, will exempt the first $1 million, because it had been scheduled to increase as of 2006 under prior law. The credit for the state estate tax will, presumably, reappear. (It is likely that some states might restore their estate taxes if the full federal credit is restored, which would reduce the federal portion of the revenues and give the states free money without raising the total tax burden on the estates.)

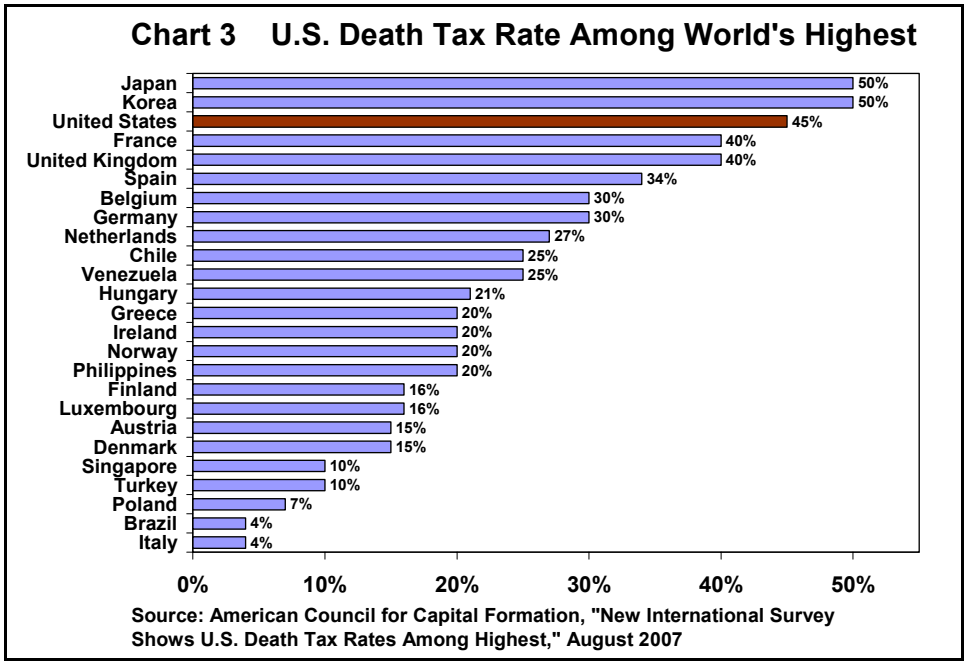
Generation skipping tax

There is an added tax, called the generation skipping tax (GST), if a bequest goes to a grandchild or other relative more than one generation removed from the decedent. The GST rate is equivalent to imposing a 45% tax on the estate as if it had gone to a child, and then imposing another 45% rate on the remaining 55% of the estate as if it had gone from the child to the grandchild. In 2007, the combined GST/transfer tax rate can reach nearly 70% (69.75%, to be exact). (See Chart 2.) Prior to EGTRRA, the top rate with the GST was just under 80% (79.75%, to be exact).

Saving or working to add to an estate brings higher tax rates

Consider the tax penalty imposed on additional earnings of a near-to retirement, self-employed, upper-middle income couple, in the next-to-the-top rate tax bracket (where their additional earnings might still be low enough to be subject to the payroll tax). If they were to work an extra year just to add to their estate, the combined taxes that the earnings would face would be prohibitively high. Prior to EGTRRA, their federal income tax rate would have been 36%, and their combined federal and state income, payroll, and eventual estate tax rates could have easily exceeded 78% (or even 90% with the GST). A tax rate that high must create an incentive to retire instead of continuing to work or to reinvest interest or dividends





in an estate. In 2009, the same worker in the current 33% bracket would face tax rates of over 72% (nearly 85% with GST). (See Chart 2.) These rates are scheduled to rebound to the pre-2001 rates in 2011.

The U.S. estate tax rate among highest of industrial nations

Chart 3 shows that the United State estate tax rate is one of the highest in the world. Many leading nations have no estate tax, including three of the big-four emerging tigers, Russia, China, and India. Brazil has a top estate tax rate of 4%. Some of the other nations without estate taxes include Canada, Mexico, Sweden, Australia, and New Zealand.[1]

An added tax on capital formation

The estate tax is one of many layers of tax on saving and investment in the U.S. tax system. Income that is saved is taxed more heavily than income that is used for consumption. The income tax raises the cost of saving by more than the cost of consuming, and tilts behavior away from saving. The tax system thereby discriminates against the saving and investment that creates jobs and makes the country grow. There are at least four layers of possible tax on income that is saved.

1) Income is taxed when first earned. If the after-tax income is spent on consumption items, such as food, clothing, health care, cars, or consumer electronics, one can generally enjoy these items with no additional federal tax (except for a few federal excise taxes, chiefly on gasoline, tobacco, and alcohol).

2) However, if the after-tax income is used to buy a bond or stock, or to invest in a small business, there is another layer of personal income tax on the stream of interest, dividends, profits, or capital gains received on the saving (which is a tax on the "enjoyment" that one "buys" when one saves).

3) If the saving is in corporate stock, there is also the corporate tax to be paid before any distribution to the shareholder, or any reinvestment of retained after-tax earnings. Reinvested income raises the value of a business and creates a capital gain. Therefore, whether the after-tax corporate income is paid as a dividend, or retained and reinvested by the business, the result is that corporate income is taxed twice.

4) If more than a modest amount is left at death, or large sums are given away, the income is taxed again by the estate and gift tax.

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[1] American Council for Capital Formation, "New International Survey Shows U.S. Death Tax Rates Among Highest," Special Report, Washington, DC, August 2007 accessed at www.nodeathtax.org/files/ ACCF_ intl_rates_survey.pdf.

Every cent saved to create an estate has been, or will be, subject to income tax. Assets built up through ordinary saving were taxed when the decedent (and the companies she or he may have owned shares in) paid income taxes on the saving. If the assets were accumulated in a tax-deferred retirement plan, the assets will be subject to the heir's income tax. The estate tax is always an extra layer of tax on savings.

Taxing capital hurts labor by reducing productivity and wages

When you tax something, you get less of it. Charts 4 and 5 illustrate that taxes on labor and capital income reduce the quantities of labor and capital furnished by individuals to the production process. Less labor and capital mean less production and less income.

Any tax is borne in part by the supplier and in part by the consumer or employer of the taxed item. The split can vary depending on behavior. Furthermore, taxing one factor of production (such as machinery or land) can hurt other factors (such as labor). The economic impact of a tax is often shifted from the people on whom it is supposedly

Chart 4 Effect of Tax On Labor

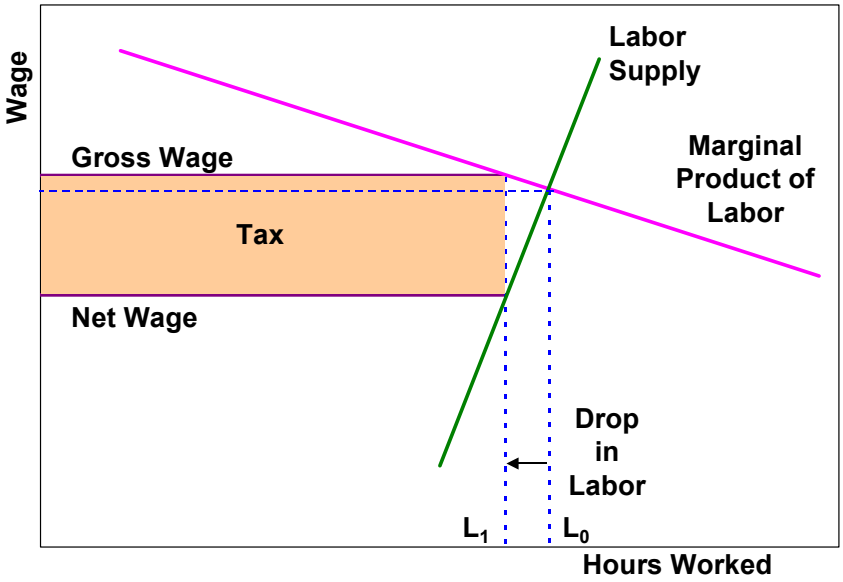
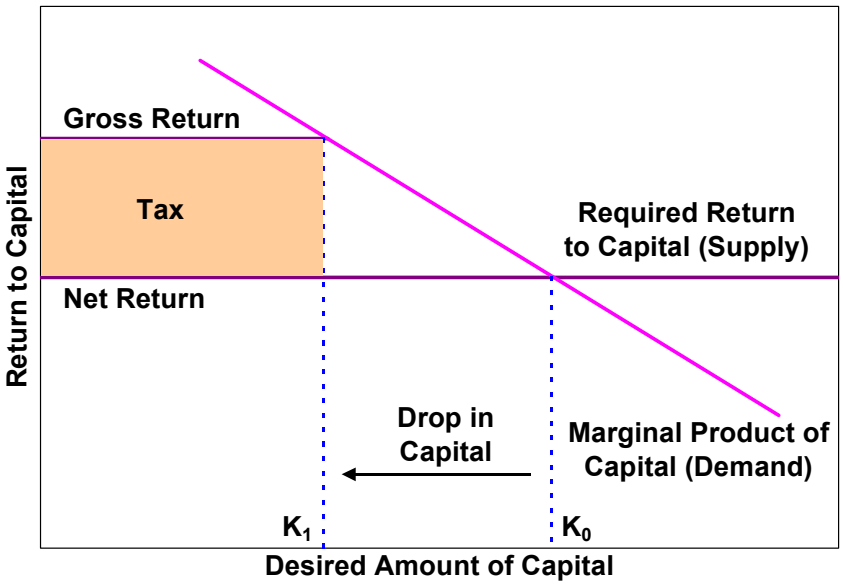


Chart 5 Effect of Tax On Desired Capital Stock



levied to others in the economy, simply by the normal workings of supply and demand in the marketplace.[2]

The supply of labor is rather inelastic. Many primary workers (the main breadwinners in the households) are employed by others, and have limited ability to vary their hours worked (set by their employers) or the degree to which they participate in the work force (each family needs at least one breadwinner). Such workers are assumed to bear most of any taxes imposed on labor, including the income tax and the payroll tax, both the employee and employer shares. Secondary workers in the family, the self-employed, teenagers, and wealthier individuals have somewhat more flexibility in deciding whether or not to work, and how many hours to offer, but even they bear most of the tax on their labor income.

The effect of taxes on capital is quite different. The quantity of capital is far more sensitive to taxes than is the quantity of labor. It is easy and enjoyable to consume instead of save, and quite possible to invest abroad instead of in one's own country. If the rate of return on saving and investment in the United States is driven down by rising taxes, we may well find that capital formation has been curtailed, or shifted to other countries. Indeed, when there is a tax on capital in any one jurisdiction, the amount of plant, equipment, and buildings in that region shrinks. As the capital becomes scarce, its rate of return rises, until it is again earning a normal rate of return, after tax.

Chart 6 shows that the shrinkage of the capital stock in the presence of high tax rates reduces the productivity of labor, the wage, and the number of jobs. In fact, workers bear the bulk of the taxes imposed on capital.[3] Modern economists have shown, through numerous studies, that the work force is better off if taxes on capital income are reduced or eliminated.

Transfer tax, killer of growth and killer of revenue

Because the estate and gift taxes add to the tax on capital formation, they result in a reduced stock of capital, which in turn reduces productivity, wages, and jobs. Consequently, the heirs and

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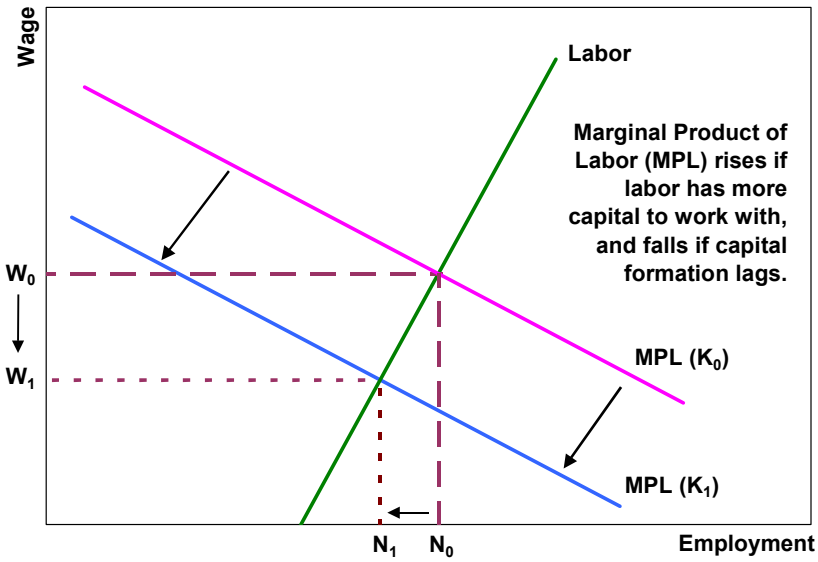
[2] For more on the economic burden of taxation, see Stephen J. Entin, "Tax Incidence, Tax Burden, and Tax Shifting: Who Really Pays the Tax?" *IRET Policy Bulletin*, No. 88, September 10, 2004, available at http://iret.org/pub/BLTN-88.PDF.

[3] Taxing capital hurts labor a lot. For example, consider a small trucking company with five vehicles. Suppose that the rules for depreciating trucks for tax purposes change, with the government demanding that the trucks be written off over five years instead of three. The owner has had enough business to run four trucks flat out, and a fifth part time. He is barely breaking even on the fifth truck under old law. It is now time to replace one of the trucks. Under the new tax regime, it does not quite pay to maintain the fifth truck. The owner decides not to replace it, and his income is only slightly affected. But what happens to the wages of the fifth truck driver? If he is laid off, who bears the burden of the tax increase on the capital?

beneficiaries do not bear the full cost of the estate and gift taxes. Much of the economic cost of the tax is borne by the labor force in the form of lower wages.

Chart 6 A Smaller Stock Of Capital Reduces Wages



The estate tax is an unusually severe tax on capital. It is a tax on assets, not on the earnings of the assets. One can calculate an income tax rate that would be equivalent to any given asset tax rate. Suppose an asset is earning a ten percent rate of return, and an annual property tax is imposed equal to one percent of the asset value. One percent of the asset is equal to ten percent of the annual earnings of the asset. Therefore, an annual property tax of one percent is equal to an annual income tax of ten percent. (This assumes steady earnings. If income drops to zero during a recession, the income tax would drop to zero, but the property tax would have to be paid regardless.)

The estate tax is not imposed annually, however; it is imposed once, after death. Nonetheless, it should affect saving behavior over much of an individual's lifetime. Savers and investors understand that increases in their assets over time will increase the amount of estate tax that will be imposed on their holdings. This accruing estate tax liability should have an impact on their decision-making. They should require a higher rate of return on their capital to offset the accruing estate tax, just as they require a higher rate of return to offset income taxes on their capital income. They should also require higher compensation for any income-earning activity, including wages, that might generate savings that would be added to the estate. The effect would be very small for young workers and savers. However, as individuals age and get closer to death, and as their assets begin to exceed the exempt amounts under the tax, the assets must earn very high returns to cover the steep tax that they will face in a very short time.

Consider Table 1. It shows how taxes increase the pre-tax return that a saver must have on a dollar saved at various ages if he is to get a 3% return after taxes over his remaining lifetime. If a saver desires a 3% after-tax return, and he is in the 25% tax bracket, he must earn 4% pre-tax. If he also faces a 45% transfer tax levy on the savings in about 40 years, the asset must earn roughly 6.1% a year, on average, over the period. If the estate tax will hit in 10 years, the investment must earn

12.5%; if in 5 years, 21.4%. The required rates would be higher at a 55% estate tax. In fact, the situation is worse than these averages indicate. As an individual approaches old age, all his saving, old or new, would face the short-time-left penalty. With 10 years left, it would take a 12.5% rate to induce someone to keep any of his savings invested, whether it is a dollar he saved 30 years earlier (when a 5.4% rate was acceptable) or a dollar out of new earnings.

Table 1
GROSS ANNUAL RATES OF RETURN NEEDED TO LEAVE A 3% RETURN TO A SAVER ON AN INITIAL INVESTMENT AFTER PAYING A 25% ANNUAL INCOME TAX ON THE EARNINGS, AND VARIOUS DEATH TAXES

Years until Death	60	40	30	20	10	5
Desired After-Tax Return	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Rate Pre-Income Tax	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Estate Tax Rate 0%:	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Estate Tax Rate 15%:	4.4%	4.6%	4.7%	5.1%	6.3%	8.5%
Estate Tax Rate 28%:	4.8%	5.1%	5.5%	6.3%	8.6%	13.3%
Estate Tax Rate 35%:	5.0%	5.5%	6.0%	7.0%	10.0%	16.4%
Estate Tax Rate 45%:	5.4%	6.1%	6.8%	8.2%	12.5%	21.4%
Estate Tax Rate 55%:	5.8%	6.8%	7.7%	9.6%	15.4%	27.8%

The estate and gift tax is one of the least efficient levies in the tax system. It does an unusually large amount of economic damage per dollar of revenue, for two reasons. First, it is an added layer of tax on saving and investment, two activities that are very sensitive to tax, and likely to shrink if taxed heavily. The rates rise steeply with the size of the estate and are very high at the margin (on the last few dollars in the estate, or on additional dollars added to it), imposed on a very narrow tax base. Second, the high marginal tax rates strongly discourage incremental saving and investment, while the average tax rates and tax revenues are held down by the credit. A tax that has a large differential between its average and marginal tax rates does far more damage per dollar of revenue raised than a flatter rate tax on a broader base.

Estimating the economic impact of the estate and gift tax

In spite of (or because of) the high tax rates, the transfer taxes probably do not raise any net revenue for the government. One offset to the apparent revenue yield comes from giving assets to one's heirs over many years prior to death. Professor B. Douglas Bernheim of Stanford estimates that avoidance of the estate tax by giving assets to children, most of whom are in lower income tax brackets than their parents, costs more in income tax revenue on the earnings of the assets than the

estate tax picks up.[4] Gary and Aldona Robbins of Fiscal Associates estimate that the reduced saving and capital formation lower GDP and wages by so much that the resulting reductions in income and payroll tax collections exceed the estate tax take.[5] If Bernheim and the Robbinses are each even half right, the tax loses money. Estate tax repeal would pay for itself, and would encourage wealth and job creation.

We cannot easily measure the accrual of estate tax liability on existing assets of current savers. We therefore take the current annual revenue from the estate tax as a percent of the private sector capital stock as a measure of how much higher the rate of return on capital must be, on average, to cover the tax and still leave savers with the basic after-tax rate of return on saving that they demand. (The added earnings must also pay income tax, so the increase in the required rate of return to cover the estate tax is made even larger.)

The latest estate and gift tax data from the Treasury Department are for 2007. We have therefore used 2007 income levels for the base year in our modelling of the output and income effects of various estate and gift tax options, and for the resulting changes in income and other taxes of those options. The results are compared to a base case that assumes the transfer tax rates and credit amounts currently in place (as of 2009).

The estimate of the changes in the estate tax from altering the credit (the amount of assets exempt from tax) or from changing the tax rates are direct interpolations from the estate tax tables provided by the Treasury. Levels of estate tax revenue expected under 2007 levels of reported estates are estimated for five scenarios:

- 2009 parameters (credit offsets tax on $3.5 million, top estate tax rate of 45%);
- A slightly lower tax (credit offsets tax on $5 million, top estate tax rate of 35%) currently being considered in Congress by Senators Blanche Lincoln (D-AR) and Jon Kyl (R-AZ) (a possible Lincoln/Kyl compromise);
- A more generous reduction (credit offsets tax on $5 million, top estate tax rate of 15%), put forth by Senator Kyl during an earlier debate on the estate tax (the Kyl plan);
- No estate tax (but retention of the gift tax) as if the expiration of the tax in 2010 were made permanent;

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[4] B. Douglas Bernheim, "Does the Estate Tax Raise Revenue?" in Tax Policy and the Economy, vol. 1, ed. Lawrence H. Summers (Cambridge, MA: MIT Press, 1987), pp. 113-138.

[5] Gary Robbins and Aldona Robbins, "The Case for Burying the Estate Tax," *IPI Policy Report*, No. 150, Institute for Policy Innovation, Lewisville, TX, 1999.

- Reversion to old law, which would happen if the changes enacted in 2001 are allowed to expire ($1 million exempt, top estate tax rate of 55%).

- An option with a lower credit and lower tax rate (credit offsets tax on $3.5 million, top estate tax rate of 28%);

- An option with a much lower credit and much lower tax rate (credit offsets tax on $1 million, top estate tax rate of 18%);

The economic impacts are estimated using a simple Cobb-Douglas model of the private business sector of the economy as of the end of fiscal year 2007. (Its solution is described in the Appendix.) The modeling exercise is one of comparative statics. That is, we estimate the ultimate effect of the tax change on the economy once all adjustments are completed. These adaptations to changes in the tax on capital take several years. When the tax on capital equipment is altered, it takes roughly five years for the stock of equipment to grow or shrink to the new equilibrium level. It takes about a decade for most of the adjustment in the stock of buildings to be completed.

The model is driven by changes in the tax wedges on incremental income of labor and capital. (Picture the tax wedges in Charts 4 and 5 increasing or decreasing, affecting the quantities of labor and capital entering the production process.) The amount of output that various amounts of capital can produce is determined by the labor supply and the state of technology. It declines as more capital is used with a given number of workers and a given state of technology (Chart 5, downward sloping line showing output as a percent of the amount of capital, or its rate of return). The required gross return to capital must cover (is the sum of) three factors: economic depreciation, the after-tax return to the owner, and the tax imposed on the pre-tax earnings. This equilibrium return is called the ***service price of capital***. (An illustration is given in the Appendix.)

An asset that can cover its costs, including taxes, and still yield a roughly 3 percent after-tax return to the owner is worth acquiring. As the tax rate increases, the gross return needed for an asset to be profitable goes up, and the quantity of capital that can clear that hurdle goes down. As the tax rate falls, the amount of capital that people can afford to operate goes up. As the desired capital stock rises or falls with the tax changes, the quantity of capital in place is adjusted.

The changes in the estate and gift tax are converted to an initial change in the service price of capital. The model then makes a preliminary pass that calculates how much the capital stock must move to restore the normal after-tax rate of return at the new service price. The shift in the capital stock will affect the productivity of labor, the wage, and the labor supply, giving a new level of output and income.

The new levels of capital and labor income will mean a new set of marginal tax rates, which will have a further effect on the service price of capital. The model runs the new income levels through an individual income tax calculator to determine the new tax rates on business income, labor income, and the individual taxes on capital gains and dividends. These then reenter the service price calculator, which produces a new service price estimate to generate a second round of change in income and GDP. The iterations continue until the changes are vanishingly small, and a new equilibrium level of output and factor inputs is displayed.[6]

The change in the capital stock is assumed to alter the size of estates in the same proportion, giving a dynamic adjustment to the initial estimate of the estate and gift tax in the various scenarios. The income tax calculator displays the resulting change in income tax revenues at the new level of income. A change in payroll tax receipts is calculated based on the change in labor compensation. Other taxes are calculated to change in response to the changes in GDP. The total tax change is the sum of the changes in the estate and gift tax and the changes in other taxes as a result of changes in the economy.

Findings

The economic results of the proposed changes in the estate tax are displayed in Table 2. Compared to the retention of 2009 transfer tax rates and credits, a possible Lincoln/Kyl compromise ($5 million exempt, top rate 35%) would increase the business sector capital stock by about 0.66% ($174 billion), and raise private sector business output and associated labor compensation by 0.25% (or about $27 billion in output, with two-thirds of that, or $18 billion, paid as labor compensation). Allowing the estate tax to expire permanently would do over four times the good. It would increase the business sector capital stock by more than 3% ($791 billion), and raise private sector output and labor income by about 1.13% ($119 billion and $80 billion). Enacting the earlier Kyl plan ($5 million exempt, top tax rate 15%) would increase the business sector capital stock by 2.27% ($595 billion), and raise private sector output and labor income by about 0.85% ($90 billion and $60 billion), giving 75% of the benefits of full repeal. In sharp contrast, allowing the estate and gift tax to revert to pre-EGTRRA law would do serious damage. It would reduce the capital stock by 4.52% ($1,186 billion), and cut private sector output and labor compensation by 1.74% ($183 billion and $122 billion).

The tax revenue effects of the changes in the transfer taxes are shown in Table 3. The apparent static cost to the federal budget of the Lincoln/Kyl compromise is $8.2 billion; of the Kyl bill, $16.4 billion; and of eliminating the estate tax, $19.2 billion. However, the added capital assets under the improved economy would trim each of these estate tax reductions by about $0.1 billion

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[6] The service price and tax calculators and the marginal estate tax rate data were developed and made available by Gary Robbins of the Heritage Foundation Center for Data Analysis.

TABLE 2
EFFECT OF ESTATE TAX ON RETURNS TO CAPITAL, OUTPUT, CAPITAL STOCK, HOURS WORKED, AND WAGES RELATIVE TO 2009 RATES AT 2007 INCOME LEVELS

	1 2009: 45% rate, $3.5 m exempt*	2 35% rate with $5 m exempt*	3 15% rate with $5 m exempt*	4 no death tax gift tax only*	5 old law reinstated*	6 28% rate with $3.5 m exempt*	7 18% rate with $1 m exempt*
Service Price (Required Return)	0.133797	0.133250	0.131945	0.131349	0.137689	0.132861	0.133301
% Change in Service Price	0.00%	-0.41%	-1.38%	-1.83%	2.91%	-0.70%	-0.37%
Levels							
Capital Stock ($billion)	26,256.6	26,430.6	26,851.9	27,047.4	25,070.7	26,554.2	26,413.7
Labor Hours (billion)	198.63	198.73	198.94	199.03	198.00	198.78	198.71
Pvt. Business Output ($billion)	10,539.2	10,565.6	10,629.0	10,657.9	10,355.9	10,584.1	10,563.0
GDP ($billion)	13,932.3	13,958.7	14,022.0	14,051.0	13,749.0	13,977.2	13,956.0
Wages ($ per hour)	35.37	35.44	35.62	35.70	34.87	35.50	35.44
Change							
Capital Stock ($billion)	0.0	174.0	595.3	790.9	-1,185.8	297.6	157.1
Labor Hours (billion)	0.00	0.09	0.30	0.39	-0.64	0.15	0.08
Pvt. Business Output ($billion)	0.0	26.5	89.8	118.8	-183.2	44.9	23.8
GDP ($billion)	0.0	26.5	89.8	118.8	-183.2	44.9	23.8
Wages ($ per hour)	0.00	0.07	0.25	0.33	-0.50	0.12	0.07
%Change							
Capital Stock	0.00%	0.66%	2.27%	3.01%	-4.52%	1.13%	0.60%
Labor Hours	0.00%	0.05%	0.15%	0.20%	-0.32%	0.07%	0.04%
Pvt. Business Output	0.00%	0.25%	0.85%	1.13%	-1.74%	0.43%	0.23%
GDP	0.00%	0.23%	0.64%	0.95%	-1.31%	0.32%	0.17%
Wages	0.00%	0.17%	0.70%	0.83%	-1.42%	0.35%	0.19%

* column 1) 2009: top rate 45%, credit exempts $3.5 million; column 2) reform with 35% rate, credit exempts $5 million; column 3) reform with 15% rate, credit exempts $5 million; column 4) no death tax, but gift tax remains; column 5) old law top rate 55%, credit exempts $1 million; column 6) reform with 28% rate, credit exempts $3.5 million; column 7) reform with 18% rate, credit exempts $1 million;

TABLE 3
REVENUE EFFECTS OF ALTERNATIVE ESTATE AND GIFT TAX REGIMES ($ amounts in billions)
RELATIVE TO 2009 RATES AT 2007 INCOME LEVELS

	1 2009: 45% rate, $3.5 m exempt*	2 35% rate with $5 m exempt	3 15% rate with $5 m exempt*	4 no death tax gift tax only*	5 old law reinstated*	6 28% rate with $3.5 m exempt*	7 18% rate with $1 m exempt*
Estate & Gift Tax, Initial Revenue	21.1	12.9	4.7	1.9	44.1	12.7	12.5
Static Change from 2009 Revenue	0.0	-8.2	-16.4	-19.2	23.0	-8.4	-8.6
Economic Impact on E&G Tax	0.0	0.1	0.1	0.1	-2.0	0.1	0.1
Net Dynamic E&G Revenue	0.0	13.0	4.8	2.0	42.1	12.9	12.6
Subtotal: Net Change E&G Tax	0.0	-8.1	-16.3	-19.2	21.0	-8.3	-8.5
Economic Impact on Income Tax	0.0	7.0	23.1	30.6	-45.6	12.9	7.1
Economic Impact on Payroll Tax	0.0	1.7	5.7	7.6	-11.7	2.9	1.5
Economic Impact on Misc. Taxes **	0.0	0.9	3.2	4.2	-6.5	1.6	0.8
Subtotal: Change, Other Taxes	0.0	9.6	32.0	42.4	-63.8	17.4	9.5
Net Revenue Change vs. 2007	0.0	1.5	15.7	23.3	-42.8	9.1	1.0
Rise in Income (GDP)	0.0	26.5	89.8	118.8	-183.2	44.9	23.8
Rise in After-Tax Income	0.0	25.0	74.1	95.5	-140.4	35.8	22.8

* column 1) 2009: top rate 45%, credit exempts $3.5 million; column 2) reform with 35% rate, credit exempts $5 million;
column 3) reform with 15% rate, credit exempts $5 million; column 4) no death tax, but gift tax remains;
column 5) old law top rate 55%, credit exempts $1 million; column 6) reform with 28% rate, credit exempts $3.5 million;
column 7) reform with 18% rate, credit exempts $1 million;
** corporate tax, excise taxes, tariffs

(because more capital is eventually transferred as bequests or gifts). More important, the stronger economy would generate higher income and profits, which would raise income, payroll, corporate, and excise tax receipts, and tariff revenues. These revenue reflows would return $9.6 billion under the Lincoln/Kyl compromise, $32.0 billion under the old Kyl plan, and $42.4 billion under repeal of the estate tax, more than the static cost of the transfer tax reductions. The net revenue effect of the estate and gift tax changes would be a revenue ***gain*** of $1.5 billion, $15.7 billion, and $23.3 billion a year, respectively for the three plans. It is cheaper for the federal government to repeal the estate tax than to keep it. The nearer it gets to repeal, the more money it saves.

The tables show the results of two other alternatives to the Lincoln/Kyl reform. They have nearly the same static revenue loss, but one gives notably better economic and dynamic (net) revenue results, and one gives slightly worse results. A reform with the current credit, exempting $3.5 million, but with a lower top tax rate of 28%, would generate 70% more economic growth ($18.4 billion more) and net revenue gain ($7.6 billion more) than Lincoln/Kyl. By contrast, a plan with a lower credit exempting $1 million and an even lower tax rate of 18% would generate less economic growth ($2.7 billion less) and net revenue gain ($0.5 billion less) than Lincoln/Kyl.

The moral is that plans with the same static revenue change may have different effects on the marginal incentives to save and invest, because changes in the rates and the credits affect estates of various sizes quite differently. In addition, similar degrees of change in a credit or rate may have different consequences depending on the starting point (which alters the sizes of the affected estates). Lowering the exempt amount from $5 million to $3.5 million in exchange for a 7 percentage point rate cut improves the outcome, but lowering the exempt amount from $3.5 million to $1 million in exchange for a further 10 point cut in the rate worsens the outcome. Care should be taken to calculate these effects before settling on a course of action.

APPENDIX

Solution of Small IRET Macromodel of US Economy

The model consists of four behavioral equations with four unknowns, five parameters, and two exogenous variables. Writing the model in logs we have:

$$lnY = \alpha_1 + \alpha_2 \cdot lnK + \alpha_3 \cdot lnL \quad (1)$$

$$lns + lnK = ln\alpha_2 + lnY \quad (2)$$

$$lnw + lnL = ln\alpha_3 + lnY \quad (3)$$

$$lnL = ln\alpha_4 + \alpha_5 \cdot (lnw + lnt) \quad (4)$$

Parameters are constructed at the baseline economic levels of *Y*, *K*, *L*, and *t* as:

$$\alpha_2 = \frac{1}{3}$$

$$\alpha_3 = \frac{2}{3}$$

$$\alpha_5 = 0.3$$

$$ln\alpha_4 = lnl - \alpha_5 \cdot (lnw + lnt)$$

$$\alpha_1 = lnY - \alpha_2 \cdot lnK - \alpha_3 \cdot lnL$$

The exogenously specified variables are s and t where:

$$s_0 = \alpha_2 \cdot Y/K$$

$$t = (1 - t_l)$$

Since we have four linear (in the logs) equations in four unknowns, we can solve the system. First, we will rearrange equation 3 to solve for *w* in terms of *L*.

$$lnw = ln\alpha_3 + lnY - lnL \quad (3a)$$

Substituting into equation 4 we have:

$$lnL = ln\alpha_4 + \alpha_5 \cdot ((ln\alpha_3 + lnY - lnL) + lnt) \quad (4a)$$

Rearranging and combining terms, we get:

$$(1 + \alpha_5) \cdot lnL = (ln\alpha_4 + \alpha_5 \cdot ln\alpha_3) + \alpha_5 \cdot (lnY + lnt) \quad (4b)$$

Define two constants and rewrite equation 4b:

$$\alpha_6 = \frac{ln\alpha_4 + \alpha_5 \cdot ln\alpha_3}{(1+\alpha_5)}$$

$$\alpha_7 = \frac{\alpha_5}{(1+\alpha_5)}$$

$$lnL = \alpha_6 + \alpha_7 \cdot (lnY + lnt) \qquad (4c)$$

Solve equation 2 for *lnY*, we get:

$$lnY = lns + lnK - ln\alpha_2 \qquad (2b)$$

Substitute 2b into 4c and combine constants:

$$lnL = \alpha_8 + \alpha_7 \cdot (lns + lnK + lnt) \qquad (4d)$$

Where:

$$\alpha_8 = \alpha_6 - \alpha_7 \cdot ln\alpha_2$$

Substitute 2b into equation 1, collect terms for *K* and combine constants:

$$(1-\alpha_2) \cdot lnK = \alpha_9 + \alpha_3 \cdot lnL - lns \qquad (1b)$$

$$\alpha_9 = \alpha_1 + ln\alpha_2$$

Substitute 4d into 1b and collect terms

$$(1-\alpha_2-\alpha_{11}) \cdot lnK = \alpha_{10} + \alpha_{11} \cdot lnt + (\alpha_{11}-1) \cdot lns \qquad (1c)$$

$$\alpha_{10} = \alpha_9 + \alpha_3 \cdot \alpha_8$$

$$\alpha_{11} = \alpha_3 \cdot \alpha_7$$

Solve for *K*:

$$\alpha_{12} = \frac{\alpha_{10}}{(1-\alpha_2-\alpha_{11})}$$

$$\alpha_{13} = \frac{\alpha_{11}}{(1-\alpha_2-\alpha_{11})}$$

$$\alpha_{14} = \frac{\alpha_{11}-1}{(1-\alpha_2-\alpha_{11})}$$

The system is solved as:

$$lnK = \alpha_{12} + \alpha_{13} \cdot lnt + \alpha_{14} \cdot lns \quad (1d)$$

$$lnL = \alpha_8 + \alpha_7 \cdot (lns + lnK + lnt) \quad (4d)$$

$$lnY = lns + lnK - ln\alpha_2 \quad (2b)$$

$$lnw = ln\alpha_3 + lnY - lnL \quad (3a)$$

Constants are calculated as:

$$\alpha_2 = \frac{1}{3}$$

$$\alpha_3 = \frac{2}{3}$$

$$\alpha_5 = 0.3$$

$$ln\alpha_4 = lnl - \alpha_5 \cdot (lnw + lnt) \quad \text{at baseline}$$

$$\alpha_1 = lnY - \alpha_2 \cdot lnK - \alpha_3 \cdot lnL \quad \text{at baseline}$$

$$\alpha_6 = \frac{ln\alpha_4 + \alpha_5 \cdot ln\alpha_3}{(1 + \alpha_5)}$$

$$\alpha_7 = \frac{\alpha_5}{(1 + \alpha_5)}$$

$$\alpha_8 = \alpha_6 - \alpha_7 \cdot ln\alpha_2$$

$$\alpha_9 = \alpha_1 + ln\alpha_2$$

$$\alpha_{10} = \alpha_9 + \alpha_3 \cdot \alpha_8$$

$$\alpha_{11} = \alpha_3 \cdot \alpha_7$$

$$\alpha_{12} = \frac{\alpha_{10}}{(1 - \alpha_2 - \alpha_{11})}$$

$$\alpha_{13} = \frac{\alpha_{11}}{(1 - \alpha_2 - \alpha_{11})}$$

$$\alpha_{14} = \frac{\alpha_{11} - 1}{(1 - \alpha_2 - \alpha_{11})}$$

SERVICE PRICE CALCULATOR ILLUSTRATION
FOR ELIMINATION OF ESTATE TAX

Description	Symbol	Baseline 2009 rates	Proposal no federal estate tax
K is the stock of capital			
Corporate Business Stocks			
Equipment & software	pKce	4460.90176	4460.90176
Nonresidential structures	pKcs	7310.91982	7310.91982
Residential structures	pKcr	153.345	153.345
Inventories	pKci	1670.464	1670.464
Nonfarm land	pKclnf	1738.083	1738.083
Farm land	pKclf	326.769	326.769
Noncorporate Business Stocks			
Equipment & software	pKne	728.084905	728.084905
Nonresidential structures	pKns	1480.04737	1480.04737
Residential structures	pKnr	3122.486	3122.486
Inventories	pKni	237.33	237.33
Nonfarm land	pKnlnf	3618.279	3618.279
Farm land	pKnlf	1145.743	1145.743
δ is the replacement rate (economic depreciation)			
Corporate Business Replacement per $			
Equipment & software	drce	0.14	0.14
Nonresidential structures	drcs	-0.032	-0.032
Residential	drcr	-0.002	-0.002
Inventories		0	0
Nonfarm land		0	0
Farm land		0	0
Noncorporate Business Replacement per $			
Equipment & software	drne	0.144	0.144
Nonresidential structures	drns	-0.039	-0.039
Residential	drnr	-0.001	-0.001
Inventories		0	0
Nonfarm land		0	0
Farm land		0	0
Z is the present value of cost recovery (tax depreciation)			
Corporate Business Stocks			
Equipment & software	Zce	0.9089758	0.9089758
Nonresidential structures	Zcs	0.61391152	0.61392853
Residential structures	Zcr	0.62657989	0.62657989
Inventories			
Nonfarm land			
Farm land			

Noncorporate Business Stocks			
Equipment & software	Zne	0.90560243	0.90560243
Nonresidential structures	Zns	0.62208068	0.62210448
Residential structures	Znr	0.63248601	0.63248601
Inventories			
Nonfarm land			
Farm land			
itc is the investment tax credit rate			
(0 when not in existence)			
Investment Tax Credit (ITC) Rate			
ITC rate on equipment	itce	0	0
ITC rate on nonresidential structures	itcs	0	0
ITC rate on residential structures	itcr	0	0
Basis Adjustment for Investment Tax Credit			
Basis adjustment for ITC rate on equipment	bae	1	1
(0 no, 1 yes)			
Basis adjustment for ITC rate on nonresidential structures	bas	1	1
(0 no, 1 yes)			
Basis adjustment for ITC rate on residential structures	bar	1	1
(0 no, 1 yes)			
te is the marginal estate tax rate			
Estate and gift tax rate	te	0.00144488	0.0001991
Federal estate and gift tax rate (enter new effective tax rate)	tef	0.00125189	0.000006
State and local estate and gift tax rate	tes	0.00019299	0.00019299
corporate income tax rate			
Marginal corporate tax rate, tcf+tcs-tcs*tcf	tc	0.38832186	0.38832186
Marginal federal corporate tax rate	tcf	0.35	0.35
Marginal state and local corporate tax rate	tcs	0.05895671	0.05895671
tax rate on corporate income at the individual level			
Personal income tax rate on corporate income	tci	0.20055044	0.20207696
Marginal Personal Income Tax Rates on:			
federal	FmrC	0.13892427	0.14022456
Dividends	FmrDIV	0.13864056	0.13909457
Capital gains	FmrCG	0.13910172	0.14093135
state and local	SmrC	0.07156882	0.07194018
Dividends	SmrDIV	0.06494324	0.0653386
Capital gains	SmrCG	0.07571298	0.07606933
Coprorate Dividend Payout Ratio	Divpo	0.38479664	0.38479664
tax rate on noncorporate income	tn	0.35118266	0.35307313
Marginal federal business tax rate	FmrBUS	0.30364394	0.30530776
Marginal state and local business tax rate	SmrBUS	0.06826784	0.06875759
excise tax rate on corporate business income	tbek	0.02197112	0.02197112

Federal current transfer receipts from business (net)	trFinebf	0.00678799	0.00678799
State & local current transfer receipts from business (net)	trFinebs	0.01518313	0.01518313
Income tax rate on labor income	tpil	0.27031764	0.27235935
Marginal federal labor tax rate	FmrL	0.23315693	0.23501403
Marginal state and local labor tax rate	SmrL	0.04845935	0.04881832
property tax rate			
Property taxes on corporate private business	tpc	0.00804705	0.00804705
Property taxes on noncorporate private business	tpn	0.00939512	0.00939512
Gross return to capital			
Gross corporate capital income	yKcb	1275.57057	1271.49149
Gross noncorporate capital income	yKnb	1124.55537	1121.2355

$(r + \delta)\cdot(1\text{-itc-tc}\cdot Z\cdot Ba) = y\cdot(1 \text{ -tbek})\cdot(1\text{- tc})\cdot(1\text{-tic}) \text{ -te-tp}\cdot(1 \text{ -tbek})\cdot(1\text{- tc})\cdot(1\text{-tic})$

$(r + \delta)\cdot(1\text{-itc-tb}\cdot Z\cdot Ba) = y\cdot(1 \text{ –tbek})\cdot(1\text{- tb}) \text{ -te-tp}\cdot(1 \text{ –tbek})\cdot (1\text{- tb})$

Solve as:

$y = [(r + \delta)\cdot (1\text{-itc-tb}\cdot Z\cdot Ba) + \text{te-tp}\cdot(1 \text{ –t})]/(1\text{-t})$

rewrite as $y=(r + \delta)\cdot b+c$

$b= (1\text{-itc-tb}\cdot Z\cdot Ba)/(1\text{-t})$ (12) Slope of service price equation

$c= \text{te} /(1 \text{ –t}) +\text{tp}$ (2) Intercept of service price equation

$ypK=\Sigma y\cdot pK= r\cdot\Sigma b\cdot pK+ \Sigma \delta \cdot b\cdot pK+ c\cdot\Sigma pK$ and $r=[ypK- \Sigma \delta \cdot b\cdot pK- c\cdot\Sigma pK]/ \Sigma b\cdot pK$

Cost Reduction by Asset: (1-itc-tc·Z·Ba)			
Corporate Business Stocks			
Equipment & software	crce	0.64702482	0.64702482
Nonresidential structures	crcs	0.76160473	0.76159813
Residential structures	crcr	0.75668533	0.75668533
Inventories		1	1
Nonfarm land		1	1
Farm land		1	1
Noncorporate Business Stocks			
Equipment & software	crne	0.68196812	0.68025612
Nonresidential structures	crns	0.78153605	0.78035163
Residential structures	crnr	0.77788188	0.77668619
Inventories		1	1
Nonfarm land		1	1
Farm land		1	1
Tax Rates			
corporate income tax rate	tc	0.38832186	0.38832186
noncorporate income tax rate	tb	0.35118266	0.35307313
One minus business excise tax rate	(1 –tbek)	0.97802888	0.97802888
One minus personal income tax rate on corporate income	(1-tic)	0.79944956	0.79792304
Business excise tax rate	tbek	0.02197112	0.02197112
Other taxes on corporate capital te+tcp·(1- tc)	toc	0.02689332	0.02689332
Other taxes on noncorporate capital te+tbp·(1- tb)	ton	0.02806684	0.02804908
Corporate after income tax rate (1 -tbek)·(1- tc)·(1-tic)	tc	0.47826181	0.47734859
Noncorporate after income tax rate (1 –tbek)·(1- tb)	tn	0.63456209	0.63271317

bi (slope)			
Corporate Business Stocks: bci=(1-itc-tc·Z·Ba)/(1-tyc)			
Equipment & software		1.35286742	1.35545562
Nonresidential structures		1.59244313	1.59547583
Residential structures		1.58215712	1.58518398
Inventories		2.09090497	2.09490512
Nonfarm land		2.09090497	2.09490512
Farm land		2.09090497	2.09490512
Noncorporate Business Stocks: bni=(1-itc-tc·Z·Ba)/(1-tyn)			
Equipment & software		1.07470669	1.0751414
Nonresidential structures		1.23161478	1.23334185
Residential structures		1.22585621	1.22754864
Inventories		1.57588991	1.58049501
Nonfarm land		1.57588991	1.58049501
Farm land		1.57588991	1.58049501
ci (intercept)			
Corporate intercept: cc= te/(1-tyc)+tp		0.01106815	0.00846415
Noncorporate intercept: cn= te/(1-tyn)+tp		0.01167209	0.0097098
Business capital income		2400.12594	2392.72699
Corporate Target	ypKc	1275.57057	1271.49149
Noncorporate Target	ypKn	1124.55537	1121.2355
Long run (assumed equilibrium) rates of return in each sector			
r		0.03539457	0.03539457
rc		0.02311017	0.02311017
rn		0.06641852	0.06641852
Service prices (using rc and rn)			
Corporate Business Stocks			
Equipment & software		0.23173458	0.22955274
Nonresidential structures		-0.0030884	-0.0057194
Residential structures		0.04446775	0.04192765
Inventories		0.05938931	0.05687776
Nonfarm land		0.05938931	0.05687776
Farm land		0.05938931	0.05687776
Noncorporate Business Stocks			
Equipment & software		0.23781027	0.23593946
Nonresidential structures		0.04544114	0.04352621
Residential structures		0.09186578	0.09001421
Inventories		0.11634036	0.11468393
Nonfarm land		0.11634036	0.11468393
Farm land		0.11634036	0.11468393
Business capital income		2348.93265	2291.93189
Corporate Target		1239.82286	1201.08424

Noncorporate Target	1109.10979	1090.84765
Weighted Average service price		
Corporate	0.07916888	0.07669523
Noncorporate	0.10734737	0.10557983
All business	0.0903698	0.08817682
Link from these cells to macro simulation model		
% Change in service price s		
Corporate		-0.0312453
Noncorporate		-0.0164656
All business	to Model	-0.0242667
Level of personal labor taxes tl	to Model	0.27235935

Changes in service price and marginal tax rates on labor are sent to economic model, which alters capital stock and labor supply, output, and income. Change in income is entered in tax calculator, which resets marginal tax rate and service price, repeating until a new equilibrium is reached.