**ECON 1000 – Contemporary Economic Issues (Spring 2022)**
**"The Distribution Function of Government"**

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**Relevant Readings from the Required Textbooks:**
- Chapter 13, *Assessing Taxation Outcomes*

# TAXES

**KEY POINT – When the Government imposes a Tax, even to finance an activity which a taxpayer perceives as having value, there is no immediate guarantee that the taxpayer is better off as a result of this "transaction".**

- **Remember that the withholding of taxes from Income is an involuntary event.**
- **It is NOT Voluntary Market Transaction between motivated buyers and sellers engage to maximize their consumer and producer surplus.**

**TAX Fairness Principles**

1) **Benefits Principle** – The Amount that a person pays in Taxes should be related to the benefits that he receives from the goods and services provided by the Government.

Example from Textbook –
- Isabella is animal lover with 4 dogs
- Jayden does not like animals and has no pets
- City builds park to walk Dogs
- Isabella goes there
- Jayden never does
- Benefits Principle says that only Dog Lovers like Isabella should contribute to the cost of building the park

2) **Ability to Pay Principle –** The Amount that a person pays in taxes should be related to the ease with which the person is able to bear the burden of paying taxes.

- **Horizontal Equity** – states that two people with equal economic capacity to pay should have equal tax burdens
- **Vertical Equity** – People with Greater economic capacity should not have smaller tax burdens.

**Average Tax Rate (ATR) –** Percentage of Total Income that must be paid in Taxes, i.e. the amount of total taxes paid divided by income. *(Note: not to be confused with Marginal and Stated Tax Rates because of deductions, exemptions, etc.)*

**Proportional Tax** – tax structure for which ATR remains constant as the level of income is increased. Also Called a Flat Tax.
- Means that Everyone pays the same tax rate regardless of your income.

**Progressive Tax** – tax structure for which ATR increases as the level of income is increased.
- Means that you not only pay more in taxes because you are paying a percentage of a Larger Income but as your income goes up you **ALSO** pay a greater percentage of your total income in Taxes.

**Regressive Tax** – tax structure for which ATR decreases as the level of income is increased.
- Means that as your income goes up you actually start paying a **LOWER tax rate** on additional income as it goes up.

**Marginal Tax Rate (MTR)** –the percentage of the next dollar earned that must be paid in taxes.
- Think in terms of the Next Dollar you earn and the tax on the Next Dollar, not the dollars you have already earned and are paying tax on.

**Relationship of Marginal Tax Rate to Average Tax Rate.**
- *Think of it this way:*

The Average Tax Rate will Increase if and only if the NEXT Marginal Tax Dollar paid is greater than the current Average

The Average Tax Rate will Decrease if and only if the NEXT Marginal Tax Dollar paid is lower than the current Average

**Illustration of Vertical Equity and Progressive and Regressive Tax Set Up.**

*Table 13.1 – Taxation Outcomes for Four Different Taxpayers in 2014*

| Taxpayer | Adjusted Gross Income (Line 37 of Form 1040) | Total Taxes Paid (Line 61 of Form 1040) | Average Tax Rate |
|---|---|---|---|
| Hillary C. | $27,946,490 | $9,981,350 | 35.72% |
| Ted C. | $1,207,838 | $442,701 | 36.65% |
| John K. | $402,603 | $74,543 | 18.52% |
| Bernie S. | $205,271 | $27,653 | 13.47% |

In this example:

1) Tax system is **Progressive** from Bernie S. up to Ted C. because the Tax paid is going up with each person AND the percentage of income paid in tax goes up as well.
2) From Bernie S. up to Ted C., the principle of Vertical Equity is not violated
3) From Ted C. to Hillary C. the Tax System is **Regressive** because her percentage of tax paid actually is **LOWER** than Ted C. even though he has a lower income.
4) From Ted C. to Hillary C., Vertical Equity is **NOT** violated if you measure it by tax dollars paid since the overall tax payments are larger.
5) From Ted C. to Hillary C., Vertical Equity **IS** violated if you measure it by **Average Tax Rate (ATR)** since the average tax rate for Hillary is lower than Ted.

**Illustration of Vertical Equity with the SAME INCOME**

- Household A: Married College Graduates, Ages 22 and 23; no children; income of $80,000 per year.
- Household B: Married High School Graduates, Ages 47 and 48; four children (two of them in daycare for both adults to be able to work); income of $80,000 per year.
1) Household A has greater economic capacity than Household B even though they have the same income.
2) To satisfy notion of Vertical Equity, Household A should have a greater tax burden than Household B
3) To get Household B to a lower tax burden, government provides more credits and deductions for them from their income to help them with their additional expenses
4) In this way, the tax system by giving Household B a lower average tax rate reflecting their greater level of expenses, helps them stretch the same income as Household A.

**U.S. Progressive Tax System: Marginal Tax Rates as of 2018 and how it works:**

**Single Person**

| Range of Adjusted Gross Income | Marginal Tax Rate |
|---|---|
| $0—$9,525 | 10% |
| $9,526—$38,700 | $952.50 plus 12% of the amount over $9,526 |
| $38,701—$82,500 | $4,453.5 plus 22% of the amount over $38,700 |
| $82,501—$157,500 | $14,089.50 plus 24% of the amount over $82,500 |
| $157,501—$ 200,000 | $32,089.50 plus 32% of the amount over $157,500 |
| $200,001—$500,000 | $45,689.50 plus 35% of the amount over $200,000 |
| Over $500,000 | $150,689.50 plus 37% of the amount over $500,000 |

**Married Couple Filing Joint Return**

| Range of Adjusted Gross Income | Marginal Tax Rate |
|---|---|
| $0—$19,050 | 10% |
| $19,051—$77,400 | $1,905 plus 12% of the amount over $19,050 |
| $77,401—$165,000 | $8,907 plus 22% of the amount over $77,400 |
| $165,001—$315,000 | $28,179 plus 24% of the amount over $165,000 |
| $315,001—$400,000 | $64,179 plus 32% of the amount over $315,000 |
| $400,000—$600,000 | $91,379 plus 35% of the amount over $400,000 |
| Over $600,000 | $161,379 plus 37% of the amount over $600,000 |

*Tax Brackets and % of Population Filing Taxes over time*

| Year | 1913 | 1916 | 1921 | 1931 | 1933 | 1941 | 1945 |
|---|---|---|---|---|---|---|---|
| **High MTR** | 7% | 15% | 73% | 25% | 63% | 81% | 94% |
| **Low MTR** | 1% | 2% | 4% | 1.5% | 4% | 10% | 23% |
| **Number of Brackets** | 7 | 14 | 56 | 23 | 55 | 32 | 24 |
| **% of Adult Pop. On Returns** | 1.1% | 1.2% | 15.0% | 5.7% | 6.6% | 42.9% | 75.9% |

| Year | 1963 | 1964 | 1981 | 1990 | 2000 | 2010 | 2015 |
|---|---|---|---|---|---|---|---|
| **High MTR** | 91% | 77% | 70% | 28% | 39.6% | 35% | 39.6% |
| **Low MTR** | 20% | 16% | 0% | 15% | 15% | 10% | 10% |
| **Number of Brackets** | 24 | 26 | 16 | 2 | 5 | 6 | 7 |
| **% of Adult Pop. On Returns** | 83.6% | 84.6% | 83.9% | 86.5% | 84.9% | 82.1% | n.a. |

At different times over the years, the government has tried to experiment with adding and subtracting brackets to try to increase economic activity.

Currently the trend is to have less brackets.

## IMPACT OF TAXES ON INCENTIVES

**Key Point – Taxing on Outcome or Activity generally results in less of it**

**Cost Benefit Principle** – states that an individual should undertake an activity if and only if the additional benefit of doing so is greater than or equal to the additional cost of doing so.

If you pay increasing amounts of tax on additional income, at some point you, as a rational decision maker, will choose to not make any more income. If that happens, the government loses additional tax revenue.

Example: **Ronald Reagan when he was a Movie Actor**

1) As an actor starting in January of each year, he starting making a lot of money
2) As he made more money, additional income that he made was taxed at higher and higher levels (Progressive Tax System)
3) The highest marginal tax rate at that time in early 1960's was 90%.
4) When his income reached the point where it was taxed at 90%, he stopped making movies for the year since 90% of what he made would go to the government anyway
5) Government got less revenue because economic activity halted.

*Increasing the Marginal Tax Rate could Increase OR Decrease the amount of tax raised:*

1) Start with Proportional (Flat) Tax where the same marginal tax rate is imposed on every additional dollar earned regardless of who earns it
2) Suppose Marginal Tax Rate is 0% – Then no additional tax revenue raised by Government
3) Suppose Marginal Tax Rate is 100% - Then no additional tax revenue raised by Government because nobody has any incentive to work and there is no tax to collect.

# The Laffer Curve

The Laffer Curve summarizes the relationship between the rate of taxation and the total amount of revenue generated by a tax. Introduced during the Reagan Administration by economic advisor, Art Laffer.
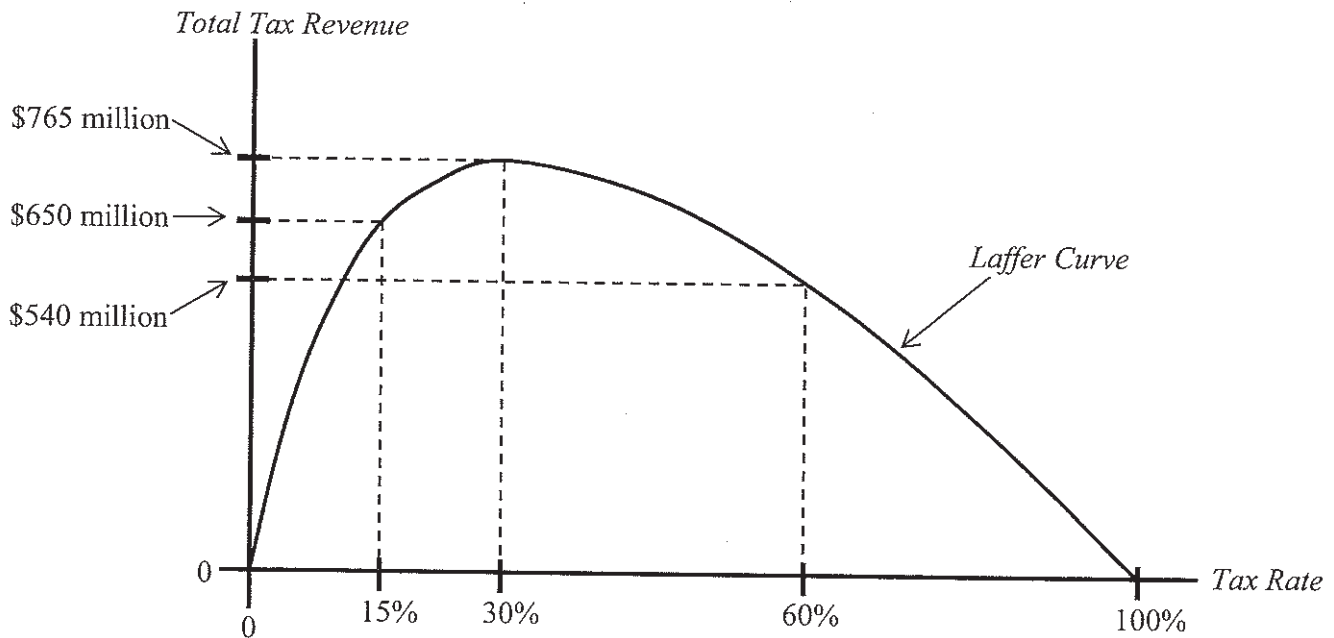


1) Total Tax Revenue will be zero when either no tax is imposed OR when the tax rate is so high that nobody engages in that activity
2) If an intermediate rate of taxation, say in this case, say in this case 15%, generates a positive amount of tax revenue, then at that tax rate, the Laffer Curve has a positive slope.
3) When the Laffer curve reaches the point where it is negatively sloped, *increasing the tax rate will actually decrease total tax revenue.*
4) Laffer curves can vary by different economies but the principle is the same. Remember the **Cost Benefit Principle** because at some point if the tax gets too high, a person acting in their own self-interest will decide that the tax is too high and it is not worth it to engage in any further activity.
5) The Key for Governments is to find the tax rate which **MAXIMIZES REVENUES** and this is likely not the highest tax rate
6) This is the argument for **Cutting Tax rates as a means to Increase Tax Revenues.**

Tax revenues disproportionately comes from 'the rich'

*% of Adjusted Gross Income & Income Taxes Paid (2013)*

| Segment of Population | Lower Income Threshold | Group's Share of Total Income Taxes Paid | Group's Share of Total Adjusted Gross Income |
|---|---|---|---|
| Top 1% | $428,713 | 37.80% | 19.04% |
| Top 5% | $179,760 | 58.55% | 34.42% |
| Top 10% | $127,695 | 69.80% | 45.87% |
| Top 25% | $74,955 | 86.27% | 68.10% |
| Top 50% | $36,841 | 97.22% | 88.51% |

- "Top 5%" pay 58.55% of all income tax dollars collected => "Bottom 95%" pay (100–58.55) = 41.45%
- "Top 10%" pay 69.80% of all income tax dollars collected => "Bottom 90%" pay (100–69.80) = 30.2%
- "Top 1%" pay more than "Bottom 90%": 37.8% v 30.2%
- "Top 1%" pay almost as much as "Bottom 95%": 37.8% v 41.45%
- "Top 50%" pay 97.22% of all income tax dollars collected => "Bottom 50%" only pay 2.78% of all income taxes

Average Tax Burden has evolved in recent decades, but U.S. Federal Income Tax clearly is (and has been) progressive

*Average Tax Rates Over Time*

| Year | Top 5% | Between 5% & 10% | Between 10% & 25% | Between 25% & 50% | Bottom 50% |
|---|---|---|---|---|---|
| 2013 | 23.20% | 13.40% | 10.11% | 7.31% | 3.30% |
| 2010 | 20.64% | 11.98% | 8.70% | 6.01% | 2.37% |
| 2007 | 20.66% | 12.92% | 9.61% | 7.27% | 3.56% |
| 2004 | 20.83% | 12.53% | 9.41% | 7.27% | 3.53% |
| 2001 | 23.91% | 15.20% | 11.87% | 9.20% | 4.92% |
| 1998 | 23.63% | 14.79% | 11.63% | 9.12% | 4.44% |
| 1995 | 23.53% | 14.46% | 11.71% | 9.43% | 4.39% |
| 1992 | 21.19% | 13.99% | 11.39% | 9.42% | 4.39% |
| 1989 | 20.71% | 13.93% | 12.08% | 9.77% | 5.11% |
| 1986 | 25.68% | 15.99% | 12.97% | 10.48% | 5.63% |
| 1983 | 23.64% | 15.54% | 13.20% | 10.76% | 5.66% |
| 1980 | 26.85% | 17.13% | 14.80% | 11.91% | 6.10% |

- ATR of every group above: increased between 2010 and 2013; decreased between 2001 and 2010; and greatly decreased between 1980 and 2013

**Multiple Choice Questions:**


1.      As of 2018, the highest Marginal Tax Rate for the U.S. Federal Income Tax is
        A.      91%.
        B.      70%.
        C       37.0%.
        D.      15%.

2.      Focusing on the "Average Tax Rate" of the "Bottom 50% of Income Earners," this figure
        _____ between 1980 and 2010 and then _____ between 2010 and
        2013.
        A.      increased from 1.89% up to 4.35%; increased more from 4.35% up to 7.82%
        B.      decreased from 9.76% down to 5.11%; decreased more from 5.11% down to
                4.13%
        C.      decreased from 6.10% down to 2.37%; increased from 2.37% up to 3.30%
        D.      increased from 14.12% up to 18.09%; decreased from 18.09% down to 9.37%


3.      The U.S. Federal Income Tax
        A.      is a Regressive Tax
        B.      is a Progressive Tax.
        C.      was abolished by President Barack Obama during his first year in office.
        D.      None of the Above


4.      _____ is a broad term which refers to monetary payments made by the
        government to certain individuals in society, with the impact of altering the distribution
        of income within a society.
        A.      Monetary Policy
        B.      Redistribution In-Kind
        C.      Income Support
        D.      Income Taxation

5.      For a Regressive Tax
        A.      the Average Tax Rate decreases as the level of income increases.
        B.      the Average Tax Rate remains constant as the level of income increases.
        C.      the Average Tax Rate increases as the level of income increases.
        D.      the Average Tax Rate becomes negative at very high levels of income.

6.      A Tax Structure for which the Average Tax Rate remains Constant as the level of income
        is increased is called a:
        A.      Regressive Tax
        B.      Marginal Tax
        C.      Progressive Tax
        D.      Proportional Tax

**For Questions 7 and 8 use the following 2018 tax table:**

**Married Couple Filing Joint Return**

| Range of Adjusted Gross Income | Marginal Tax Rate |
|---|---|
| $0—$19,050 | 10% |
| $19,051—$77,400 | $1,905 plus 12% of the amount over $19,050 |
| $77,401—$165,000 | $8,907 plus 22% of the amount over $77,400 |
| $165,001—$315,000 | $28,179 plus 24% of the amount over $165,000 |
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7.  Joe and Jeannette are married and filed their taxes for 2018 in a joint tax return. Joe makes $72,000 per year in salary as a IT technician and Jeannette is the principal of a high school and she makes $80,000 per year. Assuming that they do not have any deductions and the income that they reported was their actual salaries, what is the amount of federal income tax that they owed for this year?
    A.   $26,811.00
    B.   $33,440.00
    C.   $25,319.00
    D.   $28,179.00

8.  Now assume that Jeanette accepted a job at another company and got a 20% pay raise from her current salary and her first day at work at the new job was July 1, 2018. Joe's salary/income for the year increased on January 1, 2018 by 10%. What is the amount of their federal tax owed for 2018 now?
    A.   $28,707.00
    B.   $30,627.00
    C.   $38,544.00
    D.   $33,440.00

9.  The concept that states that two people with equal economic capacity to pay should have equal tax burdens is:
    A.   Ability to Pay Principle
    B.   Proportional Tax
    C.   Vertical Equity
    D.   Horizontal Equity

10. If the Government taxes an activity which in turn raises the price of that activity in the market place, the likely result over time is:
    A.   Tax Revenue will remain constant
    B.   You will get less of that activity occurring
    C.   You will get more of that activity occurring

*Refer to the following chart for questions 11 and 12:*
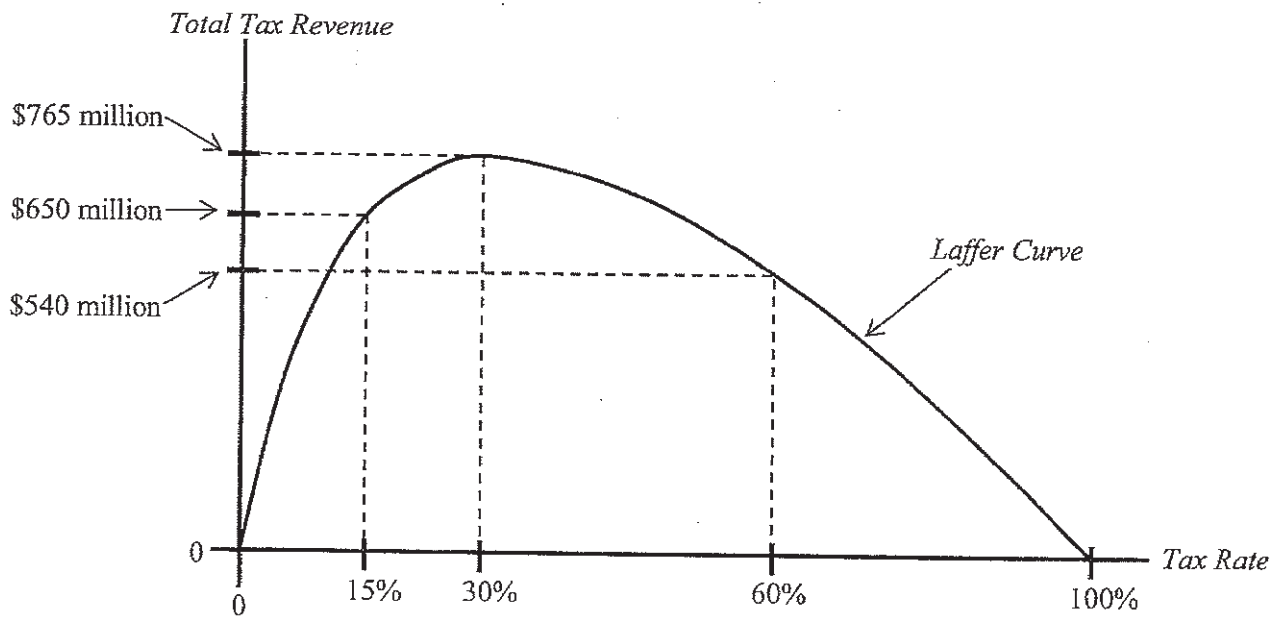


11. Above what tax rate will Total Tax Revenue begin to decline:
    A. 15%
    B. 30%
    C. 60%
    D. 100%

12) At what point on the curve can taxes be raised and still increase Total Tax Revenue:
    A. 15%
    B. 30%
    C. 60%
    D. 65%

**Go to Next Page for Answers**

**Answers to Multiple Choice Questions:**

1. C
2. C
3. B
4. C
5. A
6. D
7. C
8. A
9. D
10. B
11. B
12. A