

An introduction to tax

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Chapter 1 An Introduction to Tax

SOLUTIONS MANUAL

Problems

Chuck, a single taxpayer, earns \$75,000 in taxable income and \$10,000 in interest from an investment in City of Heflin bonds. Using the U. S. tax rate schedule, how much federal tax will he owe? What is his average tax rate? What is his effective tax rate? What is his current marginal tax rate? Chuck will owe \$14,875 in federal income tax this year computed as follows: $\$14,875 = \$4,750 + 25\%(\$75,000 - \$34,500)$. Chuck's average tax rate is 19.83%. Average Tax Rate = $\frac{\$14,875}{\$75,000} = 19.83\%$ Chuck's effective tax rate is 17.50 percent.

Effective tax rate = $\frac{\$14,875}{\$85,000} = 17.50\%$ Chuck is currently in the 25 percent tax rate bracket. His marginal tax rate on increases in income up to \$8,600 and deductions from income up to \$40,500 is 25 percent. Using the facts in the previous problem, if Chuck earns an additional \$40,000 of taxable income, what is his marginal tax rate on this income? What is his marginal rate if, instead, he had \$40,000 of additional deductions? If Chuck earns an additional \$40,000 of taxable income, his marginal tax rate on the income is 27.36 percent. Marginal Tax Rate = $\frac{\$11,000}{\$40,000} = 27.5\%$ If Chuck instead had \$40,000 of additional tax deductions, his marginal tax rate on the deductions would be 25.00 percent. Marginal Tax Rate = $\frac{\$10,000}{\$40,000} = 25.00\%$ In reviewing the tax rate schedule for a single taxpayer, Chuck notes that the tax on \$75,000 is \$4,750 plus 25 percent of the taxable income over \$34,500. What does the \$4,750 represent? The \$4,750

represents the income tax on \$34,500 – i. e. , $\$850 + 15\% (\$34,500 - 8,500)$. Scot and Vidia, married taxpayers, earn \$240,000 in taxable income and \$5,000 in interest from an investment in City of Tampa bonds.

Using the U. S. tax rate schedule for married filing jointly, how much federal tax will they owe? What is their average tax rate? What is their effective tax rate? What is their current marginal tax rate? Scot and Vidia will owe \$56,654.50 in federal income tax this year computed as follows: $\$56,654.50 = \$47,513.50 + 33\%(\$240,000 - \$212,300)$. Scot and Vidia's average tax rate is 23.61 percent. Average Tax Rate = $\frac{\$56,654.50}{\$240,000} = 23.61\%$ Scot and Vidia's effective tax rate is 23.12 percent. Effective tax rate = $\frac{\$56,654.50}{\$245,000} = 23.12\%$ Scot and Vidia are currently in the 33 percent tax rate bracket.

Their marginal tax rate on increases in income up to \$139,150 and deductions up to \$27,700 is 33 percent. Using the facts in the previous problem, if Scot and Vidia earn an additional \$70,000 of taxable income, what is their marginal tax rate on this income? How would your answer differ if they, instead, had \$70,000 of additional deductions? If Scot and Vidia earn an additional \$70,000 of taxable income, their marginal tax rate on the income is 33 percent. Marginal Tax Rate = $\frac{\$23,100}{\$70,000} = 33.00\%$ If Scot and Vidia instead had \$70,000 of additional tax deductions, their marginal tax rate on the deductions would be 29.98 percent.

Marginal Tax Rate = $\frac{\$23,100}{\$77,000} = 29.98\%$ Fergie has the choice between investing in a State of New York bond at 5 percent and a Surething bond at 8 percent. Assuming that both bonds have the same nontax characteristics and that Fergie has a 30 percent marginal tax rate, in which bond should she

invest? Fergie's after tax rate of return on the tax exempt State of New York bond is 5 percent. The Surething bond pays taxable interest of 8 percent.

Fergie's after tax rate of return on the Surething bond is 5.6 percent (i. e. , $8\% \text{ interest income} - (8\% \times 30\%) \text{ tax} = 5.6\%$). Fergie should invest in the Surething bond. Using the facts in the previous problem, what interest rate does the state of New York need to offer to make Fergie indifferent between investing in the two bonds? To be indifferent between investing in the two bonds, the State of New York bond should provide Fergie the same after-tax rate of return as the Surething bond. Fergie's after tax rate of return on the Surething bond is 5.6 percent (i. e. , $8\% \text{ interest income} - (8\% \times 30\%) \text{ tax} = 5.6\%$). The state of New York needs to offer a 5.6 percent interest rate to generate a 5.6 percent after-tax return to make Fergie indifferent between investing in the two bonds.

Song earns \$100,000 taxable income as an interior designer and is taxed at an average rate of 20 percent (i. e. , \$20,000 of tax). If Congress increases the income tax rate such that Song's average tax rate increases from 20 percent to 25 percent, how much more income tax will she pay assuming that the income effect is descriptive? What effect will this tax rate change have on the tax base and tax collected?

Under the current income tax, Song has \$80,000 of income after tax. If the income effect is descriptive and Congress increases tax rates so that Song's average tax rate is 25 percent, Song will need to earn to \$106,666.7 to continue to have \$80,000 of income after tax. $\text{After-tax income} = \text{Pretax income} (1 - \text{tax rate})$ $\$80,000 = \text{Pretax income} (1 - .25)$ $\text{Pretax income} = \$106,666.67$ Song will pay \$26,666.67 in tax ($\$106,666.67 \times .25$).

Accordingly, if the income effect is descriptive, the tax base and the tax

collected will increase. 52) [LO5] Using the facts from the previous problem, what will happen to the government's tax revenues if Song chooses to spend more time pursuing her other passions besides work in response to the tax rate change and earns only \$75, 000 in taxable income?

What is the term that describes this type of reaction to a tax rate increase?

What types of taxpayers are likely to respond in this manner? If Song only earns \$75, 000 of taxable income, she would pay only \$18, 750 of tax under the new tax structure (i. e. , \$75, 000 x . 25). Thus, the government's tax revenues would decrease by \$1, 250 (i. e. , \$18, 750 - \$20, 000). This is an example of the substitution effect, which may be descriptive for taxpayers with more disposable income. Congress would like to increase tax revenues by 10 percent.

Assume that the average taxpayer in the United States earns \$65, 000 and pays an average tax rate of 15 percent. If the income effect is in effect for all taxpayers, what average tax rate will result in a 10 percent increase in tax revenues? This is an example of what type of forecasting? This analysis is an example of dynamic forecasting. Based on the information above, the average taxpayer pays \$9, 750 of tax (i. e. , \$65, 000 x 15%), leaving \$55, 250 of income after tax. A 10 percent increase in revenues would mean that the average taxpayer pays \$10, 725 in tax (\$9, 750 x 1. 0). With this new tax amount, we can solve for the tax rate that would generate this tax amount.

After-tax income = Pretax income x (1 - tax rate) After-tax income = Pretax income - (Pretax income x tax rate) After-tax income = Pretax income - Tax

Substituting information from the problem results in: \$55, 250 = Pretax

income - \$10,725 Pretax income = \$65,975 We can use the above formula to solve for the new tax rate. After-tax income = Pretax income x (1 - tax rate) \$55,250 = \$65,975 x (1 - tax rate) Tax rate = \$10,725/\$65,975 = 16.26%