

Exam 4620, spring 2023.

1. **Short true, false or uncertain statement (20%, same weight on each). Explain briefly your answer.**

- (a) Measures based on money metric utility and disposable income provide identical results when used to describe effects of a tax reform.
- (b) A thin capitalization rule is introduced to encourage business-owners to debt-finance their investments.
- (c) Consider a single market (partial equilibrium) where the government introduces a per unit tax t . The after tax consumer price is $q = p^1 + t$ where p^1 is the price received by producers in equilibrium after the tax is introduced. The equilibrium price before the tax was introduced was p^0 . It is impossible that $p^1 = p^0$!
- (d) If there is adverse selection in social insurance, it is always better to have public mandatory insurance than market based social insurance.

2. **Labor income taxation (50%)**

- (a) Consider an economy where labor income, from zero to infinity, is taxed at a constant tax rate τ . Suppose the government increases the tax rate from 40 to 42 percent, this causes the average labor income to drop from 580.000 to 560.000. Use these numbers to calculate how the tax increase affects
 - i. The government revenue.
 - ii. The efficiency loss. If the information you have is not sufficient to calculate the efficiency loss, explain why. Can you use the information you have to bound the efficiency loss?
- (b) Consider another economy where labor income is taxed progressively with a top income bracket tax rate of τ^{top} . Suppose this bracket starts at 1 million NOK. The initial tax rate is 50% and at this tax rate the average income in the top bracket is 1,400,000 million NOK. The government increases the tax rate to 55 percent and this causes the average income in the top bracket to drop to 1,300,000.
 - i. What (additional) information do you need in order to say if this change (increasing τ^{top} from 0.5 to 0.55) increases social welfare.
 - ii. What would your answer be if the average income drop to 1,200,000 instead of 1,300,000.
- (c) Derive the formula for the optimal tax rate at the top bracket (optimal τ^{top}) and explain why the optimal rate increases - ceteris paribus - in the average income in the top bracket.

3. **Wealth and inheritance tax (30%)**

- (a) The Norwegian expert group on taxation favored a reduction in the annual wealth tax and a reintroduction of the inheritance tax. They argued that this would enhance efficiency by reducing savings distortions. Discuss the reasoning behind this assertion.
- (b) Lay out the logic behind the altruistic bequest model and explain what determines the bequest from parents to children in this model. Discuss also to what extent there will be equalization of income between siblings in this model.
- (c) In the model by Scheuer Slemrod model individuals live for two periods ($t = 0, 1$), they work, consume and save in the first and live out of their savings in the second period. The government has two tax policy instruments – a tax on first period labor income, $T_y(y_0)$ and a tax on second period wealth, $T_k(Rk_1)$. The optimal marginal wealth tax satisfies

$$T'_k(Rk_1(\theta)) = \frac{T'_y(y_0)}{1 - T'_y(y_0)} \left[\frac{\sigma(\theta)}{\alpha(\theta)\eta(\theta)} \left(1 + \frac{1}{\varepsilon(\theta)}\right) - 1 \right]^{-1},$$

where, θ = is labor productivity, σ = the intertemporal elasticity of substitution, ε = the Frisch elasticity of labor supply, $\alpha \frac{k_0}{c_0}$ is the share of period-0 consumption financed out of initial wealth, and $\eta(\theta) = \frac{k_0 \theta}{k_0(\theta)}$ is the elasticity of initial wealth wrt labor productivity.

How does the value of the inter-temporal substitution $\sigma(\theta)$ affect the marginal tax rate on wealth? Explain the economics behind this result.