

ECON4620 Spring 2013. Guidelines for Marking.

Problem 1

i. The Mirrlees model is used in many parts of the course material, in particular Stiglitz: “Pareto efficient taxation...”

Many of the Pareto efficient allocations will require redistribution towards the low-skilled type that may induce the high-skilled type to mimic the low-skilled as there is asymmetric information. A self-selection constraint must be imposed, and a distortion will be necessary to prevent mimicking. The marginal rate of substitution between material consumption and leisure will deviate from the marginal rate of transformation. This should be explained more fully. A graphical analysis may be a good way to demonstrate this insight.

ii. The key point is the following. Where the rate of return to savings (interest) is r the marginal rate of transformation (MRT) between consumption in the two periods is $1+r$, while if there is a tax rate t , the agent will set his marginal rate of substitution (MRS) equal to $1+(1-t)r$. There is a violation of the first best efficiency condition that $MRS=MRT$. A good answer should explain this more fully, maybe even using a small model. This distortion has been addressed in several contexts in lectures and seminars, and is discussed in Stiglitz: “Economics of ...”.

iii. A tax on savings may enhance efficiency if the mimicker saves more than the true low-skilled person, as this will relax the self-selection constraint. If the intertemporal trade-off is unaffected by labour supply (weak separability in the utility function) no tax on the return to savings should be imposed. This is demonstrated in Salanié.

Problem 2

The issue is dealt with in Boadway: «Principles of ...”

i. $t_k > 0$ ($t_k < 0$) means that the marginal benefit (MB) exceeds (falls short of) the marginal cost (MC). This may be due to taxes, imperfect competition or externalities.

ii. The shadow price is a weighted average of the marginal cost (or supplier price), with the marginal change in private supply as weight, and the marginal benefit (or consumer price) with the marginal change in private demand as weight.

iii. Here p_k exceeds then marginal cost by the monopoly’s mark-up, which is inversely related to the price elasticity of demand. One will need to find $\frac{\partial y_k}{\partial z_k}$ and $\frac{\partial x_k}{\partial z_k}$. One can

illustrate this by drawing a private demand curve, marginal revenue curve and a marginal cost curve and then consider a shift in the demand curve due to the project. This will determine a new price and changes in supply and private demand.

iv When there is a discrepancy between marginal benefit and marginal cost ($t_i \neq 0$) there is a welfare effect of a change in the amount of the commodity in question. Where $MB > MC$ ($MC < MB$), there is a net gain (loss) from an increase in the consumption of the commodity. The value of the increased consumption exceeds (falls short of) the value of the commodities foregone.

Problem 3

Relevant curriculum for question 3 is Thoresen/Vattø: "Validation of Structural Labor Supply Model by the Elasticity of Taxable Income". The candidates are expected to explain that the reduction in marginal tax rates most likely will increase labour supply. Good if they denote that there are two effects involved; substitution effect and income effect. Similarly, discussions of effects on intensive and extensive margins are valuable (even though this is not explicitly discussed in Thoresen/Vattø, this is covered in other parts of the course material).

Concerning the measurement of effects, there are two methods: the first method is characterized as a quasi-experimental, comparing outcomes (often income) before and after a realized policy change (such as a tax reform), using panel or other longitudinal data. An alternative method is based on structural modelling, using working hours as the dependent variable. Good if candidates are able to explain the main differences between the methods, including pros and cons of the approaches

According to the learning outcomes of the course, the course participants are supposed to

- * achieve knowledge of central concepts and basic models of modern public economics based on second best welfare theory (required in most questions),
- * acquire relevant knowledge of actual policies (cf. problem 3),
- * acquire abilities to explain the economic contents and trade-offs captured by the models (cf. 2, ii and iv),
- * acquire abilities to discuss the assumptions, relevance, and limitations of the models (cf. problem 1)
- * acquire knowledge of key models such as the Mirrlees model of taxation with extensions (cf. problem 1, i and iii).
- * acquire knowledge of major principles of cost-benefit analysis (cf. problem 2)

To pass the exam, the students should demonstrate that they have acquired at least some basic insights *from the course*. They should be able to contribute to analysis/discussions of the questions in a way not expected from students not having taken the course. Also they should not reveal ignorance, misperceptions and misunderstandings that would prove "disastrous" in professional analysis and discussions.

To achieve a top mark a student should leave no major question unanswered and should commit no serious error. In particular, one should expect a top student to provide a well structured answer to the more open questions, and to show mature insights into (in)efficiency effects of taxes, and demonstrate ability to solve problems requiring some own thinking as in 2iii. Some less serious errors and imperfections are tolerated if the candidate in most respects shows excellent analytical skills, a solid and mature understanding and originality; i.e. there is no doubt that this is an excellent public finance economist.