University of St.Gallen

Course and Examination Fact Sheet: Autumn Semester 2023

10,359: Advanced Public Economics

ECTS credits: 4

Overview examination/s

(binding regulations see below)
decentral - Written work, Digital, Individual work individual grade (50%)
Examination time: Term time
decentral - Presentation, Analog, Individual work individual grade (50%)
Examination time: Term time

Attached courses

Timetable -- Language -- Lecturer
10,359,1.00 Advanced Public Economics -- English -- Sachs Dominik

Course information

Course prerequisites

Solid background in Public Economics and Macroeconomics at the Master level.

Learning objectives

First, and more generally, students will get familiar with the principles and methodologies of modern public economics, which are currently widely used in the field. They will get a thorough understanding of what the current research frontier is.

Second, students will learn (simple) mathematical methods like the variational approach. We will approach this in an applied fashion. This will enable them to apply these mathematical techniques to analyze and solve problems in public economics and potentially in other areas of economics.

Third, students will acquire the skills to implement optimal policy analysis numerically. They will learn how to use computational tools and software to solve and simulate models, enabling them to assess the effects of different policy interventions.

Fourth, students will learn how to (empirically) evaluate policies with the novel but already widely-used concepts of the *marginal value of public funds*. This approach provides a unified framework to assess the impact of government policies on welfare, and students will gain the necessary tools to conduct their own empirical evaluations.

Course content

This course focuses on the principles and methodologies of modern public economics, which are currently widely used in the field. Students will be exposed to state-of-the-art methods in theoretical, quantitative, and empirical literature in the fields of public economics but also macroeconomics. The course is divided into two parts, each covering specific topics that are essential to the study of modern public economics. These two parts collectively form the core of the curriculum, with Part 1 addressing the equity-efficiency trade-off and accounting for approximately 60% of the total course time, and Part 2 exploring the evaluation of policies using the recently developed "marginal value of public funds" approach, which constitutes approximately 40% of the total course time.

Part 1 — Equity-Efficiency Trade-Off: This part aims to explore how governments can efficiently balance the trade-off between economic equality and economic efficiency.

First, students will learn modern theoretical tools to study the optimal design of nonlinear redistribution schemes (in particular, nonlinear income taxes). We will consider simplified versions of workhorse model of optimal income taxation (Diamond 1998, Saez 2001). We will briefly review the optimal control approach to derive optimality conditions. Then, we will study in more detail the modern (and simpler) perturbation techniques. The learning objective is to make students familiar with modern optimization techniques.

The second section will focus on implementing and quantifying the optimality conditions derived from theoretical models using empirical data. Students will learn how to numerically solve optimal policy design problems using standard software and calibrate models to align with real-world evidence.

Third, we will briefly touch various recent generalizations of the workhorse model of optimal income taxation (the role of human capital, general equilibrium effects, innovation etc.). Students will then learn how these theoretical and quantitative methods have currently been used to push the research frontier.

The final section of Part 1 will broaden the scope beyond income taxation, investigating how the learned methods can be applied to study the equity-efficiency trade-off in commodity taxation, capital and inheritance taxation. The objective is to enable students to apply the methods of optimal income taxation to analyze a wider range of policy issues.

Part 2 — Evaluating Policies: Is it an efficient way to use public funds to subsidize childcare? Should the government rather use the money for college education or job training for the unemployed? Or should the government spend the money on nutrition for poor people? Or finance unemployment benefits or public healthcare?

We will cover in depth the recent influential paper *A unified welfare analysis of government policies* by Nathan Hendren and Ben Sprung-Keyser published in the *Quarterly Journal of Economics* in 2020. They propose a unified framework to assess the impact of all such government policies on welfare: the so-called Marginal Value of Public Funds (MVPF). We will discuss various applications. Lastly, we will see that there is a nice connection between the MVPF and the concepts of the marginal efficiency costs of redistribution that we covered in the first part. The goal is that students will be equipped with methods to apply an MVPF analysis in their own empirical research.

Course structure and indications of the learning and teaching design

We will have 6 meetings à 4 hours. I will provide detailed slides and students are expected to prepare the lectures by reading assigned papers. We will have an interactive class!

Course literature

The following papers are examples of papers that we will discuss.

Ales, L., M. Kurnaz, and C. Sleet (2015): "Technical change, wage inequality, and taxes," American Economic Review, 105(10), 3061-3101.

Atkinson, A., and J. Stiglitz (1976): "The Design of Tax Structure: Direct versus Indirect Taxation," Journal of Public Economics, 6(1-2), 55-75.

Castleman, B. L., and B. T. Long (2016): "Looking beyond enrollment: The causal effect of need-based grants on college access, persistence, and graduation," Journal of Labor Economics, 34(4).

Chetty, R. (2009): "Sufficient Statistics for Welfare Analysis: A Bridge Between Structural and Reduced-Form Methods," Annual Review of Economics, 1(1), 451-488.

Christiansen, V. (1984): "Which commodity taxes should supplement the income tax?," Journal of public economics, 24(2), 195-220.

Diamond, P. (1998): "Optimal Income Taxation: An Example with a U-Shaped Pattern of Optimal Marginal Tax Rates". The American Economic Review, 88(1),p-83-95.

Diamond, P. (1980): "Income Taxation with Fixed Hours of Work," Journal of Public Economics, 13(1), 101-110.

Gelber, A., T. Moore, and A. Strand (2016): "The Effect of Disability Insurance Payments on Beneficiaries' Earnings," NBER Working Paper.

Golosov, M., A. Tsyvinski, and N. Werquin (2014): "A Variational Approach to the Analysis of Tax Systems," Working Paper.

Hendren, Nathaniel, and Ben Sprung-Keyser. "A unified welfare analysis of government policies." The Quarterly Journal of Economics 135.3 (2020): 1209-1318.

Jacobs, B., and R. Boadway (2014): "Optimal linear commodity taxation under optimal non-linear income taxation," Journal of Public Economics, 117, 201-210.

Mirrlees, J. A. (1971): "An Exploration in the Theory of Optimum Income Taxation," The Review of Economic Studies, 38(2), 175-208.

Piketty, T. (1997): "La redistribution fiscale face au chomage," Revue française d'économie, 12(1), 157-201.

Piketty, T., and E. Saez (2013a): "A theory of optimal inheritance taxation," Econometrica, 81(5), 1851-1886.

Piketty, T., and E. Saez (2013b): "Optimal Labor Income Taxation," Handbook of Public Economics (5), p.391-474.

Rothschild, C., and F. Scheuer (2013): "Redistributive Taxation in the Roy Model," The Quarterly Journal of Economics, 128(2), 623-668.

Sachs, D., A. Tsyvinski, and N. Werquin (2020): "Nonlinear tax incidence and optimal taxation in general equilibrium," Econometrica, 88(2), 469-493.

Saez, E. (2001): "Using Elasticities to Derive Optimal Income Tax Rates," Review of Economic Studies, 68(1), 205-229.

Saez, E. (2002a): "The desirability of commodity taxation under non-linear income taxation and heterogeneous tastes," Journal of Public Economics, 83(2), 217-230.

Saez, E. (2002b): "Optimal Income Transfer Programs: Intensive versus Extensive Labor Supply Responses," Quarterly Journal of Economics, 117(3), 1039-1073.

Saez, E., and S. Stantcheva (2018): "A simpler theory of optimal capital taxation," Journal of Public Economics, 162, 120-142.

Stantcheva, S. (2017): "Optimal taxation and human capital policies over the life cycle," Journal of Political Economy, 125(6), 1931-1990.

Additional course information

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Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination modalities

Examination type	Written work
Responsible for organisation	decentral
Examination form	Written work

Examination mode	Digital
Time of examination	Term time
Examination execution	Asynchronous
Examination location	Off Campus
Grading type	Individual work individual grade
Weighting	50%
Duration	--

Examination languages
Question language: English
Answer language: English

Remark
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Examination-aid rule
Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

Supplementary aids

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2. Examination sub part (2/2)

Examination modalities

Examination type	Presentation
Responsible for organisation	decentral
Examination form	Oral examination
Examination mode	Analog
Time of examination	Term time
Examination execution	Asynchronous
Examination location	On Campus
Grading type	Individual work individual grade
Weighting	50%
Duration	--

Examination languages
Question language: English
Answer language: English

Remark
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Examination-aid rule
Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

Supplementary aids

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Examination content

Students have the choice between 3 options:

(i) A literature topic: give concise summaries of recent papers in a subfield and describe what the open questions are.

(ii) Conduct their own quantitative analysis, which could be either an empirical exercise or a simulation exercise.

(iii) Set up a proposal for a research project.

For each of the three options, students have to make a presentation in the last meeting and hand in an 8-10 page paper.

Examination relevant literature

Lectures slides and papers in the list above.

Please note

Please note that only this fact sheet and the examination schedule published at the time of bidding are binding and takes precedence over other information, such as information on StudyNet (Canvas), on lecturers' websites and information in lectures etc.

Any references and links to third-party content within the fact sheet are only of a supplementary, informative nature and lie outside the area of responsibility of the University of St.Gallen.

Documents and materials are only relevant for central examinations if they are available by the end of the lecture period (CW51) at the latest. In the case of centrally organised mid-term examinations, the documents and materials up to CW 42 are relevant for testing.

Binding nature of the fact sheets:

- Course information as well as examination date (organised centrally/decentrally) and form of examination: from bidding start in CW 34 (Thursday, 24 August 2023);
- Examination information (supplementary aids, examination contents, examination literature) for decentralised examinations: in CW 42 (Monday, 16 October 2023);
- Examination information (supplementary aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 45 (Monday, 06 November 2023);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before the end of the de-registration period in CW 45 (Monday, 06 November 2023).