Redistribution: Optimal Taxation and Market Design

Mini course at Tor Vergata University of Rome, April 2025

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Inspired by the growing problem of economic inequality, this course will explore the theoretical underpinnings of the **equity-efficiency trade-off**. We will analyze the trade-off using the classical public-finance approach as well as a novel market-design approach.

The mini course will consist of three lectures. In the first lecture, we will focus on the baseline **income taxation** problem. We will derive the optimal tax formula in the classical Mirrlees' framework, focusing on the quasi-linear model and Diamond's ABC formula. In the second lecture, we will introduce the framework of **inequality-aware market design**. We will discuss how individual goods markets can be designed to address inequality among market participants. In the third lecture, we will marry the two approaches by studying the problem of **joint design of the income tax and goods markets**. We will introduce the classical Atkinson-Stiglitz theorem and talk about new research on this topic.

The mini course is based on a full-length topics course for 2nd- and 3rd-year Economics PhD students that I teach at Northwestern University. I prioritize in-depth understanding of the basic ideas over breadth. We will focus primarily on conceptual ideas underpinning the frameworks and cover the proofs of the most important results (with details left out due to time limitations). The course will not attempt to connect the material to empirical observations or current policy debates.

By the end of the course, students should have a basic understanding of the classical optimal taxation framework; they will be familiar with the novel market-design approach to addressing inequality; and they will see a (small) part of the frontier of theoretical research at the intersection of those subjects.

Prerequisites

The basic prerequisite for the course is a 1st-year PhD-level microeconomic theory sequence. The mini course relies heavily on the **mechanism design framework**. Familiarity with the concepts of the revelation principle, single-crossing conditions, taxation principle, implementability, and revenue maximization will be assumed. However, time permitting, we will review these basic ideas in the context of the topics of the course. Students not familiar with these concepts are encouraged to read the notes on basic mechanism design prior to the lectures (which I will make available).

Lecture 1: Optimal Income Taxation

Lecture based on:

- Mirrlees, J. A. (1971). An Exploration in the Theory of Optimum Income Taxation. *The Review of Economic Studies*, Volume 38, Issue 2.
- Diamond, P. A. (1998). Optimal Income Taxation: An Example with a U-Shaped Pattern of Optimal Marginal Tax Rates. *The American Economic Review*, 88(1).
- Kaplow, L. (2008). The Theory of Taxation and Public Economics. Princeton University Press.

Supplementary reading:

- Diamond, P. A. and Mirrlees, J.A. (1971). Optimal Taxation and Public Production I: Production Efficiency. *The American Economic Review*, 61 (1), 8–27.
- Sheshinski, E. (1972). The Optimal Linear Income-tax. *The Review of Economic Studies*, 39(3).
- Sadka, E. (1976). On Income Distribution, Incentive Effects and Optimal Income Taxation. *The Review of Economic Studies*, Volume 43, Issue 2.
- Seade, J. K. (1977). On the shape of optimal tax schedules. *Journal of Public Economics*, Volume 7, Issue 2.
- Akerlof, G. A. (1978). The Economics of "Tagging" as Applied to the Optimal Income Tax, Welfare Programs, and Manpower Planning. *The American Economic Review*, *68*(1).
- Hammond, P. J. (1979). Straightforward Individual Incentive Compatibility in Large Economies. *The Review of Economic Studies*, Volume 46, Issue 2.

- Varian, H. (1980). Redistributive taxation as social insurance. *Journal of Public Economics*, Volume 14, Issue 1.
- Lollivier, S., Rochet, J-C. (1983). Bunching and second-order conditions: A note on optimal tax theory. *Journal of Economic Theory*, Volume 31, Issue 2.
- Weymark, J. A. (1986). A reduced-form optimal nonlinear income tax problem. *Journal of Public Economics*, Volume 30, Issue 2.
- Weymark, J. A. (1987). Comparative Static Properties of Optimal Nonlinear Income Taxes. *Econometrica*, 55(5).
- Saez, E. (2001). Using Elasticities to Derive Optimal Income Tax Rates, *The Review of Economic Studies*, Volume 68, Issue 1.
- Saez, E. (2002). Optimal Income Transfer Programs: Intensive versus Extensive Labor Supply Responses, *The Quarterly Journal of Economics*, Volume 117, Issue 3.
- Hellwig, M. F. (2007). A contribution to the theory of optimal utilitarian income taxation. *Journal of Public Economics*, Volume 91, Issues 7–8.
- Jacquet, L, Lehmann, E., Van der Linden, B. (2013). Optimal redistributive taxation with both extensive and intensive responses, *Journal of Economic Theory*, Volume 148, Issue 5.
- Bierbrauer, F., Boyer, P., and Peichl, A. (2017). Politically Feasible Reforms of Non-Linear Tax Systems, CESifo Working Paper Series, No 6573.

Lecture 2: Inequality-aware Market Design

Lecture based on:

- Dworczak, P. ® Kominers, S.D. ® Akbarpour, M. (2021). Redistribution through Markets. *Econometrica*, 89(4).
- Akbarpour, M. ® Dworczak, P. ® Kominers, S.D. (2024). Redistributive Allocation Mechanisms, *Journal of Political Economy*, 132:6.

Supplementary reading: (classical references on targeting, price controls, queueing)

- Weitzman, M. L. (1977). Is the Price System or Rationing More Effective in Getting a Commodity to Those Who Need it Most? *The Bell Journal of Economics*, 8(2).

- Nicholas, A. L. and Zeckhauser, R. J. (1982). Targeting transfers through restrictions on recipients. *The American Economic Review*, 72.
- Spence, M. (1977). Nonlinear prices and welfare. *Journal of Public Economics*, 8.
- Guesnerie, R. and Roberts, K. (1984). Effective policy tools and quantity controls. *Econometrica*, Vol. 52, No. 1.
- Besley, T. and Coate, S. (1991). Public provision of private goods and the redistribution of income. *American Economic Review*, 81.
- Blackorby, C. and Donaldson, D. (1988). Cash versus kind, self-selection, and efficient transfers. *American Economic Review*, 78.
- Gahvari, F. and Mattos, E. (2007). Conditional cash transfers, public provision of private goods, and income redistribution. *American Economic Review*, 97(1).
- Cremer, H. and Gahvari, F. (1997). In-kind transfers, self-selection and optimal tax policy. *European Economic Review*, 41.
- Sah, R. K. (1987). Queues, Rations, and Market: Comparisons of Outcomes for the Poor and the Rich. *The American Economic Review*, 77(1).

Supplementary reading: (Inequality-aware Market Design)

- Condorelli, D. (2013). Market and non-market mechanisms for the optimal allocation of scarce resources. *Games and Economic Behavior*, Volume 82.
- Akbarpour, M. Budish, E. Dworczak, P. Kominers, S.D. (2024). An Economic Framework for Vaccine Prioritization, *The Quarterly Journal of Economics*, Volume 139, Issue 1.
- Kang, M. and Zheng, C.Z. (2020). Optimal Design for Redistributions among Endogenous Buyers and Sellers. *Economic Theory*, Volume 75.
- Barreto, D. M. ® Ghersengorin, A. ® Augias, V. (2024). Redistribution Through Market Segmentation. Working Paper.
- Kang, Z. Y. (2023). The Public Option and Optimal Redistribution. Working Paper.
- Kang, Z. Y. and Watt, M. (2024). Optimal In-Kind Redistribution. Working Paper.
- Reuter, M. and Groh, C.-C. (2023). Mechanism Design for Unequal Societies. Working Paper.
- Dworczak. P. (2023). Equity-efficiency trade-off in quasi-linear environments. Working Paper.
- Yang, F., Dworczak, P. and Akbarpour, M. (2024). Comparison of Screening Devices. Working Paper.

Lecture 3: Income Taxation meets Market Design

Lecture based on:

- Atkinson, A. and Stiglitz, J. (1976). The Design of Tax Structure: Direct versus Indirect Taxation. *Journal of Public Economics*, Volume 6, Issue 1–2.
- Kaplow, L. (2008). The Theory of Taxation and Public Economics. Princeton University Press.
- Gauthier, S. and Laroque, G. (2009). Separability and public finance. *Journal of Public Economics*, Volume 93, Issues 11–12.
- Doligalski, P., Dworczak, P., Krysta, J. and Tokarski, F. (2024). Incentive Separability. *Journal of Political Economy: Microeconomics* (forthcoming).
- Doligalski, P. ® Dworczak, P, and Kominers, S.D. ® Akbarpour, M. (2025). Optimal Redistribution via Income Taxation and Market Design, Working Paper.

Supplementary reading:

- Ordover, J. and Phelps, E. (1979). The concept of optimal taxation in the overlapping generations model of capital and wealth. *Journal of Public Economics*, Volume 12, Issue 1.
- Cremer, H. and Gahvari, F. (1998). On optimal taxation of housing. *Journal of Urban Economics*, 43, 315–335.
- Saez, E. (2002). The desirability of commodity taxation under non-linear income taxation and heterogeneous tastes. *Journal of Public Economics*, Volume 83, Issue 2.
- Golosov, M., Kocherlakota, N., and Tsyvinski, A. (2003). Optimal Indirect and Capital Taxation. *The Review of Economic Studies*, 70(3).
- Kaplow, L. (2006). On the undesirability of commodity taxation even when income taxation is not optimal. *Journal of Public Economics*, Volume 90, Issues 6–7.