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ECON 5402

Public Economics: Taxation

Carleton University, 2021 Fall

Introduction

This course deals with optimal taxation, i.e. how a government fulfills given objectives, such as financing exogenous expenditures and redistributing income, in the best possible way. Taxes are generally distortionary and the minimization of these distortions is an integral part of designing an optimal tax system. The goal is to cover extensively three mainstays of optimal taxation: commodity taxation, taxation of intermediate goods, and income tax schedules.

The first few sessions will be mainly lectures. Afterwards, the general idea is to have something like a lecture or presentation in one half and a discussion of pre-assigned articles in the other half. It is therefore crucial that you read the assignments! Hopefully, this will also help you find a topic for a thesis or dissertation, though.

Course Modality

This is an **in-person course**. It is **not suitable for online students**. Since **course attendance is mandatory**, students who are studying online should not register.

Textbooks

I will mainly rely on one book (required):
The Economics of Taxation (2011) by Bernard Salanié, 2^{nd} edition, The MIT Press.

If you get hold of the previous edition, that should work, too, although the organization of the chapters changed somewhat and some errors have been rooted out in the second edition. In any case, the book can be obtained at a reasonable price, especially if you buy it used. The following books, which are supplementary, are all available in or through the library or online. For a lighter introduction and some exposition to the Canadian tax system, see

Public Finance in Canada (2016) by H. Rosen et al., 5^{th} Canadian edition, McGraw-Hill Ryerson.

An older but useful reference is the classic

Lectures on Public Economics (1980) by A.B. Atkinson and J.E. Stiglitz, 1^{st} edition, McGraw-Hill.

For advanced students who would like to do structural research on optimal taxation, I recommend

The New Dynamic Public Finance (2010) by Narajana Kocherlakota, 1^{st} edition, Princeton University Press.

For some topics not covered in this class, such as charitable giving, see

Handbook of Public Economics, Vol. 5 (2013) by A.J. Auerbach, R. Chetty, M. Feldstein, and E. Saez (eds.), Elsevier.

Note that the previous volumes of the Handbook of Public Economics are also available and contain a different selection of topics. Some useful reading on Ramsey taxation can be found in Chapter 16 of

Recursive Macroeconomic Theory (2018) by Lars Ljungqvist and Thomas J. Sargent, 4^{th} edition, MIT Press.

A comprehensive approach to taxation within public economics is

The theory of taxation and public economics (2008) by Louis Kaplow, 1^{st} edition, Princeton University Press.

Preparation

I assume that you know micro- and, to a certain degree, macroeconomics fairly well. If you feel uneasy about your skills in these fields, you might brush up your knowledge on static and dynamic optimisation. The concepts of compensating and equivalent variation should be well-understood. Varian and Romer for example could be helpful and Mas-Collel, Whinston, and Green is an excellent reference. But we will go over the models in detail in class and you are encouraged to ask questions and come to office hours.

Evaluation

There are five graded components for this course:

Computational assignment: 20%

Two analytical assignments: 15% each

One in-class presentation: 20%

Class participation: 10%

One short essay: 20%

The computational assignment asks you to write code in the program of your choice (use Matlab as default, it is available in the lab) to evaluate the general equilibrium outcome of a tax. I will provide some help to get started. The analytical assignments are classic problem sets. For all assignments, you are encouraged to work in small groups. For the in-class presentation, you have to present a modern research paper. *Student participation in class discussions is important, I expect you to read assigned papers and be able to discuss them.* When you do not understand something, that is fine, but you should point out what it is that you had problems with. I will ask questions about the assigned papers (I announce them the week before) and you have to hand in a brief summary/opinion. The essay is short (4 pages, 12pt, 1.5 lines) and asks you to summarize your opinion on two of the "lessons" in Mankiw, Weinzierl, and Yagan (2009). State what arguments would speak for and against it and discuss the main concepts. This has to be your own work and written in your own words. If you have questions about plagiarism, please refer to university policies or talk to me. No late assignments without my prior approval will be accepted.

The essay is to practice writing convincingly about economic issues. The in-class presentation of an article is both to practice your presentation skills and to have you read and understand an article in a lot of detail. The two classic problem sets have the objective to train technical skills. The computational assignment can be tremendously helpful in understanding the underlying mechanisms of the model. Furthermore, much of the current research relies on numerical simulations. The ability to understand and write code is thus a valuable skill.

Course Outline

This is a tentative list of topics that we will cover. We can change it depending on students' interests and in how much detail we want to cover each topic. All papers can be accessed easily through university computers; finding them is part of your work, but should not take more than two minutes each (also avoids copyright issues). Of course, if you have trouble finding them, I will gladly provide assistance.

- Introduction: 09-September.

- Distortions and Welfare Losses: 16-September.
  Chapter 1 in Salanié. Chapters 2 and 3 in Atkinson-Stiglitz. The General Theory of the Second Best (Lancaster and Lipsey, 1956) stresses the important point that a tax system has be evaluated in its entirety.

- Tax Incidence: 23-September.
  Chapter 2 in Salanié. Chapter 6 in Atkinson-Stiglitz. Also see Harberger (1962), Shoven and Whalley (1984), and applications by Leigh (2010) on Earned-Income Tax Credits or Fullerton and Heutel (2007) on Environmental Taxes.

- Tax Evasion: 30-September.
  How large are the welfare losses due to tax evasion? A non-technical memo on the importance of behavioral changes can be found in Feldstein (2008). **Feldstein (1999)** shows how one can use the elasticity of tax revenues to potentially capture all of these changes, whereas Saez, Slemrod, and Giertz (2012) in their review article view this critically. Mertens and Montiel-Olea (2018) provide new evidence, comparing macro and micro estimates. One of the most prominent examples of measuring the elasticity of tax revenues is Feldstein (1995). **Milligan and Smart (2019)** is an interesting application to Canada, with special emphasis on the federal nature.

- Optimal Commodity Taxation and Production Efficiency: 07-October.
  Chapter 3 in Salanié. Chapter 12 in Atkinson-Stiglitz. The original paper was by Ramsey (1927) leading to the inverse-elasticity rule and when one allows for an elastic labour supply, Corlett and Hague (1953) show how goods more complementary with leisure should be taxed

more. There are also the classic papers by Diamond and Mirrlees (1971a,b) who established production efficiency.

- Optimal "Ramsey Taxation:" 14-October.

  See Kocherlakota Chapter 2 and **Ljungqvist and Sargent Chapter 12.** The classic paper on capital taxation in this framework is Chamley (1986). Judd (1999) provides a good overview, but both papers are in continuous time. Chari, Christiano, and Kehoe (1994) investigate the matter in a stochastic context. Erosa and Gervais (2002) discuss the implications of overlapping generations. Conesa, Kitao, and Krueger (2009) and Atkeson, Chari, and Kehoe (1999) provide arguments for and against capital taxation.

- Time-inconsistency: 21-October.

  Kydland and Prescott (1977) is the most famous article, **Fischer (1980)** provides a simple discussion, and Kydland and Prescott (1980) explore how to solve the optimal tax problem recursively. The literature on timeless commitment should also be interesting in this respect: see Woodford (1999), Woodford (2001), and Jensen and Mccallum (2010). An interesting application is Persson and Svensson (1989).

- Capital Tax Competition: 04-November.

  Zodrow and Mieszkowski (1986) and Wilson (1986) are classic papers in the static tax competition literature; **Nicodème (2006)** provides an overview. Mendoza and Tesar (2005) and Klein, Quadrini, and Rios-Rull (2005) use dynamic models with commitment and a time-consistent approach, respectively. This is something I have also worked on, Gross (2014, 2015) and Gross, Klein, and Makris (2020, 2021).

- Intergovernmental Transfers: 11-November.

  Smart (1998) shows that distortionary taxes may actually increase as a function of transfers and Köthenbürger (2002) and Bucovetsky and Smart (2006) argue that this may improve efficiency under tax competition. Empirically, Baretti, Huber, and Lichtblau (2002) find that transfers tend to reduce tax revenues of states in Germany. The results by Smart (2007) suggest that tax revenues increase in transfers in Canada. Büttner (2006) and Egger, Köthenbürger, and Smart (2010) find that fiscal equalization leads to higher business tax rates of municipalities in Germany. I have also worked on this, Gross (2021).

- Optimal Income Taxation: 18-November.

  Chapter 4 in Salanié. Chapter 13 in Atkinson-Stiglitz. Mirrlees (1971) is the starting point, Diamond (1998) and Saez (2001) are interesting applications. Lehmann, Simula, and Trannoy (2014) discuss how results differ when there is labor migration.

- Mixed Taxation: 25-November.

  Chapter 5 in Salanié. Chapter 14 in Atkinson-Stiglitz. Atkinson and Stiglitz (1976) show that uniform commodity taxation is optimal when the government has access to non-linear income taxation. Kaplow (2006) shows that the optimality of the income tax is not necessary for the uniform-commodity tax result. Naito (1999) and Saez (2002) provide exceptions to this rule. Saez (2004) shows that Naito's result might not hold in the long run, though.

- Tagging and Policy Implications: 02-December.

  From an optimal taxation perspective, people's characteristics that are positively correlated with ability should be taxed, such as height: **Mankiw and Weinzierl (2010)**. On the other hand, it is rarely observed in practice, so Weinzierl (2014) argues that there might be additional principles influencing taxation, besides the equity-efficiency trade-off.

- Conclusion: 09-December.

  We discuss the review articles by **Diamond and Saez (2011)** and **Mankiw, Weinzierl, and Yagan (2009)**. **Your essays have to be handed in at this time and will be the basis for our discussion.**

References

Atkeson, A., V. Chari, and P. J. Kehoe (1999): "Taxing Capital Income: A Bad Idea," *Quarterly Review*, pp. 3–17.

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

Baretti, C., B. Huber, and K. Lichtblau (2002): "A Tax on Tax Revenue: The Incentive Effects of Equalizing Transfers: Evidence from Germany," *International Tax and Public Finance*, 9(6), 631–649.

Bucovetsky, S., and M. Smart (2006): "The Efficiency Consequences of Local Revenue Equalization: Tax Competition and Tax Distortions," *Journal of Public Economic Theory*, 8(1), 119–144.

Büttner, T. (2006): "The incentive effect of fiscal equalization transfers on tax policy," *Journal of Public Economics*, 90(3), 477 – 497, Special issue published in cooperation with the National Bureau of Economic Research: Proceedings of the Trans-Atlantic Public Economics Seminar on Fiscal Federalism 20-22 May 2004.

Chamley, C. (1986): "Optimal Taxation of Capital Income in General Equilibrium with Infinite Lives," *Econometrica*, 54(3), 607–622.

Chari, V. V., L. J. Christiano, and P. J. Kehoe (1994): "Optimal Fiscal Policy in a Business Cycle Model," *Journal of Political Economy*, 102(4), 617–52.

Conesa, J. C., S. Kitao, and D. Krueger (2009): "Taxing Capital? Not a Bad Idea after All!," *American Economic Review*, 99(1), 25–48.

Corlett, W. J., and D. C. Hague (1953): "Complementarity and the Excess Burden of Taxation," *The Review of Economic Studies*, 21(1), pp. 21–30.

Diamond, P., and E. Saez (2011): "The Case for a Progressive Tax: From Basic Research to Policy Recommendations," *Journal of Economic Perspectives*, 25(4), 165–90.

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

Diamond, P. A., and J. A. Mirrlees (1971a): "Optimal Taxation and Public Production: I–Production Efficiency," *American Economic Review*, 61(1), 8–27.

Diamond, P. A., and J. A. Mirrlees (1971b): "Optimal Taxation and Public Production II: Tax Rules," *The American Economic Review*, 61(3), 261–278.

Egger, P., M. Köthenbürger, and M. Smart (2010): "Do fiscal transfers alleviate business tax competition? Evidence from Germany," *Journal of Public Economics*, 94(3-4), 235–246.

Erosa, A., and M. Gervais (2002): "Optimal Taxation in Life-Cycle Economies," *Journal of Economic Theory*, 105(2), 338–369.

Feldstein, M. (1995): "The Effect of Marginal Tax Rates on Taxable Income: A Panel Study of the 1986 Tax Reform Act," *Journal of Political Economy*, 103(3), 551–72.

——— (1999): "Tax Avoidance And The Deadweight Loss Of The Income Tax," *The Review of Economics and Statistics*, 81(4), 674–680.

——— (2008): "Effects of Taxes on Economic Behavior," NBER Working Papers 13745, National Bureau of Economic Research, Inc.

Fischer, S. (1980): "Dynamic inconsistency, cooperation and the benevolent dissembling government," *Journal of Economic Dynamics and Control*, 2, 93 – 107.

Fullerton, D., and G. Heutel (2007): "The general equilibrium incidence of environmental taxes," *Journal of Public Economics*, 91(3-4), 571–591.

Gross, T. (2014): "Equilibrium Capital Taxation in Open Economies under Commitment," *European Economic Review*, 70(0), 75 – 87.

——— (2015): "On the Relevance of Tax Competition when it is Optimal to Tax Capital Income in the Long Run," Carleton University Working Paper.

Gross, T. (2021): "Optimal Fiscal Policy in a Transfer Union," *Review of Economic Dynamics*, In press.

Gross, T., P. Klein, and M. Makris (2020): "Residence- and source-based capital taxation in open economies with infinitely-lived consumers," *Journal of International Economics*, 127, Article 103369.

——— (2021): "Dynamic Capital Tax Competition under the Source Principle," *American Economic Journal: Macroeconomics*, Forthcoming.

Harberger, A. C. (1962): "The Incidence of the Corporation Income Tax," *Journal of Political Economy*, 70(3), pp. 215–240.

Jensen, C., and B. T. Mccallum (2010): "Optimal Continuation versus the Timeless Perspective in Monetary Policy," *Journal of Money, Credit and Banking*, 42(6), 1093–1107.

Judd, K. L. (1999): "Optimal taxation and spending in general competitive growth models," *Journal of Public Economics*, 71(1), 1–26.

Kaplow, L. (2006): "On the undesirability of commodity taxation even when income taxation is not optimal," *Journal of Public Economics*, 90(6-7), 1235–1250.

Klein, P., V. Quadrini, and J.-V. Rios-Rull (2005): "Optimal Time-Consistent Taxation with International Mobility Of Capital," *Advances in Macroeconomics*, 5(1).

Köthenbürger, M. (2002): "Tax Competition and Fiscal Equalization," *International Tax and Public Finance*, 9(4), 391–408.

Kydland, F. E., and E. C. Prescott (1977): "Rules Rather Than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy*, 85(3), 473–91.

Kydland, F. E., and E. C. Prescott (1980): "Dynamic optimal taxation, rational expectations and optimal control," *Journal of Economic Dynamics and Control*, 2, 79 – 91.

Lancaster, K., and R. G. Lipsey (1956): "The General Theory of Second Best," *The Review of Economic Studies*, 24(1), 11–32.

Lehmann, E., L. Simula, and A. Trannoy (2014): "Tax me if you can! Optimal Nonlinear Income Tax Between Competing Governments," *The Quarterly Journal of Economics*, 129(4), 1995–2030.

Leigh, A. (2010): "Who Benefits from the Earned Income Tax Credit? Incidence among Recipients, Coworkers and Firms," *The B.E. Journal of Economic Analysis & Policy*, 10, Issue 1, Article 45.

Mankiw, N. G., and M. Weinzierl (2010): "The Optimal Taxation of Height: A Case Study of Utilitarian Income Redistribution," *American Economic Journal: Economic Policy*, 2(1), 155–76.

Mankiw, N. G., M. Weinzierl, and D. Yagan (2009): "Optimal Taxation in Theory and Practice," *Journal of Economic Perspectives*, 23(4), 147–74.

Mendoza, E. G., and L. L. Tesar (2005): "Why hasn't tax competition triggered a race to the bottom? Some quantitative lessons from the EU," *Journal of Monetary Economics*, 52(1), 163–204.

Mertens, K., and J. Montiel-Olea (2018): "Marginal Tax Rates and Income: New Time Series Evidence," *Quarterly Journal of Economics*, forthcoming.

Milligan, K., and M. Smart (2019): "An estimable model of income redistribution in a federation: Musgrave meets Oates," *American Economic Journal: Economic Policy*, 11(1).

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

Naito, H. (1999): "Re-examination of uniform commodity taxes under a non-linear income tax system and its implication for production efficiency," *Journal of Public Economics*, 71(2), 165–188.

Nicodème, G. (2006): "Corporate Tax Competition and Coordination in the European Union: What do we know? Where do we stand?," European Economy, Economic Papers 250, European Commission.

Persson, T., and L. E. O. Svensson (1989): "Why a Stubborn Conservative would Run a Deficit: Policy with Time-Inconsistent Preferences," *Quarterly Journal of Economics*, 104(2), 325–345.

Ramsey, F. P. (1927): "A Contribution to the Theory of Taxation," *The Economic Journal*, 37(145), pp. 47–61.

Saez, E. (2001): "Using Elasticities to Derive Optimal Income Tax Rates," *Review of Economic Studies*, 68(1), 205–29.

——— (2002): "The Desirability of Commodity Taxation under Non-linear Income Taxation and Heterogeneous Tastes," *Journal of Public Economics*, 83(2), 217 – 230.

——— (2004): "Direct or indirect tax instruments for redistribution: short-run versus long-run," *Journal of Public Economics*, 88(3-4), 503–518.

Saez, E., J. Slemrod, and S. H. Giertz (2012): "The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review," *Journal of Economic Literature*, 50(1), 3–50.

Shoven, J. B., and J. Whalley (1984): "Applied General-Equilibrium Models of Taxation and International Trade: An Introduction and Survey," *Journal of Economic Literature*, 22(3), 1007–51.

Smart, M. (1998): "Taxation and Deadweight Loss in a System of Intergovernmental Transfers," *Canadian Journal of Economics*, 31(1), pp. 189–206.

——— (2007): "Raising taxes through equalization," *Canadian Journal of Economics*, 40(4), 1188–1212.

Weinzierl, M. (2014): "The Promise of Positive Optimal Taxation: Normative Diversity and a Role for Equal Sacrifice," *Journal of Public Economics*, 118, 128142.

Wilson, J. D. (1986): "A theory of interregional tax competition," *Journal of Urban Economics*, 19(3), 296–315.

Woodford, M. (1999): "Commentary: How Should Monetary Policy Be Conducted in an Era of Price Stability?," Discussion paper, Federal Reserve Bank of Kansas City, in New challenges for monetary policy.

——— (2001): "The Taylor Rule and Optimal Monetary Policy," *The American Economic Review*, 91(2), pp. 232–237.

Zodrow, G. R., and P. Mieszkowski (1986): "Pigou, Tiebout, property taxation, and the underprovision of local public goods," *Journal of Urban Economics*, 19(3), 356–370.

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