

Introduction

The word “taxation” can take different meanings. In a strict sense, taxation is the set of taxes that economic agents pay. In the larger sense, it pertains to the whole fiscal policy of governments. I will use it in an intermediate sense. In this book, taxation refers both to taxes and to transfers to households. These transfers are usually classified in two categories:

- social insurance, which is linked to contributions (depending on countries: pensions, health, family, and/or unemployment benefits)
- social welfare, which pays benefits that do not depend on earlier contributions (e.g., minimum income benefits or housing subsidies).

This distinction between social transfers is somewhat artificial, as insurance also redistributes across social classes. That is, health contributions often depend on income, whereas health risks are only weakly correlated with income. Even where benefits are linked to contributions (as is generally the case for pay-as-you-go pension systems), the risk may be strongly correlated with income (thus the rich usually live longer than the poor). Here I will include in taxation all taxes and benefits that come between an individual’s gross income and purchasing power. However, I will adopt a microeconomic viewpoint. I will therefore not study, for instance, the use of taxation to stabilize the economy.

Thus defined, taxation is a very rich and varied topic. Governments have resorted to all sorts of taxes in history, all the while invoking reasons that went from simple expediency to enlightened paternalism. Still one can find common threads. Thus this introduction begins with a brief historical survey. Then it gives some data on taxation in developed countries, and ends with a roadmap to the rest of the book.

Some History

Perhaps the most important lesson we have from the history of taxation is that economic development drastically constrains both the form and the volume of taxation. Most societies started as poor, predominantly peasant economies, with little net surplus available for taxation. Because most of the production was consumed domestically, there was little visible trade, and so it was hard for the state to assess a tax basis and to collect taxes. While income taxes, in particular, may seem to us to be the most natural form of taxation, such taxes were not a realistic policy until the nineteenth century in Britain (an early industrializer, with very active trading), and until the twentieth century in other countries.

As far as we know, taxes appeared concomitantly with civilization in Mesopotamia and in Egypt, as can be seen from Sumerian tablets dated 3,500 BC. In these despotic regimes the king's own resources were not enough to provide a living for his priests, his court, and his army, so he had to resort to taxes. As the use of money was still rare, most of these taxes were paid in kind. Thus the peasants, the group that constituted most of the population, had to bring to the king a fixed proportion of their crops (e.g., at times, one-fifth in Egypt and one-tenth in Sumer).¹ Peasants moreover had to provide labor to maintain public equipments, to build pyramids and temples, and to work the king's fields.

Athens and Rome went further by taxing sales of land and slaves and by raising import duties. Their rulers also tried (and mostly failed) to tax capital and property. For many centuries yet, taxes would mostly fall on peasants. The fall of the Roman empire brought its tax system down with it. For a long time each local authority lived mostly on the produce of its own land. The emergence of the feudal system imposed the principle that everyone, from the peasant to the duke, must provide either military service or labor in return for the right to till his land. Monetary taxes now came in addition to labor and in-kind taxes. These taxes could be indirect (paid on transactions of goods) or direct (paid on wealth or on income). Many cities moreover negotiated charters with the king so as to obtain tax privileges.

In several countries the principle of consent was established early, as summed up in two maxims. The king was expected to derive most of his revenue from his own personal fief ("the king must live on his own");

1. Given the logistical difficulties at the time, these contributions were often collected by "tax farmers," who owed a fixed amount to the King and might collect twice as much to obtain a tidy profit. The practice of tax farming would persist until the nineteenth century.

any tax beyond that must be agreed to by the subjects (“n’impose qui ne veult”). The most famous example is the Magna Carta granted by King John of England to his barons in 1215. Its clauses 14 and 61 stated that no tax could be raised without the consent of a Great Council in which we find the origin of Parliament. Much later this notion led, of course, to the American War of Independence, with the cry of “no taxation without representation.”

The tax systems did not change much until the Industrial Revolution. To obtain higher revenue, governments mostly multiplied taxes on specific goods (called excises) and custom duties, internal (between provinces) as well as external. The French Revolution had important consequences, however. In England and in other European countries, the need to finance the Napoleonic wars led governments to create the first modern income taxes. However, these taxes were abolished when peace returned. The increasing influence of liberal ideas on the virtues of free trade translated in the nineteenth century into a notable decrease in custom duties, which reduced tax revenue. To plug this hole, the English Prime Minister Robert Peel reestablished an income tax in 1842. The other countries followed suit, when the yearning for more equality and the need to finance the first elements of the welfare state became stronger. Thus the United States only created an income tax in 1913, after overcoming the constitutional objections of the Supreme Court. Until then federal tax revenues mostly came from custom duties and the so-called sin taxes on tobacco and alcohol.

The early income taxes were not very progressive: the English income tax was proportional to income, beyond a personal exemption. Only in 1909, after a homeric battle with the House of Lords, could the Chancellor of the Exchequer, Lloyd George, create a “surtax” for high incomes. However, the US income tax, which was created later than the English income tax, was progressive from the start. In fact before the First World War, governments only collected a small part of national income: less than 10 percent, or even less than 5 percent in the United States. Even as income taxes started growing, their rates were very small compared to today’s rates: the base rate was a few percentage points of income, and the top rate was everywhere below 15 percent. Given large personal exemptions,² only a small percentage of the population (about 2 percent in the United States) actually paid the income tax. The personal income

2. For instance, an American taxpayer only paid income tax in 1913 on the fraction of his income that exceeded five times the average income.

tax thus was a “class tax,” just as were the corporate income taxes that emerged in the same period.

Two main factors explain the large increases of tax revenue in the twentieth century: the two world wars and the emergence of the modern welfare state. During each world war, military expenditure reached or passed half of national income in the main warring countries. Some countries financed this explosion in public expenditure by borrowing, but most countries resorted to tax increases. Thus the top marginal rate of the income tax reached 77 percent in the United States in 1918. The Second World War transformed the income tax into a “mass tax” that touched more than half of all households, with the creation of pay-as-you-earn systems in the United Kingdom and the United States. In both countries the top marginal rate became confiscatory at the end of the War (at 94 percent in the United States and no less than 97.5 percent in the United Kingdom!).

One would expect tax rates to go back to normal after each war. As a matter of fact, tax rates did decrease in the 1920s. However, the strong increase of social expenditure took the lead in raising the tax take. The welfare state was born in the Prussia of Bismarck, with the creation of compulsory health insurance in 1883 and a pension system in 1889. Other countries followed suit in the first half of the twentieth century: unemployment benefits were created in the United Kingdom in 1911, in 1927 in Germany, in 1931 in France, and in 1936 in the United States; pension systems in 1909 in the United Kingdom and in 1935 in the United States. The famous Beveridge report consolidated the system in the United Kingdom after 1945. All these reforms contributed to an explosion of social expenditures that can be seen in the strong increase of the share of transfers in public expenditure in all of these countries over the last hundred years.

The value-added tax (VAT) was introduced in France in the 1950s. It has now become a central tool of tax policy in most developed countries, with the exception of the United States. It was institutionalized in the European Union by several directives in the 1970s.

In the 1980s there were spectacular fiscal reforms in several countries, especially in the United States and the United Kingdom after conservative governments came to power. The top marginal rate of the income tax in the United States was 70 percent at the end of the 1980s. It was reduced to 50 percent in 1981, then to 28 percent in 1986. In the United Kingdom, Mrs. Margaret Thatcher brought down the top marginal rate

from 83 percent³ to 40 percent. In both countries the rate of the corporate income tax was also lowered.⁴ The governments that succeeded President Ronald Reagan and Mrs Thatcher effected limited changes. In the United States, for instance, President Bill Clinton raised the top marginal rate to 39.6 percent and the Tax Relief Act of President George W. Bush lowered it to 35% in 2006.⁵ The main continental European countries adopted more modest reforms.

Current Tax Systems

The current tax systems are thus the product of a long evolution marked by historical accidents. Not surprisingly, these systems vary a lot across countries. Steinmo (1993) shows clearly, using the examples of the United States, the United Kingdom, and Sweden, how political systems condition the tax policy of states. There are nevertheless features that are common to large groups of countries.

First consider the developed countries. Table I.1 presents figures from OECD (2009) on the evolution of the share of taxes in GDP for the five largest rich economies,⁶ and for OECD as a whole. There are clearly large differences, with the United States and Japan in a low-tax group and France a high-tax country. Moreover these international differences tend to persist over time. The tax take is procyclical, so one should not make too much of its precise value in individual years. The table shows that on the whole the tax take increased in the 1970s, and that it has more or less stabilized since then.

Table I.2 breaks down tax revenue into its five main components in these five countries and in the OECD in 2007. The figures show the share of tax revenue from each particular tax. As for the column headings, PIT means personal income tax and CIT corporate income tax. "Social" contributions are typically payroll taxes that finance pensions, family benefits, unemployment benefits, and so forth. "Property" covers taxation of housing, other wealth, financial assets, as well as estate and gift taxation. Finally, consumption taxes comprise VAT and sales taxes, but also "specific" taxes such as excises on particular goods and custom duties.

3. Not including a surcharge of 15 percent on capital income, which took the marginal rate to 98 percent for some taxpayers.

4. In the United States the tax basis became more comprehensive at the same time, so that the final effect was an increase in corporate tax revenue.

5. The Bush tax cuts expire in 2011 and the top rate will then return to 39.6 percent if Congress does not enact new changes.

6. For Germany, read Western Germany until 1991, then reunified Germany.

Table I.1

Tax revenue as a percentage of GDP

	1970	1980	1990	2000	2007
United States	27.0	26.4	27.3	29.9	28.3
Japan	19.6	25.4	29.1	27.0	28.3
Germany	31.5	36.4	34.8	37.2	36.2
France	34.1	40.1	42.0	44.4	43.5
United Kingdom	36.7	34.8	35.5	36.4	36.1
OECD	27.5	30.9	33.7	36.0	35.8

Table I.2

Main components of tax revenue in 2007

	PIT	CIT	Social	Property	Consumption
United States	38.1	11.0	23.4	11.0	16.5
Japan	19.6	16.8	36.4	9.0	18.0
Germany	25.1	6.1	36.6	2.5	29.3
France	17.0	6.8	37.0	8.0	24.7
United Kingdom	30.1	9.4	18.4	12.6	29.2
OECD	25.3	10.8	25.2	5.6	30.9

The main tax revenue of OECD countries is the personal income tax, with a quarter of the tax take. Several countries have reduced the number of tax brackets and the corresponding tax rates in recent years, while others have made more modest changes. As a result the share of the personal income tax in OECD tax revenue has gone down slightly. More interestingly, its level varies a lot across countries: the United States relies on personal income tax twice as much as France and Japan.

Other differences in personal income tax laws persist, for instance, in accounting for differences in household composition. Most countries tax married a couples separately (as in the United Kingdom); taxation may also be joint as in France for married couples, or at choice by head of household as in the United States and Germany. The presence of children enables child credits to be used in the United Kingdom and the United States, while in France income splitting is used. Last, income tax is usually deducted directly from the paycheck (the pay-as-you-earn system).

Social contributions are the second largest source of revenue in the OECD, and the largest source by far are in France, Germany, and Japan.

The differences in social contribution levels across countries naturally reflect the varying degree to which life risks are socially insured. Social contributions are usually paid as a proportional tax on wages, sometimes under a ceiling as in the United States. That share of tax revenue has steadily increased, with the increase in social transfers. Social contributions represented only 18 percent of the tax revenue in the OECD in 1965.

The third largest revenue resource is consumption taxes. In the OECD two-thirds of this tax take comes from a “general” consumption tax—usually via a VAT; the United States uses a sales tax instead, with a lower tax yield. The share of consumption taxes in tax revenue has jumped from about 12 percent in 1965 to 18 percent in 2007. These taxes are the largest source of income in middle-income countries and in less developed countries. VAT often has several rates, with a reduced rate on necessities, and sometimes a zero rate (as in the United Kingdom).

In contrast, the share of excise taxes (specific taxes levied on the consumption of a certain goods, e.g., alcohol, tobacco, and gasoline) has largely declined over the last thirty years. Excise taxes were the main resource of governments until the nineteenth century, but they now constitute only 10 percent of total tax revenue in the OECD.

The other two tax resources (the corporate income tax and the property taxes) are usually classified as taxes on capital. The most striking feature of these two tax forms is that their share in tax revenue varies greatly across countries. The share of corporate income taxes in the total tax take was stable from 1970 to the mid-1990s and has risen since then; concealed within this is a small reduction in the tax rates and a recovery in the taxable basis (profits). In most countries the corporate income tax only applies to incorporated firms; the profits of other firms are taxed as part of the personal income of their owners. The computation of the corporate income tax liability of a firm follows a number of rules that concern capital gains, depreciation, provisions, and past losses, among other things. As a consequence the effective revenue of the tax may be higher in a country where its nominal rate is lower. The double taxation of dividends is another crucial difference across countries. In the classic system that is prevalent in the United States, dividends are taxed by the corporate income tax (as redistributed profits) and then by the personal income tax (as income of shareholders). Most countries have taken steps to forgo such double taxation, and the United States took measures toward this objective in 2003.

Property taxes are very diverse. Included among property taxes are wealth taxes, taxes on bequests, taxes on gifts *inter vivos*, taxes on capital gains, and taxes on land and housing. Variations are strong across countries. Surprisingly, the United Kingdom and the United States tax property more heavily than France and Germany.

To conclude this short survey of current tax systems, we should add that taxation varies even more across less developed countries. The tax take is much smaller there than in developed countries, at around 20 percent of GDP. Less developed countries lack efficient tax administration, and consequently their tax take comes from taxes that are easiest to collect. Indirect taxes constitute two-thirds of their resources, with custom duties bringing in one-third of the tax revenue.⁷ The personal income tax brings a much smaller share of tax revenue than in OECD countries, and taxes on capital are almost inexistent, given the difficulty to properly assess the taxable basis of these taxes.

Overview of the Book

In his classic book Musgrave (1959) distinguished among three main functions of government:

- Allocation, by which government provides public goods and remedies market failures
- Redistribution
- Stabilization, which covers macroeconomic interventions (including automatic stabilizers)

The study of stabilization can be found in any good macroeconomic textbook, so we will set that function aside and focus on the first two functions.

In the Arrow–Debreu model, the second fundamental welfare theorem shows that under some assumptions, every Pareto optimum can be decentralized as a competitive equilibrium of a private property economy where resources have been redistributed through lump-sum transfers.⁸ When this theorem applies, the government can choose its preferred Pareto optimum, proceed to the right lump-sum transfers, and

7. In contrast, tariffs today bring less than 1 percent of tax revenue in OECD countries, as compared to about 15 percent in the early twentieth century.

8. Recall that the defining property of lump-sum transfers is that they only depend on the identity of agents, and not on their economic transactions.

let the competitive equilibrium work its magic without any other kind of intervention.

In practice, we observe several phenomena that lead to market failures (e.g., see Salanié 2000). First come public goods: these are, by definition, nonrival goods that one agent can consume without reducing the consumption of other agents. Then the second theorem does not apply to public goods because technically their consumption does not add across agents. The optimal production level for the public good cannot be attained without an intervention of government. Moreover public goods must be financed, which raises the classic *free-rider* problem.

The presence of external effects also implies that the market cannot reach an optimum on its own; corrective taxes are one way to remedy this market failure (as with ecotaxes designed to reduce pollution).

Adam Smith already considered that government must provide three categories of public goods to his subjects: defense, justice, and public works; and additionally a private good subject to externalities: primary education.⁹ Even the most liberal thinkers¹⁰ (the so-called libertarians, whose viewpoint is well expressed by Nozick 1974) accept a “minimal state” that provides defense and justice; free-rider problems indeed make it impossible to leave these goods to the private sector.

In the (hypothetical) absence of market failure due to public goods or external effects, lump-sum transfers are very unlikely to be a practical consideration. Computing the optimal lump-sum transfers requires government to have an extraordinarily detailed information on the characteristics of the economy. While something like lump-sum taxes have been implemented from very early times, they were either undifferentiated or depended on certain economic transactions. Traditional capitation taxes are one example of undifferentiated taxes: a fixed sum is paid by each household, based on the composition of the household. Such taxes were the norm in early China, in ancient regime France, and in Muslim countries; they could be found in the United States until the 1960s. The *Community Charge* initiated in the United Kingdom under Mrs. Thatcher in 1989 is the most recent large-scale attempt to collect lump-sum taxes. The intent was to replace taxes on housing that depended on the estimated value of property with poll taxes that would vary across areas. Because taxpayers could move

9. However, he thought that higher education must be left to the private sector, with teachers paid on a performance basis (*horresco referens*).

10. I use here the word “liberal” in its classical, non-US politics sense.

between communities, the tax was not strictly lump sum, and there was a lower tax rate for poorer households. In any case, the poll tax project led to violent demonstrations in the spring of 1990; it was abandoned and contributed heavily to the later fall of Mrs. Thatcher.

In order to finance public goods—publicly provided private goods such as education and health—and to redistribute wealth, the government thus must use non-lump-sum transfers, which by definition depend on the decisions of private agents. As a consequence each taxpayer may reduce his tax bill by changing his behavior, and he will try to do so as long as the game is worth the effort. It is obviously important to be able to evaluate the incentive effects of taxes. Taxes create a bias between the marginal rates of substitution of various agents, which induces social welfare losses. Available studies show that such losses may amount to between 10 and 50 percent of tax revenue, which is considerable. These two themes constitute the first part of the book, which deals with positive economics.

The second part of this book adopts a resolutely normative stance. It should be clear by then that real-world taxes that are not lump sum reduce the efficiency of the economy. How is the government to choose an optimal tax system? We will see how this question can be modeled, and what partial answers can be given.

These two parts are mostly theoretical, even though empirical and institutional elements are introduced as needed. To show how economic policy questions can be studied in the light of the results obtained in the first two parts, we examine in a third and last part two current tax policy debates: low-income support and environmental taxation.

A warning is in order here. A positive study of taxation does not merely consist of the effects of taxation on economic decisions of private agents. The interested reader may want to go beyond the discussion in the first part of this book and model the way a community decides on its tax system. In the political economy of taxation much has developed in the last twenty years. To keep this book from expanding beyond a reasonable length, the political aspect of taxation will not be studied here. The reader will find references on the *public choice* approach in Hettich–Winer (1997). The book by Persson–Tabellini (2000) gathers different perspectives to give a very complete survey of modern political economy; chapters 6 and 12 of the Persson–Tabellini book are particularly oriented toward taxation issues.

Reading the present book requires the knowledge of microeconomics at the advanced undergraduate level. An appendix presents the main

results that are used in the text. Also, because the study of optimal taxation relies on the theory of optimal control which is often not part of the economics curricula, we give the necessary notions in another appendix.

References

- Hettich, W., and S. Winer.** 1997. The political economy of taxation. In D. Mueller, ed., *Perspectives on Public Choice*. Cambridge: Cambridge University Press, chapter 22.
- Musgrave, R.** 1959. *The Theory of Public Finance*, New York: McGraw Hill.
- Nozick, R.** 1974. *Anarchy, State and Utopia*. New York: Basic Books.
- OECD.** 2009. *Revenue Statistics 1965–2008*. Paris: OECD.
- Persson, T., and G. Tabellini.** 2000. *Political Economics*. Cambridge: MIT Press.
- Salanié, B.** 2000. *The Microeconomics of Market Failures*. Cambridge: MIT Press.
- Steinmo, S.** 1993. *Taxation and Democracy*. New Haven: Yale University Press.