
Part

8

**Public
Finance
and
Taxation**

Introduction to Public Finance

And it came to pass in those days, that there went out a decree from Caesar Augustus, that all the world should be taxed.

Luke, 2:1

Sources of Public Finance ♦ Basic Elements of a Tax System ♦ Tax Hypothecation ♦ Tax Avoidance and Evasion ♦ Evaluating Tax Systems

In this introduction to public finance we discuss five main topics. The first is the sources of public finance. Of these, easily the most important is taxation. Second, we discuss the basic elements of tax systems, namely tax bases, tax rate structures and tax units. Third, we discuss hypothecation, a process that earmarks certain tax revenues for specific expenditures. However, notwithstanding Benjamin Franklin's gloomy observation that "nothing in this world is certain except death and taxes", many people try to escape taxes in one way or another. Accordingly, we also briefly discuss tax avoidance and evasion. Finally, we discuss the core policy issue in public finance: how to evaluate and choose between alternative taxation systems. Consistent with our earlier discussions, we look for a tax system that is efficient and equitable. In this chapter, we discuss what this may mean. In the next chapters, we take up these and other issues in more detail.

Sources of Public Finance

Government can acquire control over resources in three main ways: by compulsory means, by market transactions of various kinds or in diverse other ways. The main instruments under each of these three headings are shown in Table 25.1.

Compulsory acquisition. This is the basis of public finance. Government can compulsorily acquire access over resources in various ways. For example, government can conscript labour. Many countries conscript labour for military service without paying market wages to the coerced labour. Australia did so in the Second World War and again for the war in Vietnam in the 1960s and early 1970s. Government can also compulsorily acquire physical resources such as minerals and land or their income flows. In Australia, government can acquire property for public purposes. However, under the Constitution, government must pay fair compensation, which limits its ability to finance expenditure by appropriating property.

Taxes are payments that are collected compulsorily from individuals or companies by government for which nothing is provided directly in return. Taxation in all its forms, including

Table 25.1 Sources of public finance

<i>Compulsory acquisition</i>	<i>Market transactions</i>	<i>Other sources of funds</i>
Labour conscription	Borrowing (market loans)	Sale or lease of assets
Taxation including royalties	User charges (competitive prices)	Sale of inventory
Social security contributions	Some fees for services	Bringing income forward
Printing money	Interest income on government loans	Deferring payment
User charges (single supplier prices)	Dividends from shareholdings	Taxing public enterprises
Fines and licence charges		Revenue from central bank

compulsory social insurance contributions, usually accounts for 80 per cent of all government revenue in OECD economies.

Contributions to national social security funds are generally compulsory levies on earned income. Where these are insurance schemes that provide benefits, such as retrenchment benefits, in relation to contributions made, they are different from taxes which contribute to general revenue. However, in some cases the compulsory nature of these levies combined with tenuous links between contributions and benefits make them similar to taxes.

Government can finance expenditure by printing money or equivalently by borrowing at zero interest from the central bank. This may appear to provide citizens with free public services! Alas, this is a mirage. Printing money to finance public services or income transfers increases nominal incomes and the demand for goods. However, unless there are substantial unemployed resources, this generally leads to inflation (depreciation of the currency) and a fall in the real value of savings. The **inflation tax** is the decline in the real value of savings held in fixed monetary assets, including bank balances and government bonds. Holders of these assets suffer a real capital loss. Given a strong relationship between printing money and inflation, between 1950 and 2007 few governments in developed countries resorted to printing money to finance their activities. However, the extraordinary events of the global financial crisis starting in late 2007 led several major economies to adopt a money printing strategy.^{1,2}

Other *de facto* forms of compulsory acquisition include user charges, fees and fines that government imposes as sole supplier of services where the various charges exceed the costs of service provision.

Market transactions. These are another source of government revenue. One such source is government borrowing in the market. Governments generally pay the rates of interest required by lenders. Debt finance spreads out costs over time and allows citizens to pay for services when they are provided. However, in so far as loan repayments and interest payments on the debt are funded from taxation, or at least backed by taxation, they are not wholly market driven (that is the government can generally borrow at relatively low rates).

Other forms of market income are user payments for publicly supplied goods in competitive markets, interest income on government loans and dividend payments on government equity in private companies. Dividends from publicly owned companies may also be viewed as market transactions. However, when government requires its trading enterprises to remit dividends above a normal return on capital, this is a disguised form of taxation.

Inflation tax
The effect of inflation on the value of an individual's monetary assets

¹ In exceptional circumstances of high unemployment and low aggregate demand, printing money can increase output without inflation. These issues are discussed further in Chapter 28.

² Some governments also adopted quantitative easing. This was the purchase of private debts with electronically created money. This is sometimes described as printing money although the object in this case was not to finance government expenditure.

Other sources of public revenue. Government can finance expenditure in various other ways. For example, it can draw on its cash reserves, sell financial assets, or lease or sell physical assets. When government finances capital expenditure by selling an asset, it alters the composition of its balance sheet (by exchanging one asset for another one) but it does not change the net worth of the public sector. However, if government sells assets to finance current expenditure it reduces its net assets and its future income.

Government may also improve its cash position by bringing income forward or by deferring payments. In 2000–01 the Australian government required most businesses to pay provisional tax on expected company income each quarter. This brought forward a large amount of company income tax payments. In effect, in one financial year the government collected two sets of company income tax from most companies. Alternatively, government may contract private firms to finance and supply public services, notably infrastructure, on a deferred payment basis. The government is effectively borrowing from the private sector to pay for current expenditure, but the debt may not show up in the government's current accounts. Of course, these 'financing methods' are accounting tricks rather than genuine sources of finance. Under a properly constructed set of accrual accounts, revenues and liabilities are accounted for when they are earned or incurred, not when they happen to be received or paid for. In the long run, taxes and user charges are the basis of government revenue (see Table 2.3 page 25).

Basic Elements of a Tax System

There are three basic components of a tax system. The tax base is the economic activity or item on which a tax is levied. The tax rate is the rate at which tax is levied on the tax base. The tax unit is the entity on which tax is levied.

Tax bases

The simplest tax base is a **head tax**, also called a **poll tax**. It is a lump sum tax levied generally on every adult citizen at the same rate regardless of income or expenditure.³ A head tax does not affect behaviour (unless it causes emigration) or resource allocation and has no deadweight loss. However, a head tax is widely viewed as inequitable because it bears no relationship to capacity to pay tax. In 1990 the UK government under Margaret Thatcher introduced a head tax (called a community charge) for people over 18 with only a few exemptions to finance local government. After a massive outcry against the tax the government repealed it in the following year.

In practice, the two main tax bases are **income** and **expenditure** (consumption). Each of these tax bases is a rough indicator of capacity to pay. Although conceptually distinct these tax bases are closely related. Income (Y) can be represented either by its two primary sources as income from labour (Y_L) plus income from capital (Y_K) or in terms of its disposition as consumption (C) plus saving (S).

$$Y = Y_L + Y_K = C + S \quad (25.1)$$

A general tax on income is a tax on income from all sources, including capital gains. It taxes income that is allocated to consumption and income allocated to savings. A tax on consumption exempts income allocated to savings.

Wealth is another tax base. A wealth tax is a tax on the value of capital assets. It may be applied to individuals or to corporations. A tax on personal wealth is a tax on the value of assets (such as property and equities) owned by an individual less any debt. This is a tax on an

³ Historically the head tax was sometimes applied to able-bodied adults or adults of a certain race or group or, in the United States, to people entitled to vote, hence the term poll tax.

individual's stock of net assets (K) as distinct from a tax on the flow of income from the assets (Y_K). Taxes on company assets, such as land taxes, are wealth taxes. Royalties (taxes on value of energy or mineral resources or on gross energy or mineral output) are another important form of wealth taxes. Taxes on the value of assets held by individuals or companies when they are sold, often described as stamp duties, are an indirect tax on wealth.

Direct and indirect taxes

Sometimes income taxes are described as direct taxes and consumption taxes as indirect taxes. A **direct tax** is a tax that is borne by the person or firm that pays it. An **indirect tax** is levied on one party but may be borne by another. Thus, a tax on a firm's product may be passed on to consumers in the form of higher prices. Also, firms pay and usually bear a proportion of payroll and social security taxes. However, if the supply of labour is inelastic, employees bear a large part of the costs in the form of lower wages (see Chapter 26).

General and partial taxes

More importantly, taxes can be general or partial. A **general tax** is levied uniformly on all components of a tax base with no exemptions or variations. A **partial** or **selective tax** is levied on only part of the tax base.

A general income tax is a tax on all forms of income from labour, capital and land. In practice, personal income tax is rarely completely general because some forms of income are tax-exempt or taxed at a concession rate. For example, imputed rent and bequests are rarely taxed and income from capital gains and retirement savings is often taxed at concession rates.⁴ Also, some taxes on income are selective. For example, payroll taxes are levied only on labour income.

The most general form of consumption tax is a total **expenditure tax**. This is a tax on annual income minus savings. It works like an income tax except that, to estimate the expenditure tax base, individuals would deduct savings from their income (or add dissaving). As shown in Chapter 32, this is equivalent to exempting the return from savings (interest, dividends and capital gains) from taxation. This avoids taxing savings twice as occurs with income tax. Despite support from some prominent economists, for example Kaldor and Meade, doubtless for practical reasons no country has adopted a comprehensive expenditure tax. However, some countries, including Australia, provide major tax concessions on income from savings, such as home ownership or superannuation funds, and have in effect a partial expenditure tax.

A **value-added tax** (VAT), which is called a goods and services tax (GST) in Australia, is potentially a general consumption tax. A VAT is a percentage tax on value added at each stage of production. In most applications, especially in competitive markets, VAT is passed on and borne eventually by consumers (see Chapter 32). In the United States, most states have a retail tax on goods and services, which has a similar effect. However, value-added or retail taxes are rarely applied generally. Most governments (including Australia) exempt health, education and some food and other expenditures, which together may account for over 40 per cent of total consumption. New Zealand, with relatively few exemptions, is a notable exception. Also, most countries impose selective excise taxes on specific commodities, such as alcohol, tobacco and fuel. Tariffs on imported goods are another selective tax on consumption.

Wealth taxes may also be general or selective. A general wealth tax is a tax on the assessed market value of all assets. Selective taxes are more common. They include taxes on the value of real estate, estate (death) duties and royalties.

Direct tax
A tax borne by the party that pays the tax

Indirect tax
A tax levied on one party that may be passed on to another party

⁴ Note that we are using here the comprehensive Haig–Simons definition of income (see Chapter 28).

Finally, two further points. First, some taxes do not fall neatly into one or other of these categories. For example, turnover taxes on gross sale income at various levels of activity may not be passed on and are hard to classify as income or consumption taxes. Taxes on use of durable goods, such as motor vehicles, and taxes on bank transactions may be regarded as taxes on consumption or on wealth.

Second, tax bases do not have fixed values. The value of a tax base varies with the tax rate. The higher the tax rate, the smaller the base is likely to be. For example, a high income tax rate is likely to reduce labour supply and therefore the income tax base. A high excise tax usually reduces purchases of the excised commodity and therefore the expenditure tax base.

Tax bases in OECD countries

Table 25.2 shows use of the major tax bases in OECD countries. Over the last 30 years, the income tax base, including payroll and social security contributions, accounted for a constant 61 per cent of tax revenues. However, personal income taxes fell from 30 per cent to 25 per cent of total tax revenues, whereas social security payments rose from 22 to 25 per cent of revenues. Also, corporate tax revenues increased from 8 per cent to 10 per cent of revenues. As shown later in Chapter 31, corporate profits have risen as a share of GDP over the last 25 years. On the other hand, corporate tax rates have fallen with increased tax competition between industrialised countries.

Among consumption taxes, the contribution of general consumption taxes has risen significantly with increased revenue from VAT in the European Union. On the other hand, there has been a relative decline in special consumption taxes, with large reductions in both specific excise taxes and import duties.

In 2009–10 Australia obtained 61 per cent of tax revenue from the income tax base. However, the composition of revenue is very different. Australia collects a high proportion of tax revenue in personal income tax and company tax. There are no social security levies.⁵ Australia collects less revenue from the general (GST) consumption tax but more from excise taxes and a range of other taxes including stamp duties on capital and financial transactions.

Table 25.2 Structure of taxation in OECD countries (per cent of total revenue)

Taxation revenue	OECD countries					Australia
	1975	1985	1995	2000	2008	2009-10
<i>Income tax base</i>						
Personal income taxes	30	30	27	25	25	38
Corporate income taxes	8	8	8	10	10	18
Social security contributions	22	22	25	24	25	0
Payroll taxes	1	1	1	1	1	5
Total	61	61	61	60	61	61
<i>Other tax bases</i>						
General consumption taxes	13	16	19	19	20	14
Specific consumption taxes	18	16	13	12	10	13
Property taxes	6	5	6	6	5	5
Other taxes	2	2	2	3	3	7

Sources: OECD (2010) *Revenue Statistics, 1965-2009* (Table C); Table 2.4 in Chapter 2 above.

⁵ However, in Australia employers are required to contribute to private retirement funds for their employees (see Chapter 23).

Tax rates

A **tax rate** is the ratio of tax collected during an accounting period to the tax base. Two ratios are particularly important. One is the **average tax rate** (ATR), which is the total tax paid divided by the relevant tax base:

$$\text{ATR} = \text{total tax paid} / \text{value of tax base} \quad (25.2)$$

The ATR is important for equity reasons.

The second important ratio is the **marginal tax rate** (MTR), which is the extra tax paid per additional dollar value of the tax base:

$$\text{MTR} = \Delta \text{ tax paid} / \Delta \text{ value of the tax base} \quad (25.3)$$

where Δ represents the change in the relevant variable. The MTR is important when considering the incentive and efficiency effects of taxation.

The **tax rate schedule (or structure)** is the complete set of tax rates in an economy. Tax rate structures are typically characterised as proportional, progressive or regressive. Each of these terms is defined in relation to the ATR.

- In a **proportional tax system**, the ATR is constant for all values of the tax base. In this case, the MTR is also constant at all values and equals the ATR.
- In a **progressive tax system**, the ATR rises as the tax base rises. In this system, the MTR is usually higher than the ATR though exceptions can be designed.
- In a **regressive tax system**, the ATR falls as the tax base rises. In this case the MTR is below the ATR. However, if the MTR is positive, high-income individuals still pay more tax than lower-income individuals even in a regressive system.

In most countries, the tax system in aggregate is progressive in varying degrees.

Tax units

The **tax unit** is the entity on which tax is levied. Most OECD countries, including Australia, treat individuals as the basic tax unit (OECD, 2001c). A few countries, including France, Germany and Switzerland, treat the family (or at least adult married couples) as the tax unit. Typically, this involves splitting the joint income into two equal parts.

If a country has a constant MTR (a flat tax system) an individual's tax liability does not depend on the choice of tax unit. However, in most countries the MTR rises with income. In this case the choice of tax unit affects marginal and average tax liability and can have significant efficiency and equity effects.

With progressive taxation and similar tax structures for individuals and families, the ATR and the total tax is lower for a couple assumed to have equal incomes than for two separate individuals with different individual incomes but the same total income. Also, taxed as a family unit the MTR of the high-income earner falls and the MTR of the low-income partner rises. With normal substitution effects, the high-income earner works more hours and the low-income earner works fewer hours than with individual taxation. The net effect may be efficient in that, for given combined work hours, the value of output may increase.

However, because the ATR falls with families where income is split evenly, in 1969 the United States introduced a higher tax structure for families. Consequently, as Stiglitz (2000) noted, when individuals with similar incomes get married, marriage increases the total tax liability of the couple and this may discourage marriage in these circumstances.

In terms of equity, there are grounds for treating the household as the tax unit. An individual with a dependent (or several dependants) has more needs than someone without dependants. As seen in Chapter 20, measures of need are generally based on household

Average tax rate

The total tax paid divided by the value of the relevant tax base

Marginal tax rate

The extra tax paid per additional dollar of the tax base

equivalent measures that allow for differences in household size and composition. On the other hand, Apps (2010) and other commentators strongly criticise family taxation on the grounds that this increases the MTR of the lower wage earner, discourages that earner (often female and with a relatively high labour supply elasticity) from working, and increases the deadweight loss (DWL) of taxation. It also increases the dependence of the lower income earner on their partner.

In practice, many countries adopt a dual (not entirely consistent) approach. They adopt the individual as the basic income tax unit but provide income tax deductions or credits based on family members. Furthermore, most welfare payments are based on the family unit. In effect, many aspects of tax-transfer systems are based more on the family than on the individual unit. This has happened to a considerable extent in recent years in Australia (see Chapter 23) despite the trend away from traditional and intact families based on marriage towards more informal households. Treating households as tax units raises considerable definitional and practical problems. Given these difficulties, it is unlikely that tax systems based on individual units will convert fully to taxation of family or household units.

Tax exemptions

When taxes are selective, parts of the tax base are taxed at a concession rate or exempt from any tax. For example, in Australia some forms of income (imputed rents and capital gains on owner-occupied housing and gifts and bequests) are not taxed. Some consumption goods, such as health care services and unprocessed food, do not attract a consumption tax.

In addition, many organisations providing goods or services of various kinds are not taxed. Most government-provided services are exempt from tax. Also, not-for-profit charities and religious organisations, mutual associations and private clubs are exempt from income tax, although they may be required to pay taxes on inputs. In Australia, most private schools and sporting clubs, including enterprises with multi-million dollar turnovers, are exempt from income tax. Some religious organisations run large commercial operations. For example, the tax-exempt the Seventh Day Adventist Church wholly owns the Sanitarium Health and Wellbeing Company, a business with a turnover of several hundreds of millions of dollars. Evidently religion provides earthly as well as heavenly benefits. Some of these issues are discussed further in Chapter 32.

Tax Hypothecation

A feature of most public finance is the separation of expenditure and revenue collection. When economists do cost–benefit studies, costs and benefits are linked and considered jointly. When government agencies make expenditure decisions, they need to know that the expenditure is authorised, but they generally have no regard for how this expenditure has been, or will be, financed. As Buchanan (1975) pointed out, when government expenditure and revenue decisions are made separately, the resulting choices are likely to be inefficient.

When government links tax revenue collection and expenditure, the taxes are described as ‘hypothecated’. **Hypothecation** means linking the revenues from a tax to a specified type of expenditure. Hypothecated taxes are also known as earmarked or dedicated taxes. Hypothecated taxes should be distinguished from user charges. A hypothecated tax does not give the payer any entitlement to a specific service.

Hypothecated taxes are common. Many countries have hypothecated social security charges. In the United States, the states raise about a quarter of their revenues from hypothecated taxes (Warren, 2004). The Australian government has raised several small hypothecated taxes, including an aircraft noise levy, a gun buy-back levy, a milk levy, a sugar levy and a flood damage levy. In each case the funds were used to compensate a group in society that was believed to have lost an entitlement or suffered exceptional damages. The

Tax hypothecation

Links the tax revenue from a tax to a specified kind of expenditure

Australian government also requires taxpayers to contribute a minimum of 9.5 per cent of wages to a pension fund, which is in effect a hypothecated levy. Most Australian states have hypothecated taxes to fund roads, urban fire brigades, rural bush fire services, and insurance protection.

Hypothecated taxes facilitate raising revenue if the revenue is perceived to be dedicated to a good cause. Further, if there is a tight link between expenditure and the revenue to fund it, it is easier to satisfy the classical (Wicksellian) test for the provision of public goods that the collective willingness to pay for a project or program should exceed or at least equal the cost.

However, there is often only a loose relationship between public expenditure and a hypothecated tax and the idea that hypothecated taxes introduce fiscal discipline is quite misleading. For example, the revenue from the Australian Medicare levy (1.5 per cent of taxable income for most taxpayers), which is nominally hypothecated to health care services, spills back into consolidated revenue and does not necessarily fund health care or affect the quantum or allocation of health expenditure. If the revenue from a hypothecated tax is less than the public expenditure that would occur in any case, the tax is in effect simply part of consolidated revenue. On the other hand, if the revenue from a hypothecated tax exceeds desired public expenditure on the linked good, resource allocation is distorted. Treasuries almost everywhere argue that all revenues should accrue to consolidated revenue where expenditure priorities can be established regardless of the source of the funds.

Tax Avoidance and Evasion

Individuals and firms commonly seek to minimise tax payments. Some do so legally and others illegally. In the economics literature tax avoidance is legal; tax evasion is not. Viewed broadly, **tax avoidance** is any change in behaviour that legally reduces tax liability. For example, this may mean making untaxed house renovations instead of doing taxed commercial work. Sometimes, tax avoidance is defined more narrowly in an accounting sense as ‘arranging one’s business affairs so that tax is not legally payable’ (Black, 2002). **Tax evasion** means not paying taxes that are legally due. It usually involves under-declaration of taxable income or exaggeration of expenses, or not even filing a tax return.

There are many forms of tax avoidance. In the broad use of the term, producing household goods rather than market goods is tax avoidance. In the narrower accounting use of the term, tax avoidance includes shifting income from a high-taxed category to a lower-taxed category and postponing taxes. Examples of income shifting in Australia include salary sacrifice (shifting earned income that would be taxed at a high marginal rate into a contribution to a retirement fund that is taxed at a lower rate), conducting business through a trust entity which can distribute profits to low-income beneficiaries rather than through a corporate entity, and shifting assets from a high-taxed family member to a low-taxed member. Tax can be postponed by not realising capital gains, because unrealised capital gains are rarely taxed. When there are significant differences between marginal tax rates for different individuals or kinds of income, the gains from tax avoidance can be very large.

Tax avoidance has three major efficiency costs. One is the distortion in economic behaviour. To reduce tax many individuals and firms adopt business practices and savings structures that have little or no productive value and that they would not adopt in the absence of the tax. The second major cost is the huge amount of highly skilled professional resources that are devoted to creating and maintaining tax-effective business and savings structures (see some estimates below). These uses of resources have little, if any, economic benefit to the community. Third, tax avoidance means that tax rates must be raised to collect given tax revenue with associated DWL. Tax avoidance also has significant implications for social equity.

Tax avoidance

Any change in behaviour that legally reduces tax liability

Tax evasion

Not paying tax that is legally due

Tax evasion is also common. Most often this involves under-reporting of income earned in the local black economy. It may also involve under-reporting of income earned from assets held in international tax-haven jurisdictions. The black economy is the sum of unreported commercial transactions that do not enter GDP. It includes legal and illegal activities, such as the sale of illegal drugs. Bajada (2001) estimated that unreported income averages 15 per cent of GDP in Australia. Overstatement of expenses, notably through paying excessive prices to related firms overseas in lower-tax jurisdictions, is another form of tax evasion. The US Internal Revenue Service estimates that taxpayers voluntarily pay only about 80 per cent of their actual income tax liability (Rosen and Gayer, 2014).

Like tax avoidance, tax evasion distorts the use of economic resources as untaxed activities displace more productive taxed activities. Tax evasion is also inconsistent with the principles of both vertical and horizontal equity (see below). For a detailed analysis of the positive and normative effects of tax avoidance and evasion, see Slemrod and Yitzhaki (2002).

Although tax avoidance and evasion are conceptually distinct, it may be hard to distinguish between them. Firms and individuals often employ expensive tax accountants to advise whether a given practice is tax avoidance or evasion, and even then the tax office may disagree. Court decisions in many countries have upheld the right of citizens to arrange their affairs to keep their tax payments as low as possible. However, Part IVA of the Australian *Income Tax Assessment Act* states that if tax reduction is the dominant motive of a business arrangement this will be construed as illegal and disallowed. Since many common and legally accepted business practices are designed wholly or very largely to minimise tax, this legislation is hard to interpret, but it provides some tax accountants with large mansions.

Evaluating Tax Systems

Revenue is collected for two main purposes: to pay for public goods and services and to redistribute income. Taxes may also be raised to correct externalities or for macroeconomic stabilisation objectives. However, we are not concerned with these latter aims here. If there were no redistributive objective, we could employ head taxes and there would be no deadweight loss. But because of the importance of redistribution, taxes vary across individuals and depend on their business activity. This means in turn that the taxes may distort economic activity. Therefore, the standard public finance question is ‘how should taxes be raised to meet government expenditure requirements and distributional objectives in the most efficient way?’

Traditionally public finance economists set criteria that a tax system should satisfy. The more fully the criteria are satisfied the better the tax system. Thus economists have generally considered that a good taxation system should meet four criteria. It should be fair, efficient, administratively simple (cost-effective) and politically responsible.⁶ Of course the tax system must also ensure revenue adequacy.

As Kaplow (2008) observed, there is no common denominator between these criteria or any principle of aggregation. In more formal analysis, the best tax system is the one that produces the highest level of social welfare as represented by a social welfare function. The two approaches are not inconsistent. The more formal analysis builds on the traditional analysis and incorporates the two key criteria (equity and efficiency) into an integrated social welfare criterion.

In this section we discuss the four criteria for a good tax system. Applications of these criteria and the development of more formal welfare evaluation criteria are discussed in the following chapters.

⁶ These four characteristics are similar to those suggested by Smith (1776) and Mill (1948). Keynesian macroeconomists might add that a tax system should be flexible so as to enable short-run macroeconomic management.

Taxation equity

Taxation equity is generally articulated in terms of the **ability-to-pay principle**. In the words of Adam Smith, ‘The subjects of every state ought to contribute to the support of government as nearly as possible in proportion to their respective abilities’.

In current language, the ability-to-pay principle is usually expressed in terms of horizontal and vertical equity. **Horizontal equity** requires that individuals in similar circumstances should be treated equally. This may be interpreted as saying that individuals with a similar productive capacity should pay the same amount of tax. **Vertical equity** is fairness in the treatment of individuals in different circumstances. Thus, vertical equity is generally interpreted as requiring individuals with greater economic capacity to pay more tax than individuals with lower capacity.

Although these equity principles appear clear, they require normative interpretation. How should capacity to pay tax be measured? When are individuals in similar circumstances? What circumstances matter? Individual abilities are not directly observable. As a practical matter, ability to pay must be based on an observable unit of measure. A common measure is an individual’s money income. However, as an indicator of capacity to pay this has several weaknesses. Suppose that two individuals, *A* and *B*, each earn \$40 000 per annum, but that *A* owns her house, while *B* rents her house. *A* would have a higher capacity to pay tax than *B* has. Or suppose that *A* is single and healthy while *B* has two dependent children and significant health care expenditures. Their nominal income would be a poor measure of their real income or welfare (and therefore of their capacity to pay) because they have different expenditure needs. Nor does income necessarily reflect an individual’s economic capacity. Individuals *A* and *B* may have equal ability to earn an income of \$40 000, but *A* may go surfing every morning and earn only \$20 000. Evidently her income would not reflect her economic capacity. These examples illustrate the difficulty of determining economic capacity and of identifying individuals in similar positions.

Similar problems arise with vertical equity. This principle implies that the ATR should rise with economic capacity. But this again requires a definition of economic capacity. Also, views may differ as to how much extra tax payment represents vertical equity. A possible principle would be that each individual should make an equal sacrifice for a publicly financed good. Suppose that *A* has an income of \$80 000 and *B* an income of \$40 000 and that *A* receives half the marginal utility from a dollar that *B* does. Assuming fixed labour supply, equality of sacrifice requires that *A* pay twice the marginal tax that *B* does. A tax of \$100 on *A* would impose the same burden on her as a tax of \$50 does on *B*. However, this is only one possible ethical approach. Some people may consider that *A* should pay more than double what *B* pays because she has a higher absolute utility than *B* has. Indeed, with a constant labour supply, the total utility sacrifice associated with taxation is minimised if tax is levied only on higher-income individuals. Views on how tax should vary with economic capacity or on how vertical equity should be achieved are ultimately normative issues that cannot be determined solely by economic science.⁷

The **benefit principle** is another equity principle. This principle states that individuals should pay for services in proportion to the benefits received. When a public agency provides services to a specific group of citizens, say property owners or a sporting club, it would seem fair that, unless members of this group were disadvantaged in some way, the beneficiaries should pay for those services and not be subsidised by other taxpayers. In such cases the benefit principle would override the ability-to-pay principle. However, the benefit principle cannot be applied to paying for pure public goods where individual benefits differ and are

Horizontal equity

Individuals in similar circumstances should be treated equally

Vertical equity

Individuals in dissimilar circumstances should be treated fairly

⁷ However, economic analysis can show the deadweight losses associated with changes in behaviour, for example changes in labour supply.

difficult to determine. Nor does the principle apply to the range of income transfers where the main objective is social welfare and ability to pay is the prime equity principle.

A related and important equity issue in public finance is **intergenerational equity**. When government invests in social or economic infrastructure it is providing services to future generations as well as to present taxpayers. Consistent with the benefit principle, it would be fair to borrow to finance part of these expenditures and to levy taxes on future generations to repay the loan. On the other hand, if pension and health schemes are unfunded pay-as-you-go schemes the current generation is effectively expecting that the next generation will fund their retirement and their health outlays.

Evidently, there are several equity principles for allocating the burden of taxation. Moreover, as we saw in Chapter 7, the **principle of fair deserts** suggests that people should be entitled to fair compensation for working to earn income. Much of the public policy debate is couched in terms of equity–efficiency trade-offs. But equity is not a well-defined single concept. Often trade-offs between various concepts of equity also need to be resolved.

Taxation efficiency

Ideally, taxes would not distort behaviour in competitive markets with no market failures. They would not divert labour or capital to less productive activities or consumption to less preferred goods. However, without acceptable lump sum taxes, some distortions are inevitable. As virtually all taxes distort economic activity, the aim of an efficient tax system is to raise taxes with the least misallocation of resources and hence with minimum DWL.

In perfectly competitive markets, factor payments and product price signals ensure production, consumption and product mix efficiency. In factor markets, wages equal the value of marginal product. In product markets, prices equal the marginal costs of production. Even when markets are competitive but not perfectly so, markets tend towards these equalities. On the other hand, most taxes create a wedge of some kind: between wages received and the market value of the marginal product or between product prices and marginal production costs or between the return on capital and the return on saving. These wedges change relative prices and alter the quantity and mix of goods produced and consumed.

Examples of distortions due to tax abound. Taxes on income reduce the return to work relative to the price of leisure. This is likely to reduce labour supply. Income taxes influence decisions on entry and exit from the labour force, the acceptance of welfare benefits instead of employment income and the kind of work undertaken. They also affect savings decisions because taxation of income from capital involves double taxation of income saved for future consumption relative to income consumed today. On the other hand, tax systems often discriminate in favour of some forms of savings such as owner-occupied housing and against others such as interest-bearing accounts, and thus affect investment decisions. Taxation of consumption often taxes some goods more than others and so affects the mix of goods consumed. Corporate tax structures may affect how businesses are organised (by incorporated or unincorporated forms) and how firms are financed (by debt or equity finance).

All such changes in behaviour represent changes from voluntary trading decisions. Aggregate welfare falls when individuals select less preferred production or consumption options. Given competitive markets, such distortions create a deadweight loss. A DWL is the excess of the total cost of a tax over the actual revenue paid.⁸ Methods of quantifying DWL are described in Chapter 27.

Of course, not all markets are competitive and there are many market failures. Thus, taxation can be used to correct externalities (Chapter 13). Corrective taxes can raise revenue and improve the allocation of resources. For example, fuel taxes are corrective taxes that raise a large amount of revenue and reduce market-induced air pollution and global warming.

⁸ In the US literature, a deadweight loss is often described as an “excess burden” where the tax is the basic burden.

Administration and compliance costs

Taxation involves the public costs of tax administration and the private costs of compliance with the tax system. The criterion of administrative simplicity requires that these costs be minimised.⁹

The costs of tax administration are the costs of designing, operating and changing the tax system. This is not simply a matter of collecting taxes. The costs of administering the tax system include the employment of many highly qualified people to deal with numerous disputed tax issues. Mikesell (1998) reports that expenditure by the US Internal Revenue Service equals 0.56 per cent of revenues collected. The administrative cost of the value-added tax in 12 OECD countries ranges from 0.32 to 1.09 per cent of collections. In Australia the estimated administration costs of the tax collecting authorities are about 1 per cent of revenue collected or 0.3 per cent of GDP (Freebairn, 2005).

Tax compliance costs are the costs of firms and individuals in dealing with the tax system. The costs include the costs of tax agents and other professional advisers as well as the time of internal staff and taxpayers taken in collecting and maintaining information for professional advisers and governments. These costs rise with the complexity of the tax rules, the number of tax rates, the variety of allowances or exemptions, the complexity of definitions, the supporting evidence required and so on. However, they are generally several times higher than public administrative costs. Sandford (1995) estimates that tax compliance costs equal about 2 per cent of GDP in New Zealand, the United Kingdom and the United States. In Australia, in 2008–09, 71 per cent of individual taxpayers employed a tax agent to assist with their tax return. Pope (1997) estimated that the cost of compliance with Commonwealth taxes was about 12 per cent of revenue collected. Including state taxes, Freebairn (2005) estimated that tax compliance costs are as high as 4 per cent of GDP in Australia. The introduction of the GST and the business activity statement in July 2000 increased compliance costs significantly for small and medium sized businesses.

Overall, expenditure on tax administration and compliance represents forgone consumption goods. For any given revenue target, these costs should be minimised.

Political responsibility

The criterion of political responsibility is normally interpreted as a requirement for transparent and certain taxation, rather than arbitrary and capricious taxes. This criterion is principally a statement of 'fair process'. Taxpayers should be able to plan their lives and businesses with certainty. However, the criterion also has efficiency implications. Countries with certain and transparent tax systems generally enjoy greater economic growth than countries with arbitrary and corrupt tax systems.

Conclusion: choosing a tax system

Choosing a tax system raises issues similar to other public policy choices. Equity and efficiency are critical issues, but administrative simplicity and political responsibility are also important.

The analysis is simplified if efficiency and equity can be considered separately. In some cases, one taxation instrument may achieve a given revenue target with less deadweight loss than another taxation instrument. In our analysis of tax efficiency in Chapter 27, we will look for Pareto improvements in the tax system. These are changes to the tax system that improve

⁹ The criterion of administrative simplicity can be viewed as an efficiency criterion. Adam Smith regarded administration costs as part of the excess burden of taxation that should be minimised. However, in modern texts administrative simplicity is usually distinguished from the efficiency criterion.

the welfare of one taxpayer without reducing the welfare of another one. In so far as these improvements can be found, efficiency can be separated from equity.

More commonly a change in the tax structure benefits one individual at a cost to another. The equity effects must be traded against the efficiency effects. If we have a formal social welfare function, which incorporates interpersonal impacts, a socially preferred tax structure can be found. The application of such techniques to derive an optimal tax structure is discussed in Chapter 28. This is a useful exercise in analysing tax choices.

However, there are two main problems with these social welfare functions. First, they require interpersonal comparisons of welfare and thus ethical judgements. They cannot be derived from objective or technical analysis. Second, they bear little relationship to the day-to-day thinking of policy makers. As a practical matter, economists have a potentially important role in calculating the equity and efficiency consequences of tax systems, in describing efficiency–equity trade-offs and in explaining them to policy makers. These explanations often influence policy making. But tax is a highly sensitive issue and numerous interest groups compete for the attention of politicians.

Summary

- Government can obtain revenue by appropriating resources, taxation, social security contributions, printing money, borrowing, user charges or sale of assets. Most methods involve some coercion of individuals or firms. Taxation is by far the major source of revenue.
- There are three basic concepts in taxation. The tax base is the economic activity or item on which a tax is levied. The tax rate is the rate at which tax is levied on the tax base. The tax unit is the unit on which tax is levied.
- The two main tax bases are income and expenditure (or consumption). In OECD countries, income taxes account for just over 60 per cent of tax revenues. Consumption taxes account for about one-third of revenues. Property taxes (a tax on wealth) account for most of the balance.
- The tax rate structure is the complete set of tax rates in an economy. Tax rate structures are described as progressive, proportional or regressive. The average tax rate rises, is constant or falls with these three structures respectively. A progressive structure is the most common form.
- Many people try to escape tax. Tax avoidance is the legal rearrangement of economic activities to minimise tax liabilities. Tax evasion is failing to pay legally due taxes.
- A good taxation system should have four main characteristics. It should be equitable, efficient, administratively simple and politically responsible. In more formal analysis, the best tax system is the system that maximises social welfare based on a formal social welfare function.
- There are many concepts of equity, including ability to pay, horizontal and vertical equity, the benefit principle of fairness and the just deserts principle. Some concepts are consistent with others. But some imply different tax policies.
- Most taxes distort voluntary exchanges and have a deadweight loss (or excess burden). An efficient tax system is one that creates the minimum deadweight loss. However, some taxes can raise revenue and correct market inefficiencies.
- In developing tax policies economists have an important role in calculating the equity and efficiency consequences of tax systems, in describing efficiency–equity trade-offs and in explaining them to policy makers.

Questions

1. Given that taxation is painful and almost always imposes economic costs, why does not the government simply print money to finance its activities?
2. Under what circumstances will the choice of the tax unit affect the amount of tax paid? Given a progressive tax structure, what efficiency and equity considerations arise in assessing whether the tax unit ought to be the individual or the family?
3. Australian tax law says that business arrangements made with the dominant purpose of reducing tax are a form of tax avoidance that is illegal and will be disallowed. What kind of difficulties may arise with this kind of legislation?
4. Politicians and voters often view tax hypothecation as desirable. On the other hand economists tend to view tax hypothecation as either superfluous or as inefficient. Explain why economists think like this. Do you agree with the economists or the politicians?
5. Consider a tax system where individuals face a constant marginal tax rate of 25 per cent for every dollar they earn that exceeds \$6000. Is this tax system an example of a proportional tax structure?
6. Consider an individual-based tax system which taxes income up to \$30 000 at 15 per cent, and income that exceeds this amount at 30 per cent. Amy earns a salary of \$45 000 and her husband Ben earns a salary of \$60 000. Calculate their individual tax liability. If the tax unit were the family, calculate the joint tax liability of Amy and Ben. Which system would minimise their tax liability? Assuming that the tax system imposed was the family unit, what equity and efficiency implications arise?
7. What are attributes of a fair tax system? What are some alternative views of equity? Do the different notions of equity involve some contradiction? If so, how is this dealt with?
8. What does it mean to say that a tax system is 'efficient'? When might the tax system fail to achieve its goal of efficiency? Does taxation always drive resources away from their best use?
9. What determines the amount of tax evasion? Does tax evasion create inefficient outcomes?
10. How much resources should be devoted to tax administration?

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