Economics and Public Finance

Lecture 8

Public Revenues: Theory and Practice – PART 2

Economics and Public Finance – This session outline

Chapter 3: Public revenues theory and practice

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3.2. Tax revenues and efficiency

3.2.1. Taxes and inefficiency: the excess burden of taxation

3.2.2. Taxes that do not create inefficiency *(lump sum* and *Pigouvian* taxes*)*

3.3 Tax revenues and equity

3.3.1. Horizontal and vertical equity

3.3.2. The ability to pay principle

3.3.3. The benefits principle

Economics and Public Finance – Readings

- Readings English:
- Stiglitz, J. Rosengard (2015). ***Economics of the Public Sector***, 4th ed. W. W. Norton Company, Inc. **Chapter 17 horizontal and vertical equity (**pp. 523-526) **chapter 18 Tax Incidence** (p.538-548) **, and Chapter 19** (pp. 574-584 deadweight loss)

Summary Book Chapter 7 (translation) of Pereira and Nunes **Economia e Finanças Publicas: da teoria à pratica. Almedina**

Readings Portuguese:

- Chapter 7 of Pereira et al. **Economia e Finanças Publicas (6ª edição, p.230-239. or 5ª edição, p. 221-229.)** and Chapter 7 of Pereira and Nunes **Economia e Finanças Publicas: da teoria à pratica. Almedina**

Economics and Public Finance – Core topics

- **Taxes and (In)efficiency.**
- Distorting and non-distorting taxes.
- Lump sum taxes.
- *Pigouvian* taxes.
- Horizontal and vertical equity.
  - The ability to pay principle.
  - The benefits principle.

EPF – Tax revenues and inefficiency

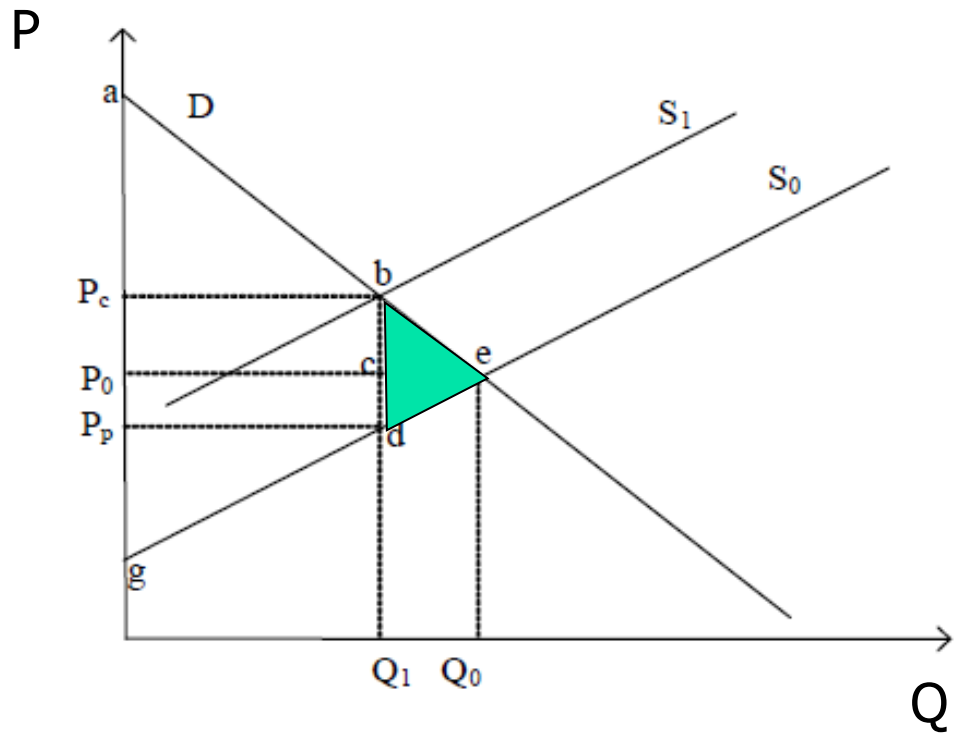
Almost all taxes generate inefficiencies

- **Excessive burden** can be defined as simply as **the loss of well-being *(inefficiency)* generated by taxes.**
- **Excessive burden** is approximately equal to the difference between the loss of global welfare (from consumers and producers) and the (tax) revenues collected as the result of tax.
  - Excessive burden of taxation also known as *deadweight loss* and it depends mainly on:
  - **Amount or level of the tax.**
  - **Elasticities** of demand* and supply.

** Note: recall that elasticities should be measured in the (compensated hicksian) demand function - that measures just the substitution effect of the tax - and not the normal (marshalian) demand function. However, if the income effect of the tax is very small the two functions almost overlap.*

Economics and Public Finance – Graphical analysis

- **General case: demand and supply elasticities are normal.**
- **Output: excessive burden shared between producers and consumers.**



$$EB = (1/2)\partial Q / \partial P$$
$$= (1/2)(Q_0 - Q_1)(P_c - P_p)$$

Qo: pre-tax equilibrium

Q1: after-tax equilibrium

Harberger triangle [bcde]

Economics and Public Finance – Taxes and efficiency (1)

- **But there are non-distorting taxes, that do not generate inefficiencies**

  - **A tax is said to be "non-distorting"** if and only if, (legally) there exists nothing economic agents can do to prevent or alter its economic impact.
  - This type of tax is called in the economics literature the ***lump sum tax*** or the fixed amount tax.
    - Example: a per *head tax.*
    - NOTE: Very seldom used in practice given their high regressivity.

Economics and Public Finance – Taxes and efficiency (2)

- **And there are intentionally distorting taxes that improve efficiency**

  - ***Pigouvian Taxes*** (used in the presence of externalities) *purposely* distort economic agents' choices in order to **improve** efficiency.
    - So, not only Pigouvian taxes do not create inefficiency,
      - Pigouvian taxes promote economy efficiency.
    - Example: imposing taxes on the consumption of alcoholic beverages ("*sin taxation").*

Economics and Public Finance – Taxes and (in)efficiency

i. **The effects on behaviour**

- choices regarding labour supply (example in the appendix), education and retirement,
- choices regarding savings, investments and risk taking,
- choices regarding family size and planning: marriage, divorce, partnership, parenting, number of children.

(Stiglitz, pp. 459-462)

ii. **The financial effects**

- *fringe benefits,*
- effects on the financial structure of companies.

(Stiglitz, pp. 459-462)

Economics and Public Finance – Fairness of the taxation system

- It is quite difficult to define accurately what is a ***fair taxation system***

  - Firstly, we have to consider there are **two different concepts** for the definition of equity:

    - **Horizontal equity,**
    - **Vertical equity.**

Economics and Public Finance – Fairness of the taxation system

- ***The definition of horizontal equity***

  - According to Stiglitz's (pp. 468, 3rd Ed, ….. 4rd Ed.)
    - *"Individuals who are alike or identical in all relevant respects, are treated the same."*
    - *"citizens who are alike or identical in all relevant respects, are treated the same." Pereira (6th ed. Economia e Finanças Públicas, forthcoming)*
  - **Complex issues:**
    - When can two individuals be considered "***identical in all relevant respects***"?
    - What does it mean "***to be treated the same***" for two individuals?

Economics and Public Finance – Fairness of the taxation system

- ***The definition of vertical equity***
  - According to Stiglitz's
    - *"Vertical equity says that some individuals are in a position to pay higher taxes than others, and that these individuals should do so."*
  - ***Why?***
    1. Because they have a greater ability to pay?
    2. Because they have more benefits?
    3. Because they have a greater well-being?

(*) We will address the first two stated principles in the following pages.

Economics and Public Finance – The ability to pay principle (1/3)

- **Definition**
  - "Taxes *should be distributed equitably amongst individuals according to their economic capacity.*"
  - **Implementation**
    - How do you determine the "ability to pay"?
    - What is the amount of tax to be levied on individuals with different "abilities to pay"?
      - What is the practical application given to concepts regarding the definition of vertical and horizontal equity?

Economics and Public Finance – The ability to pay principle (2/3)

- **Indicators** (of the ability to pay)

  - **Income** (“simple” or “equivalent”),
  - **Wealth and property,**
  - **Consumption.**

Economics and Public Finance – The ability to pay principle (3/3)

- *The most consensual indicator:* **Income**
  - in a comprehensive perspective, includes regular income and non recurring gains (such as, capital gains, lottery and gambling winnings,...).
  - takes into consideration specific factors, such as family size (for instance, the number of children) and relevant social costs (healthcare, education, housing,...).
- Key concept: **net economic ability**

EPF – The ability to pay principle in personal income tax

Gross income (*rendimento bruto*)

less

Costs of obtaining income

=

Net income (*rendimento líquido*)

less

Other deductible expenses to (net) income (*deduções ao rendimento liq.)*

=

Taxable Income (*rendimento colectável*)

x

Rates

=

Tax yield *(colecta)*

less

(other) deductions to tax yield (*deduções à colecta)*

=

Tax yield net of deductions *(imposto liquidado)*

Economics and Public Finance – The benefits principle (1/2)

- **Definition**

  - *"Taxes should be distributed amongst all individuals, depending on benefits received from public provision of goods and services."*

    - This principle is based on the **contractualism** notion of the state.

    - Taxes are considered some sort of "*shadow prices*" (or "pseudo-prices").

Economics and Public Finance – The benefits principle (2/2)

- **Advantages**
  - Connects the “applications” (size and structure of public expenditure) to the “sources” (tax revenues) and to the “burden" (the redistribution of the burden of taxation).
  - Provides greater efficiency and transparency in the provision of public goods.
  - Increases social endorsement of taxes.
- **Limitations**
  - In certain cases is impossible (pure public goods)
  - In other cases It would involve identifying the preferences of all individuals.
  - It would not accept any redistributive policies.

EPF – The ability to pay and benefit principle

- In theory we have the four different conditions, as shown in the table below.

	Ability to pay	Benefits
Horizontal **equity**	**1**	**3**
Vertical **equity**	**2**	**4**

- In practice, generally speaking, the implementation of **equity** policies by the **taxation system** is best done through the **ability to pay.**
- The logic behind the **benefit principle** rather applies to **fees and user charges**.

EPF – The potential conflict between efficiency and equity

- A tax that is good on efficiency grounds can be very bad on equity grounds (lump-sum tax, or a tax on subsistence goods: bread, milk, etc.) or vice-versa.

- Taxes on goods that have a rigid demand function, **are good for efficiency**, because there is almost no change in behavior to avoid the tax, but if they are consumed by low income people (low ability to pay), they are very **bad for equity** (according to equity as ability to pay).

EPF – Example: Taxes and Labour Supply

- Individual has utility over labor supply l and consumption c, increasing in c and decreasing in l [less free time]

$$\max_{c,l} u(c,l) \text{ subject to } c = wl + R$$

With $w = \overline{w}(1-\tau)$ net-of-tax wage, R non-labour income

- Tax rate τ discourages work through substitution effects (work pays less at the margin)
- Tax rate τ encourages work through income effects (taxes make you poorer and hence in more need of income)
- Net effect ambiguous (see next slide for example with reduction in τ)

EPF – Example: Taxes and Labour Supply

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