

Lecture 6

Public Expenditures Theory and Practice – Part 3

Expenditure and Equity: Income Redistribution and Equality of Opportunity

Chapter 2: Public expenditure theory and practice

2.3. Expenditure and equity: income redistribution and equality of opportunity

2.3.1. Social optimality and the utility possibilities frontier (UPF)

2.3.2. The social welfare function (SWF): Utilitarianism and Rawlsianism

2.3.3. The optimal distribution of income

2.3.4. Merit Goods

2.3.5. The conflict efficiency vs. equity

Economics and Public Finance – Readings

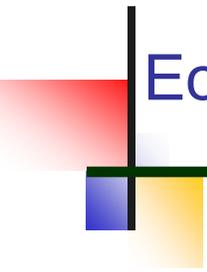
- Readings English:

Stiglitz, J. Rosengard (2015). *Economics of the Public Sector*, 4th ed. W. W. Norton Company, Inc. **chapter 7** Efficiency and Equity, p163-172 and 188-190

Summary Book Chapter 3 (translation) of Pereira and Nunes **Economia e Finanças Publicas: da teoria à pratica. Almedina**

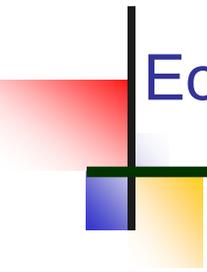
Readings Portuguese:

- Chapter 3 of Pereira et al. **Economia e Finanças Publicas (6^a edição, p. 71-88. or 5^a edição, p. 68-84.)**
- and Chapter 3 of Pereira and Nunes **Economia e Finanças Publicas: da teoria à pratica. Almedina**



Economics and Public Finance – Topics to discuss

- How do economists formalize their ethical judgements concerning social welfare and justice?
- How do economists deal with policies that involve a tradeoff between efficiency and equity?
 - Are there always tradeoffs between efficiency and equity?
 - What policies do governments have to promote social welfare?



Economics and Public Finance – Core topics

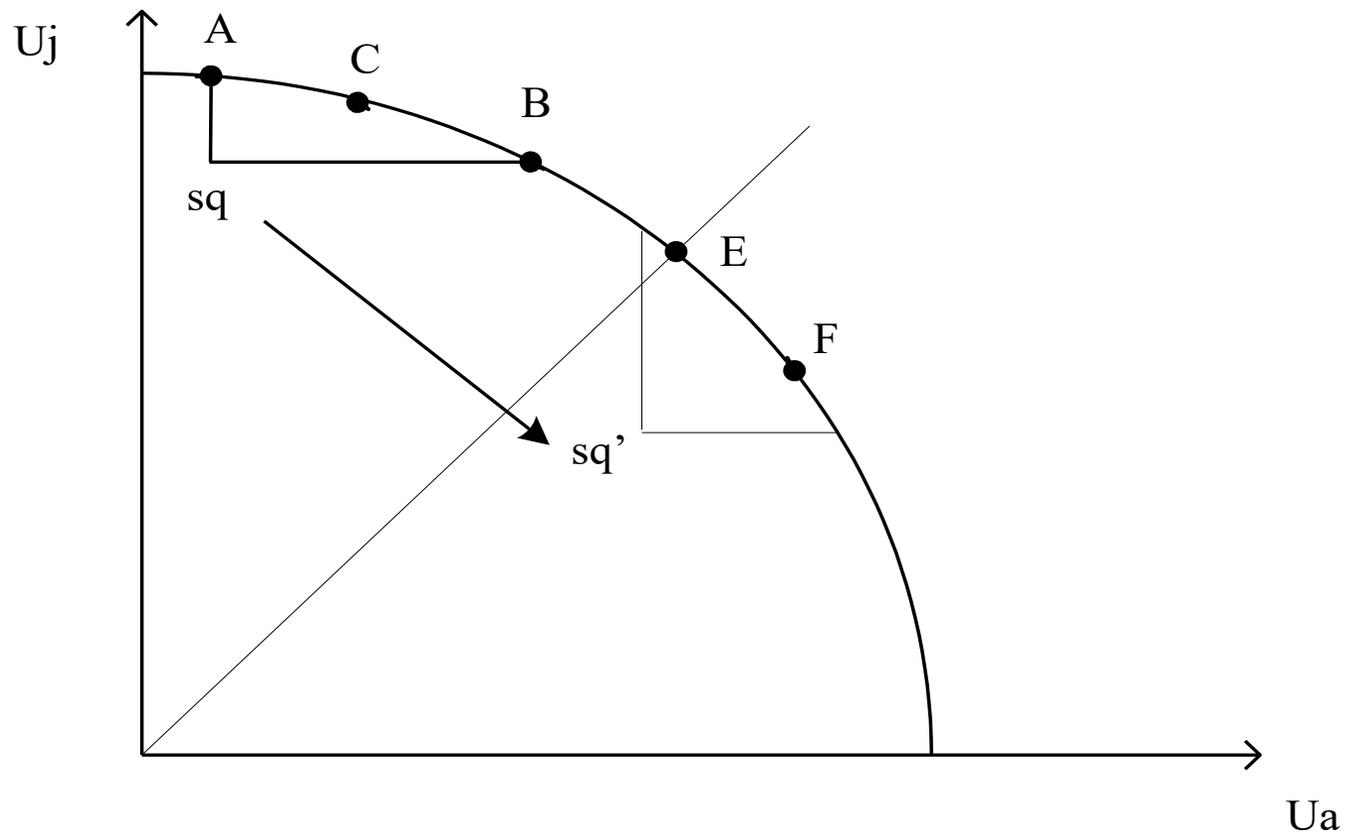
- The utility possibilities frontier (UPF)
- The social optimality
- The social welfare function (SWF):
 - The Utilitarian SWF and social indifference curves
 - The Rawlsian SWF and social indifference curves
- The Utilitarian and Rawlsian optimal distribution of income
- Merit Goods
- The conflict efficiency vs equity

EPF – The utility possibilities frontier (UPF)

- **Definition:**
- The *utility possibilities frontier* (UPF) represents the maximum level of utility (or well-being) that can be obtained by an individual (or group of individuals) given the levels of well-being attained by other individuals (or other groups).
 - The UPF matches all ***optimal states*** (or Pareto efficient states) attainable through competitive markets under ideal conditions* (**the second fundamental theorem of welfare economy**) (*).
 - * the ideal conditions are: only private goods, no externalities, symmetric information, convex utility functions,...

Economics and Public Finance – Graphical analysis

The utility possibilities frontier (UPF)



Economics and Public Finance – The social optimality

- **Definition:**

- **Social optimality** is the “**social state**” which, besides being **Pareto efficient** (on the UPF), **maximises the welfare of society** (*it can be perceived as the most optimal or just, social state*).
 - The selection of **social optimality** requires *interpersonal comparisons of utility and ethical value judgments about fairness or social justice*,
 - *which can be reflected by the social welfare function (SWF).*
- **Social optimality** is given by the maximization of a *social welfare function (SWF)* under resource constraints.

Economics and Public Finance – The social welfare function

Definition of Social Welfare Function (SWF):

- The *SWF* incorporates what is understood as the “social welfare” which is defined as **an exclusive function of the levels of well-being of the individuals** (or groups of individuals) in society.
 - **The Utilitarianism SWF**
 - Social welfare is given by the non-weighted **sum** of all individual levels of utility. ($SW_r = U_1 + U_2 + \dots + U_n$)
 - **The Rawlsianism SWF**
 - Social welfare is measured in terms of the level of utility of the **worst-off** members of society. ($SW_r = \min\{U_1, U_2, \dots, U_n\}$)
 - **Note:** We can derive the **social indifference curves** associated with each SWF: Utilitarians (lines with slope -1); Rawlsian (L shaped lines). Why?...
 - A social indifference curves (SIC), shows combinations of levels of welfare among individuals, for which society is indifferent. The further the origin the greater social welfare

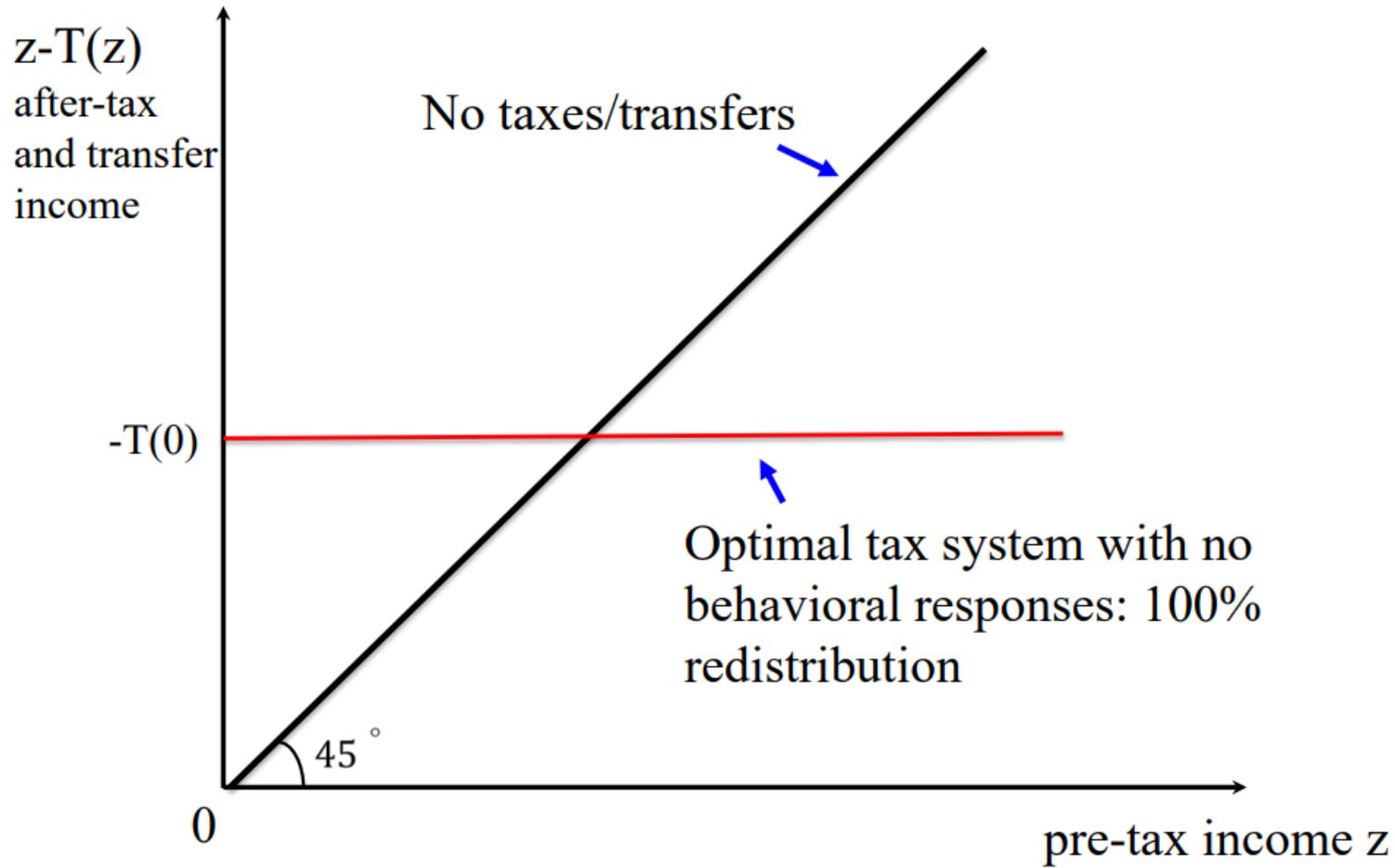
EPF – The optimal distribution of income

- **Which income distribution maximizes social welfare according to the two ethical approaches?**
- **Hypothesis for the analysis:**
 - No redistribution costs,
 - Welfare only depends of income,
 - Decreasing marginal utility of income,
 - The ability of individuals to transform income into welfare can be different (different utility functions).

EPF – Social optimality and optimal income distribution - utilitarianism

- Utilitarian social optimality is the allocation of resources that maximizes the sum of the individual levels of utility.
- The optimal income distribution equals the marginal utilities of all individuals.
 - ***Individuals with equal utility functions:*** the maximization of social welfare corresponds perfect equalization of after-tax income (Mathematical derivation with 2 individuals in the [appendix](#))
 - ***Individuals with different utility functions:*** in general the maximization of social welfare corresponds to different levels of income (see figure in slide 14).

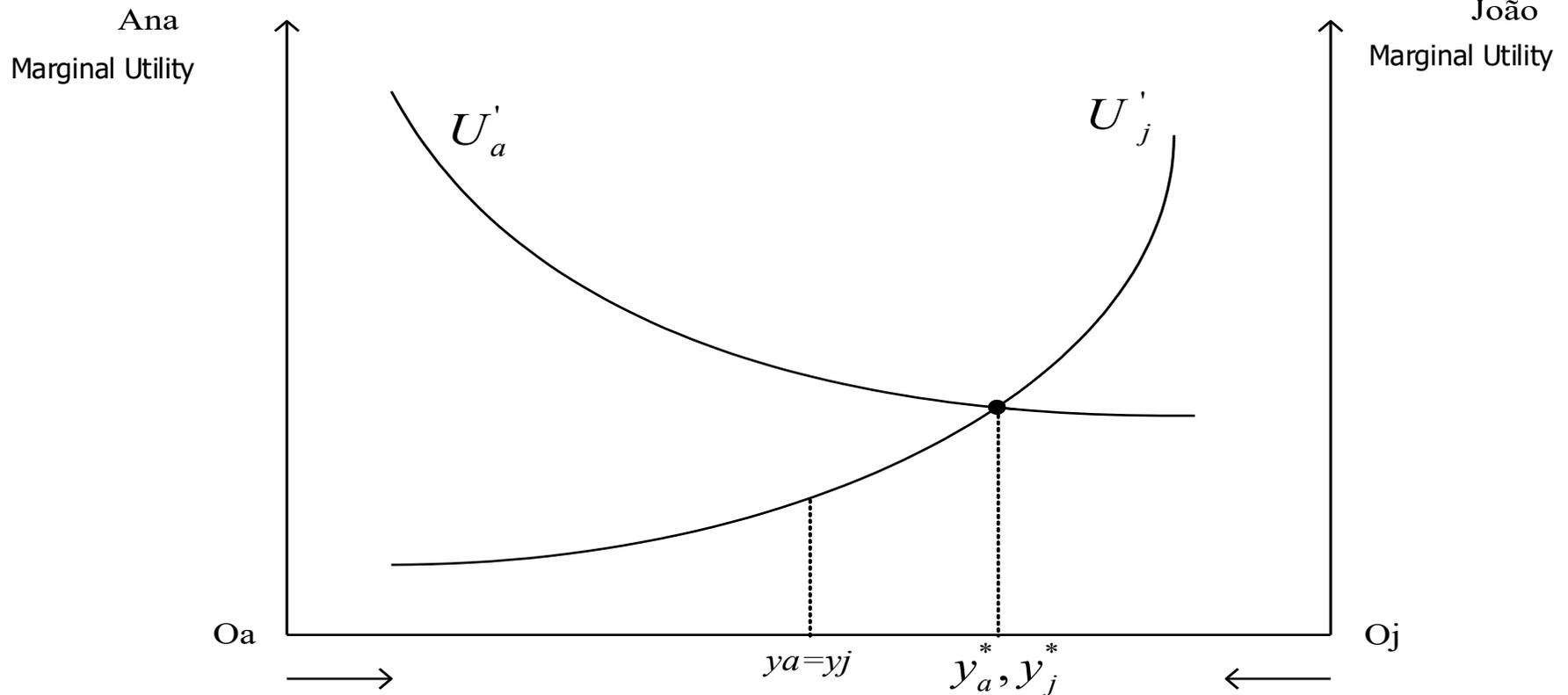
EPF – Social optimality and optimal income distribution - utilitarianism



Economics and Public Finance – Graphic analysis

The Utilitarian optimal distribution of income with different utility functions

(with no redistribution costs)

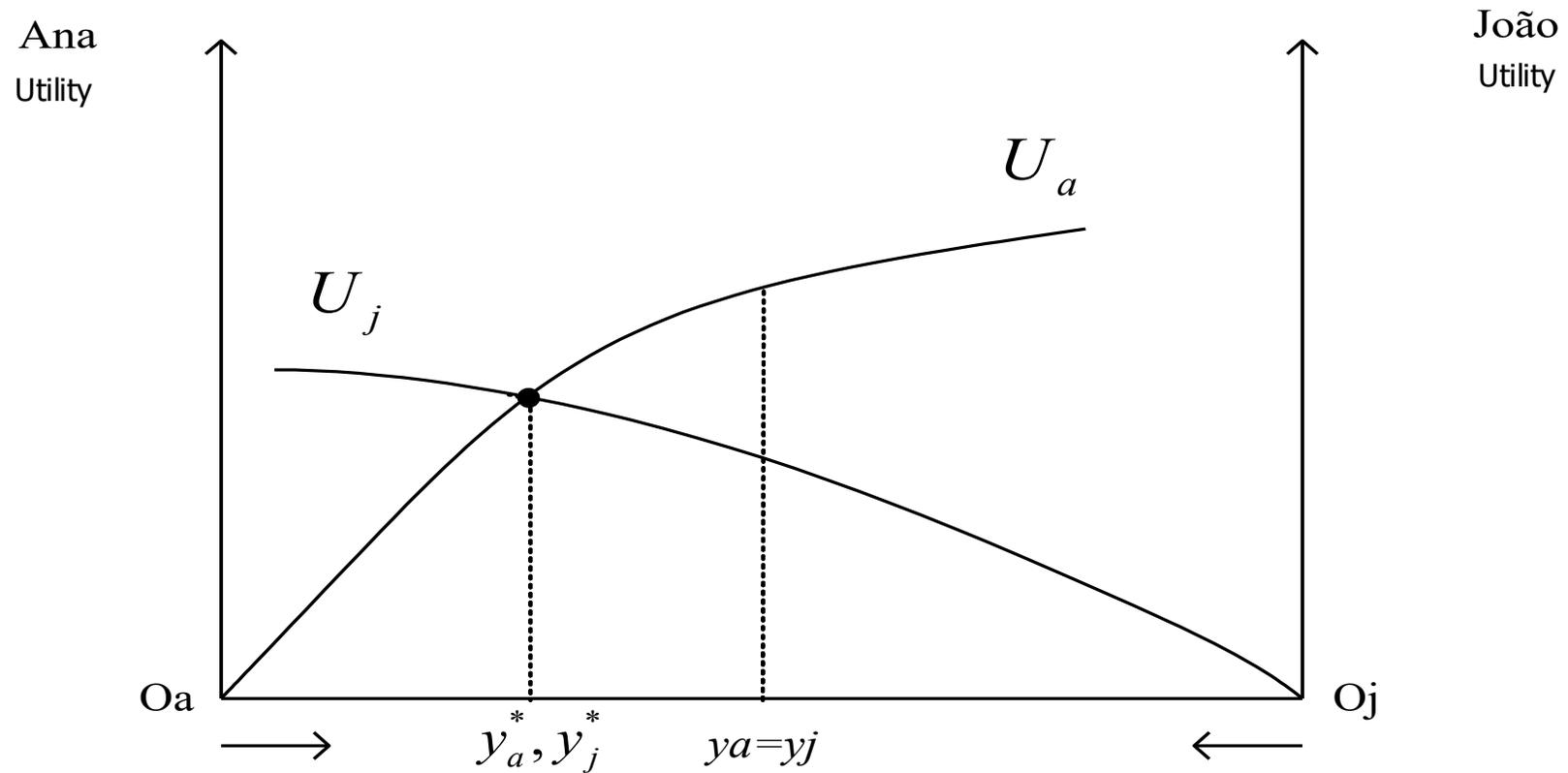


EPF – Optimal distribution of income

- The **Rawlsian** optimal distribution of income is the resource allocation that maximizes the welfare of those who are worst off in society.
 - for the **particular case (i)** of *identical individuals (identical utility functions) and no redistribution costs*, **Social optimality** represents a fully **egalitarian situation of utility and income**.
 - for the **particular case (ii)** of *different individuals (different utility functions) and no redistribution costs*, **Social optimality** represents an **egalitarian situation of utility but with unequal income** (see slide 16). The individual less able to transform income in utility should have a greater income (João)
 - **In both situations optimal (rawlsian) income distribution equalizes individual utility levels** for all individuals, assuming there are no costs of redistribution.
 - *Note: if there are redistribution costs (trade off between efficiency and equity) the conclusions change. (See figure in the next slide)*

Economics and Public Finance – Graphic analysis

The Rawlsian optimal distribution of income (no costs of redistribution)

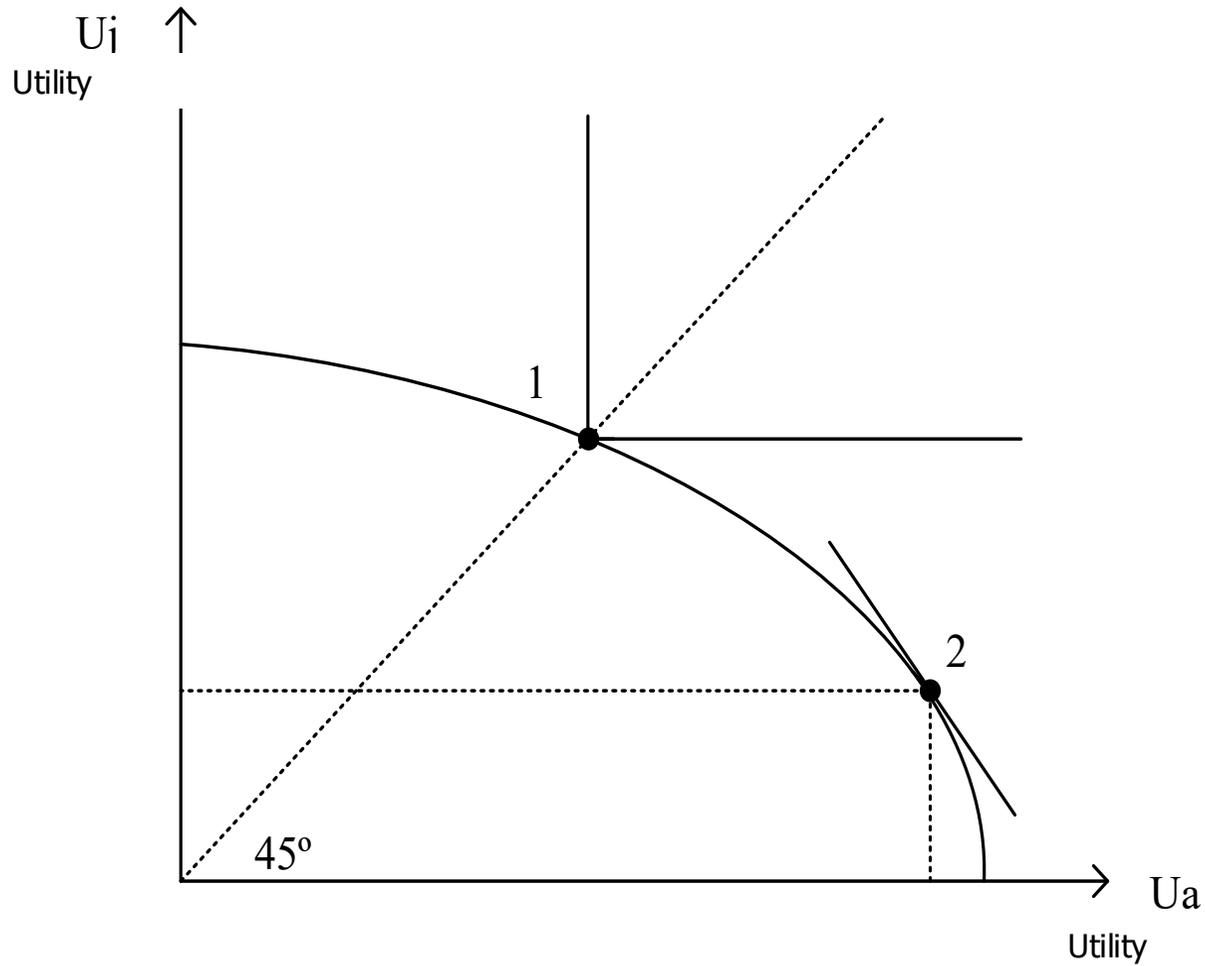


EPF – Social optimality and different ethical concepts

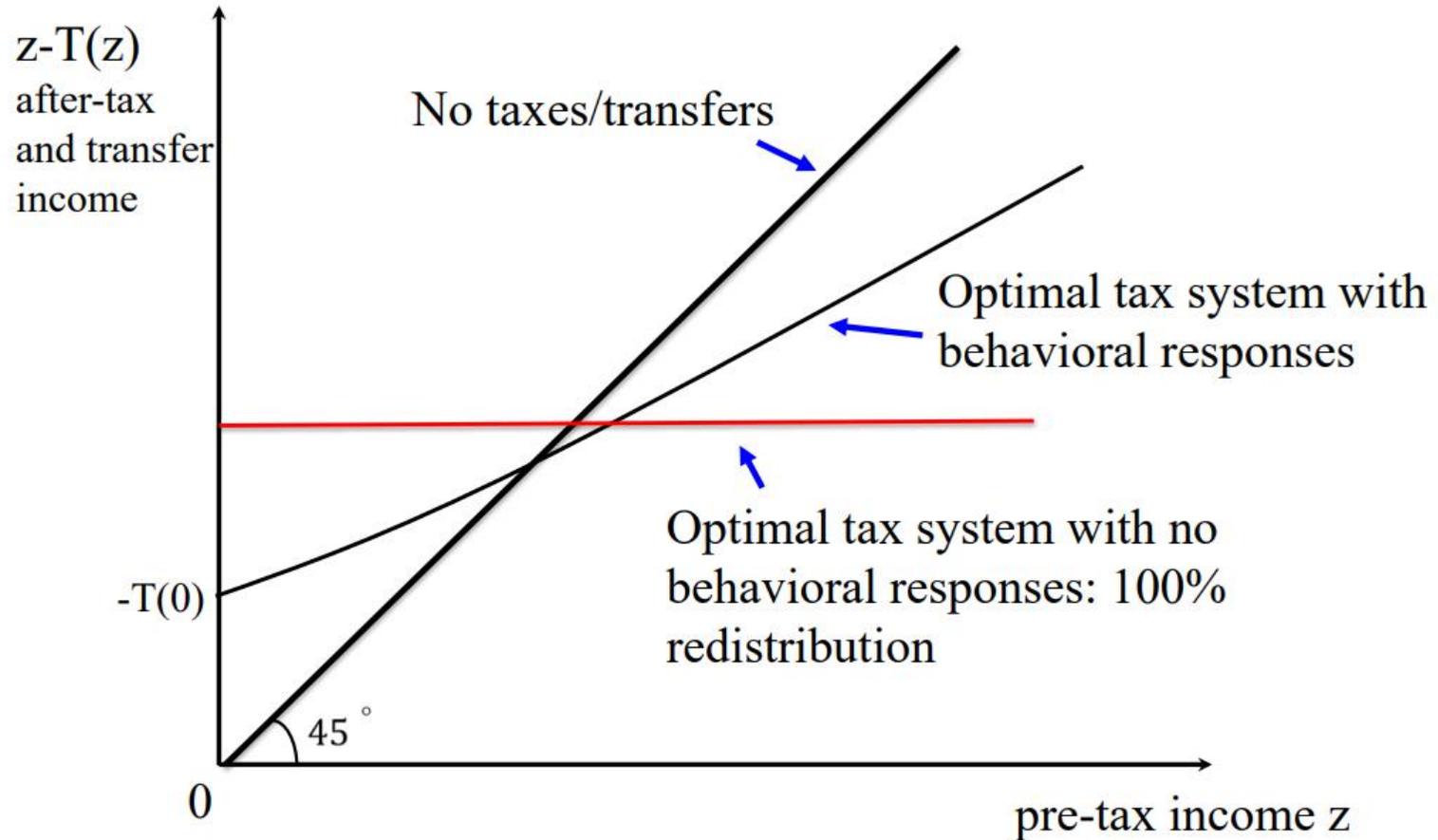
The two concepts can be summarised using the terminology of UPF and social indifference curves with different individuals

- **Figure** (*next slide*)
 - **social optimality, utilitarianism (point 2),**
 - **social optimality, rawlsianism (point 1).**

Economics and Public Finance – Social optimality



What if we assume there are behavioural responses to taxes?



Economics and Public Finance – Merit goods (1/2)

- **Definition of merit goods:**
 - The goods or services, as expressed in the Constitution, that a democratic society decides that **all individuals should enjoy regardless of their preferences or income.**
 - Examples: health, basic education, rights, liberties and guarantees
 - Merit goods can also be described as **primary goods** (Rawls).
 - Stiglitz pp. 87 “goods that the government compels individuals to consume”.

Economics and Public Finance – Merit goods (2/2)

- **Public provision of merit goods**
 - The **access** to these goods shall be free or close to **free (public provision)**.
 - In a dynamic perspective, a solid provision of these goods is vital to the individual productivity and also for the overall economic growth of the country.
 - In reality, the level and quality of the provision of these goods depends on the political process.

EPF – Potential conflicts between efficiency and equity

- **Potential conflicts between efficiency and equity are not unavoidable**
 - If public resources are misused, gains of efficiency and effectiveness can still be achieved without any equity losses.
 - However, measures to increase the welfare of the underprivileged usually experience a diminishing efficiency.
- **Two examples:**
 - The costs of redistribution and the over-consumption of private goods.

Economics and Public Finance – The costs of redistribution

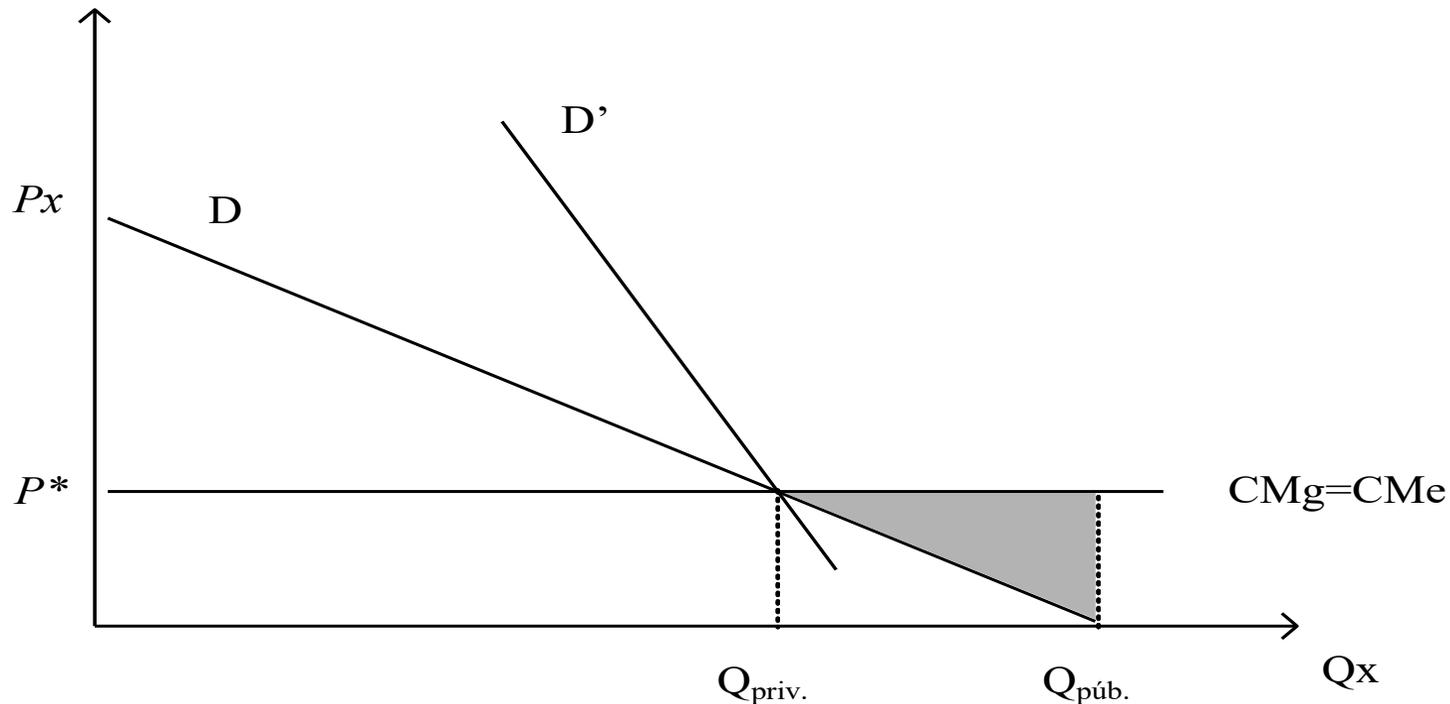
- **Definition:**
- The costs of redistribution are those associated with the pursuit of **equity goals**, either by means of ***redistributive policies or public provision of private goods***.
 - Direct costs: fiscal administration (tax) and social security administration.
 - Indirect costs: distortions in the behaviour of economic agents (inefficiencies).

EPF – Potential conflicts between efficiency and equity

- **Public provision of private goods**
 - There are losses of efficiency whenever to achieve equity goals the state ensures the *public provision of private goods or mixed goods*.
 - either **free of charge** or at **symbolic prices well below the actual** (marginal or average) **costs**.
 - Examples (*): free basic water, public transportation highly subsidized, etc.

Economics and Public Finance – Graphical analysis

Public provision of private goods (over-consumption): the provision of free basic water



The greater the elasticity of demand the greater the inefficiency of public provision.

Economics and Public Finance – Equity

<i>Type of objective in promoting social justice</i>	<i>Type of public intervention (whenever possible)</i>	<i>Examples</i>
Promoting equal opportunities	Public expenditure in merit goods	Public provision of basic schooling Public provision of basic healthcare services
Reducing inequality in the distribution of income	Taxation and expenditure in social benefits	Progressive taxation on personal income tax (“IRS”) Redistributive pension scheme in Social Security
Decreasing individual risk by risk sharing	Expenditure in social benefits	Unemployment, sickness, disability and incapacity benefits

APPENDIX: Social optimality and optimal income distribution - utilitarianism

Consider two agents with equal increasing and concave utility functions with consumption $c = z - T(z)$, where $T(z)$ is tax/transfer on income z :

$$\begin{aligned} \max_{\{T_1, T_2\}} SWF &= u(z_1 - T_1) + u(z_2 - T_2) \\ \text{s. t. } T_1 + T_2 &= 0 \end{aligned}$$

Replace $T_1 = -T_2$ in the SWF using the budget constraint:

$$\max_{\{T_2\}} SWF = u(z_1 + T_2) + u(z_2 - T_2)$$

First order condition (FOC) with respect to T_2 :

$$0 = \frac{dSWF}{dT_2} = u'(z_1 + T_2) - u'(z_2 - T_2) \Rightarrow$$

$$u'(z_1 - T_1) - u'(z_2 - T_2) = 0 \Rightarrow u'(z_1 - T_1) = u'(z_2 - T_2)$$

Perfect equalisation of after-tax income (100% tax rate and redistribution)

[Back](#)