

Property Rights and Power: Efficiency and Equity

ECONOMICS

Dr. Kumar Aniket

UCL

Lecture 5

CONTEXT

- Unit 1* The *capitalist economy* provided incentives and opportunities for *technological innovation*, and gains from specialisation. Markets (if they work) may channel individual self-interest to achieve mutual benefits.
- Unit 2* *Malthusian model* of a vicious circle, in which population growth offset temporary gains in income, could explain stagnation in living standards for centuries before the Industrial Revolution, until the permanent *technological revolution* allowed an escape due to persistent improvements in *productivity*.
- Unit 3* Understand why working hours have fallen in developed countries over the last century. An increase in *productivity* increases *wages* and provides both an incentive to work longer hours and a desire to consume more leisure from higher capacity to earn.

CONTEXT

Unit 4 When *social interaction is strategic*, the *rules of game* matter for social outcomes and self interest may not deliver mutual benefit. When social interaction is strategic, markets fail as in the case of providing a *public good*. Governments or self-governance within communities can play a role in *influencing the rules of the game* and over-coming the social dilemmas.

Unit 5 What is *efficiency*?
What is *equity*?
How does *efficiency* and *equity* help us evaluate *outcomes* that are realised in society?

GLOSSARY

institution laws & informal rules that regulate social interactions among people & between people & the biosphere. It is sometimes also defined as the *rules of the game* that people play amongst themselves.

power a person's ability to obtain things from other people in opposition to their intentions by imposing or threatening sanctions.

*reservation
option*

A person's next best alternative among all options in *a particular transaction*.

economic rent

A payment or benefit received above & beyond what the individual would have received in his or her next best alternative or *reservation option*.

joint surplus

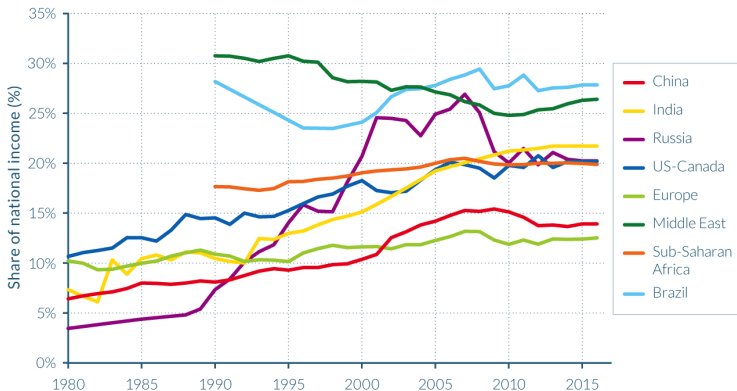
The sum of the *economic rents* of all involved in an interaction.

*bargaining
power*

The extent of a person's advantage in securing a larger share of the *economic rents* made possible by an interaction.

INEQUALITY: TOP 1%

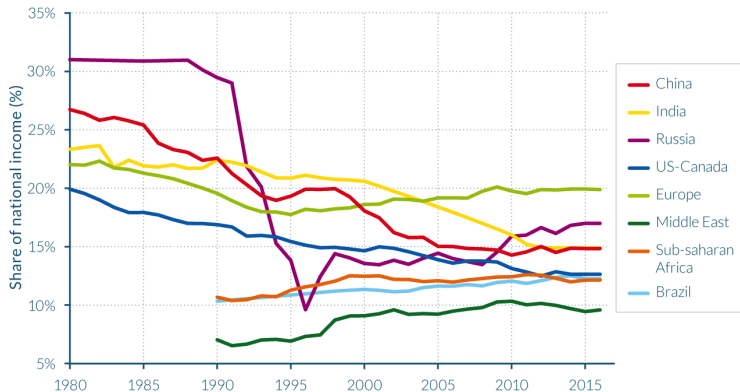
Share of national income earned by the top 1% people (income-wise) in various countries from 1980 to 2016



Source: WID.world (2017). See wir2018.wid.world/methodology.html for data series and notes.

INEQUALITY: BOTTOM 50%

Share of national income earned by the bottom 50% of people (income-wise) in various countries from 1980 to 2016



Source: WID.world (2017). See wir2018.wid.world/methodology.html for data series and notes.

KEY QUESTIONS

What is equity?

...or what is inequity?

What is efficiency?

*Can they be measured **objectively** or need to be assessed **subjectively**?*

... consensus on subjective assessment
criteria is difficult to achieve

EFFICIENCY

Pareto Efficiency:

*“you can’t make anyone better off
without making anyone worse off”*

In practice:

Production: maximum production given inputs and ideas.

“No stone left unturned”

Exchange: makes the best exchange possible.

“No wastage”

EQUITY

What is *fair*?

“subjective” versus “objective”

Allocations can be considered unfair for two reasons:

Inequality of *outcome*

Wealth, well-being

Inequality of *process*

Opportunities

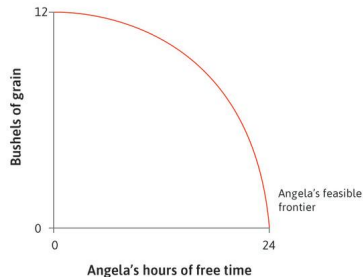
Rawls' veil of ignorance: Taking an impartial perspective

ANGELA THE FARMER

Angela faces a tradeoff
between grain and free time.

Initially, she farms the land by
herself and keeps all the grain.

Optimal allocation is where
marginal rate of substitution
equals marginal rate of
transformation

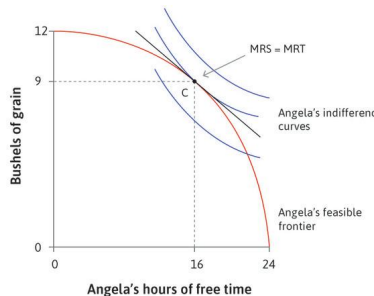


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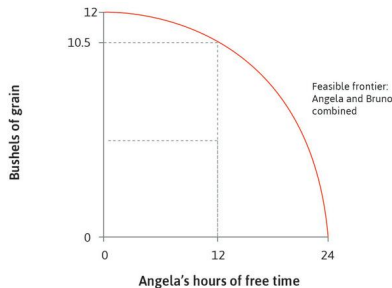
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BRUNO

Bruno does not produce any grains, but he wants some of Angela's grain.

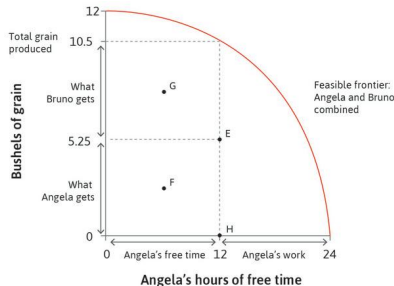
The combined feasible set shows all possible allocations of production between two parties.



BRUNO

Bruno is not a farmer, but wants some of Angela's grain.

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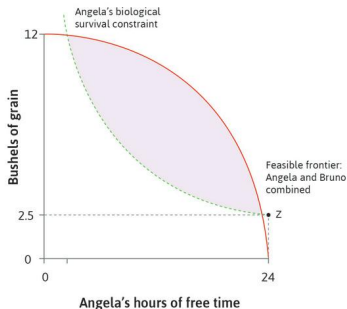


BIOLOGICAL SURVIVAL

Feasible frontier shows all the technically feasible outcomes (limited by technology).

Biological survival constraint shows all the biologically feasible outcomes

Feasible allocations are given by the intersection of these constraints.

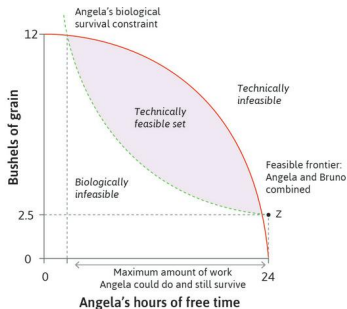


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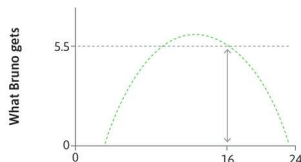
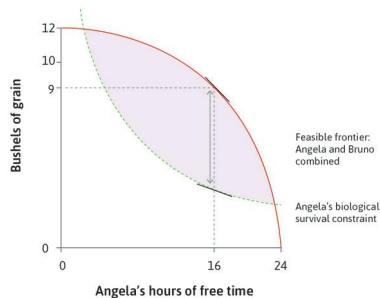


COERCION: BRUNO THE ARMED BANDIT

Institution: Coercion

Suppose Bruno can take as much of Angela's grain as he wants

Allocation that maximises Bruno's economic rent is where the slope of the biological constraint equals the slope of the feasible frontier

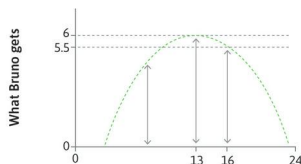
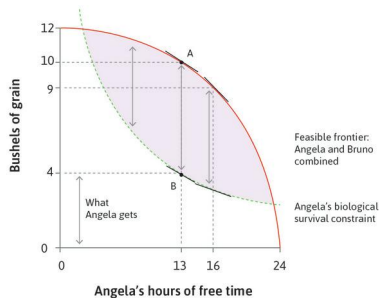


COERCION: BRUNO THE ARMED BANDIT

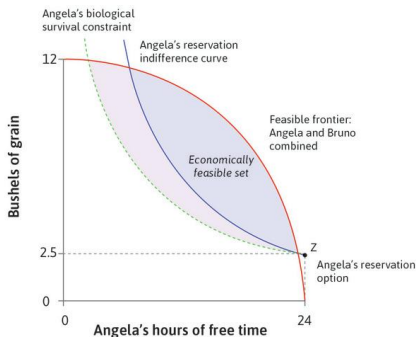
Institutions: Coercion

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Allocation that *maximises Bruno's economic rent* is where the slope of the biological constraint equals the slope of the feasible frontier



Economically feasible set: all possible allocations that benefit both parties.



How parties divide up the joint surplus depends on:

Each party's *reservation option*

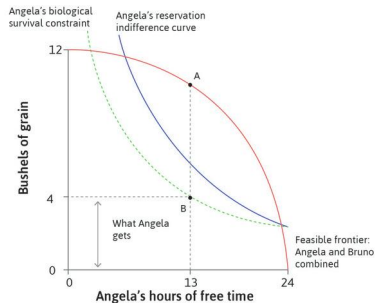
Relative bargaining power between the parties

COERCION: BRUNO THE LANDLORD

Institutions: Renting

Bruno, the landlord, owns the land and bargains with Angela about the rent

Joint surplus is *maximised* where the slope of the reservation indifference curve equals the slope of feasible frontier.

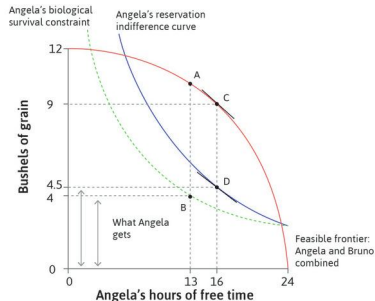


COERCION: BRUNO THE LANDLORD

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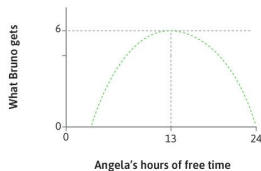
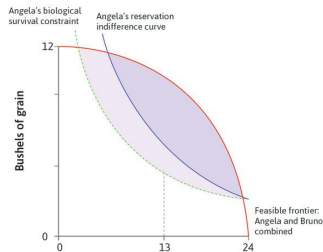
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TECHNICAL FEASIBILITY

Technical Feasibility: technology and biology determine which allocations are technically feasible. (Pareto-improving).

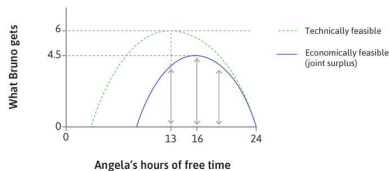
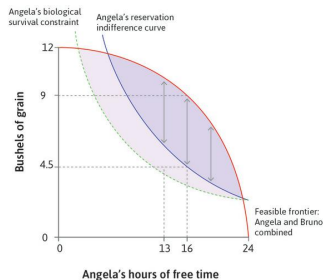


ECONOMIC FEASIBILITY

Economic Feasibility (joint surplus): institutions and policies help determine which allocations are economically feasible (Pareto-improving).

More valuable Angela's skills, the higher the Angela's reservation indifference curve

The higher the productivity, the higher the feasible frontier

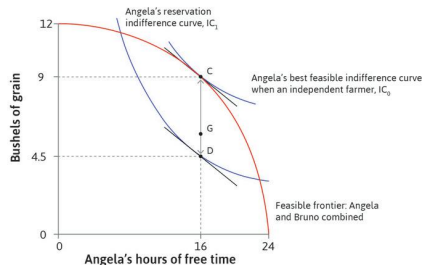


THE PARETO EFFICIENCY CURVE

Pareto efficiency curve: the set of all Pareto efficient allocations

The *joint surplus* is identical along each point on segment CD,

... but the way the *surplus* is distributed between Angela and Bruno differs at each point along the segment CD.



THE PARETO BARGAINING

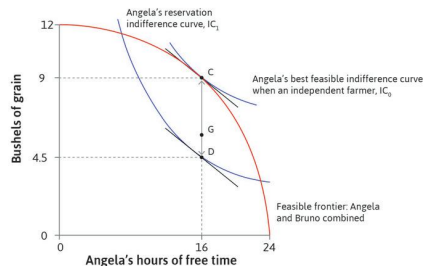
The allocation chosen will be on the *Pareto efficiency curve* (line CD).

At C, *Angela gets all the surplus*

At D, *Bruno gets all the surplus*

At any other point on the curve, *Angela and Bruno share the surplus*

Bargaining power determines the final allocation



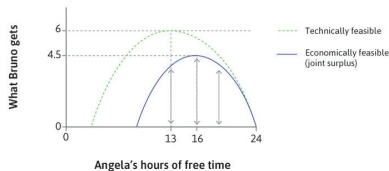
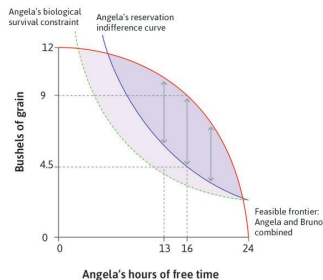
INSTITUTIONS

Institutions and policies affect the size of the surplus and its distribution.

Institutions can *change the slope or shift* the reservation curve (blue line)

Institutions can *reshape* the feasible frontier (red line)

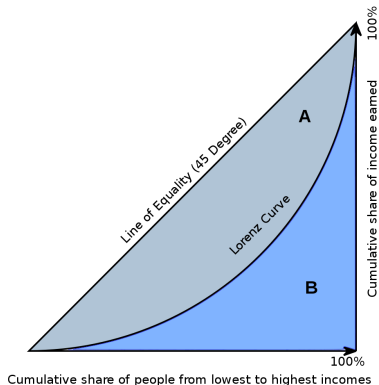
Example: *Operation Barga*



LORENZO CURVE

horizontal axis: cumulative share (%) of people in the country

vertical axis: cumulative share (%) of total income earned by cumulative share (%) of people on the horizontal axis.

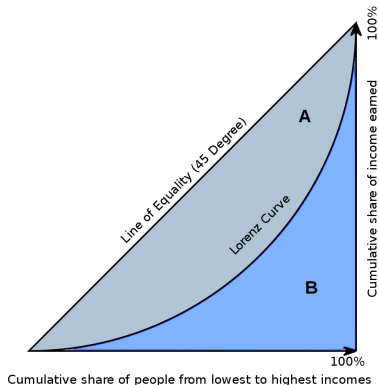


GINI COEFFICIENT

Lorenz curve: Shows the extent of inequality and allows comparison of distributions.

Gini coefficient: a measure of inequality.

$$g = \frac{A}{A+B}$$

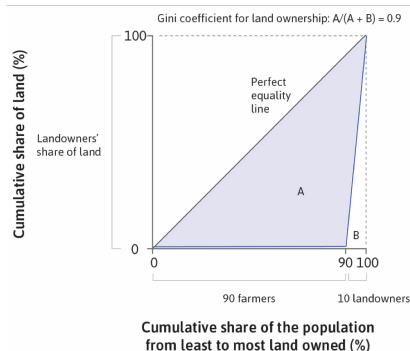


GINI COEFFICIENT RANGE

g ranges from
0 (perfect equality) to
1 (maximum inequality).

*Feudal society: 90% earned
nothing and 10% earned
everything.*

$$g = 0.9$$



OPERATION BARGA

Indian state of West Bengal before 1978,

Land distribution *extremely unequal*

A few landowners (*zamindars*) owned all the land.

Sharecropper farmers (*bargadars*)

leased land to farm and in return

owed half their crop output to the landowners.

High proportion of the population were sharecropper farmers who lived below the poverty line

OPERATION BARGRA

In 1978,

Newly elected government *adopted new laws:*

Sharecroppers could keep up to 75% of their crop.

Sharecroppers were protected from eviction by landowners if they paid at least 25%.

Law gave

Sharecroppers had more incentive to *work hard*

Sharecroppers had more incentive to *invest in land*

Inequality decreased after the programme was implemented

Yield of rice increased in comparison to neighbouring areas

SHARECROPPING EXAMPLE

Landlords own the land but did not want to farm on it themselves

Sharecropper farmers rent the land and grow crops on the land

	Farmers	Landlords
Proportion in society	$n\%$	$(1 - n)\%$

Contract

Farmers keep s proportion of the output

Landlord gets $1 - s$ portion of the output

Output:

Each *farmers* produces output: q

	Farmers	Landlords
Income	sq	$(1 - s)q$

SHARECROPPING EXAMPLE

100 people in the economy

farmers $n \cdot 100$

Landlords $(1 - n) \cdot 100$

	<i>Farmer</i>	<i>Landlord</i>
<i>Contracted share</i>	s	$1 - s$
<i>Number</i>	$n \cdot 100$	$(1 - n) \cdot 100$
<i>Total output</i>	$n \cdot 100 \cdot q$	
<i>Income</i>	$s \cdot q \cdot n \cdot 100$	$(1 - s) \cdot q \cdot (1 - n) \cdot 100$

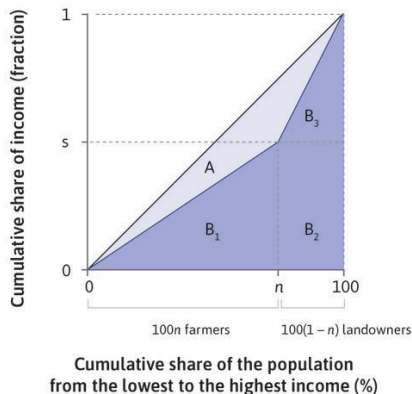
GINI COEFFICIENT

Gini coefficient:

$$g = \frac{\text{Light blue area}}{\text{Light \& dark blue area}}$$

$$g = \frac{A}{A+B}$$
$$= \frac{A}{B_1 + B_2 + B_3}$$

Inequality increases as A increases



GINI COEFFICIENT

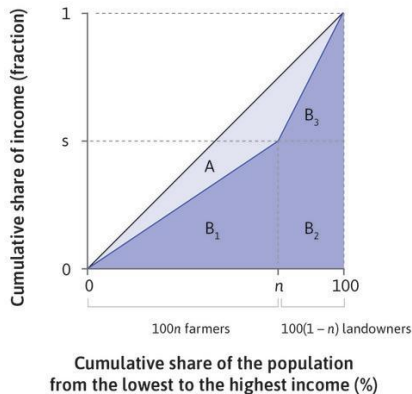
Slope of line separating
area A from B1 $\frac{s}{n}$

Slope of line separating
area A from B3 $\frac{1-s}{1-n}$

*Inequality increases as n increases
and s decreases.*

*Operation Barga decreased
inequality by increasing s .*

*Other land reform programmes
have tried to decrease n through
redistribution.*



GINI COEFFICIENT

$$g = \frac{A}{B_1 + B_2 + B_3}$$

$$A = \frac{1}{2} - B$$

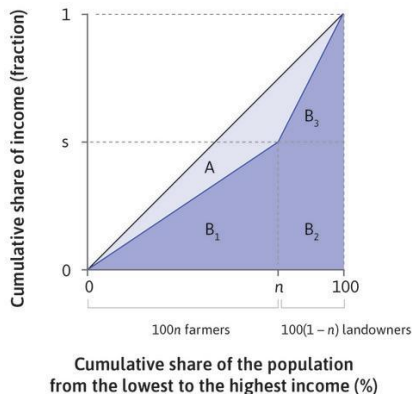
$$B_1 = \frac{ns}{2}$$

$$B_2 = (1-n)s$$

$$B_3 = \frac{(1-n)(1-s)}{2}$$

$$g = n - s$$

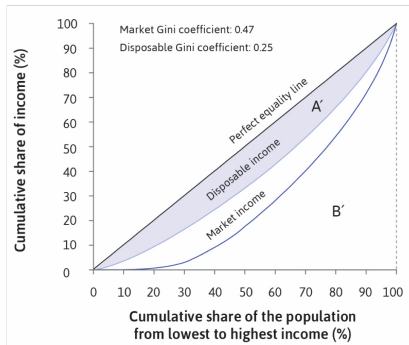
Inequality is increasing in n and decreasing in s .



REDISTRIBUTIVE POLICIES

Redistributive government policies (income tax and transfers) can result in greater equality.

Cross-country differences in inequality could be due to effectiveness of redistributive policies.



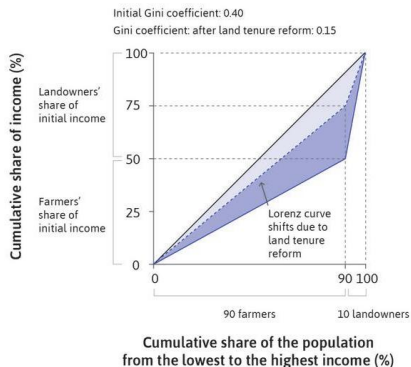
OPERATION BAGRA

Land tenure reform allowed farmers to

*keep a greater share of their crop and
protected them from eviction*

Increased s and maybe decreased n

Moved the income distribution closer to diagonal



IMPACT OF OPERATION BARGA

Total output increased in West Bengal

... potential scope for Pareto Improvement

Rice yield increased because sharecroppers had a

- greater *incentive to work hard* (they kept a larger proportion of output)
- greater *incentive to invest in the land* (protection from eviction)

Actual change in allocation

... No Pareto improvement

While sharecroppers income went up, the landowners income decreased

Inequality decreased in West Bengal

SUMMARY

Two criteria used to evaluate outcomes

Pareto efficiency:

Equity:

Gini coefficient is one way to objectively measure it

There are other objective and subjective measures

Allocations depend on *preferences*, *bargaining power* and *institutions* in the society

Institutions can determine *reservation options* and *bargaining power*

Gini coefficient measures the *inequality* of allocations

Public policies can make allocations more *efficient* or *fairer*