

Applied Welfare Economics and Agricultural Policy

MSc Course, Humboldt-Universität zu Berlin

by
Dieter Kirschke

in cooperation with
Franz Heidhues and Jerzy Wilkin

supported by
Nana Künkel

Applied Welfare Economics and Agricultural Policy

Introduction

- 1 Principles of applied welfare economics
- 2 Price policy I
- 3 Price policy II
- 4 EU agricultural policy and international framework

Applied Welfare Economics and Agricultural Policy

- 5 Agricultural policy in transition countries (Wilkin)
- 6 EU enlargement and accession (Wilkin)
- 7 Rural finance in development (Heidhues)
- 8 Structural adjustment policies (Heidhues)

- 9 Structural policy
- 10 Multiobjective policy analysis**

Applied Welfare Economics and Agricultural Policy

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Chapter 10

Multiobjective Policy Analysis

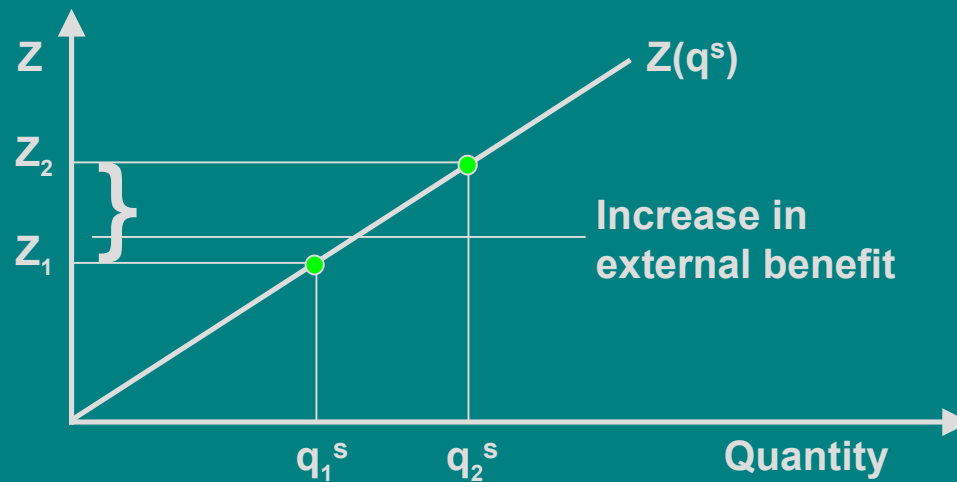
Fachgebiet Agrarpolitik

**Sie interessieren sich für Agrarpolitik
und für unsere Arbeit?
Sie suchen Informationen und Unterstützung?**

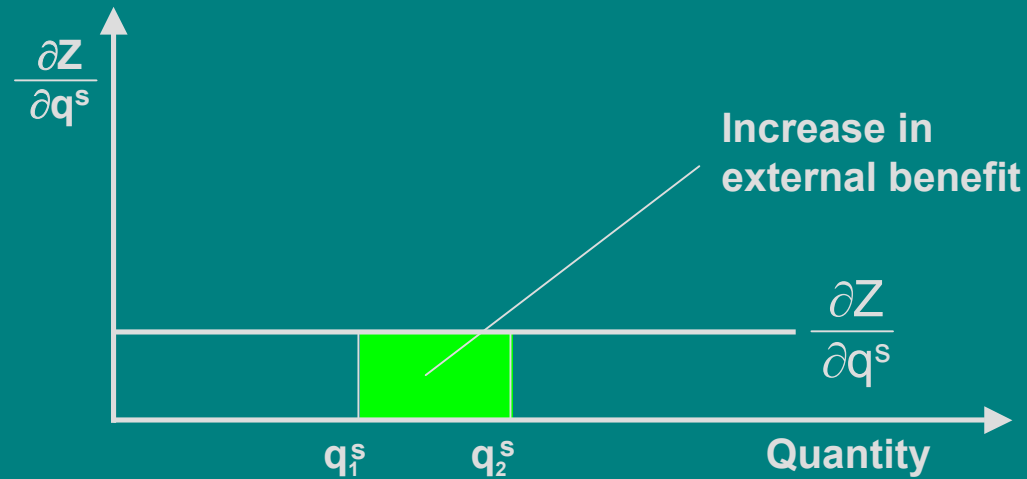
**Willkommen im Fachgebiet!
Prof. Dr. Dr. h.c. Dieter Kirschke**



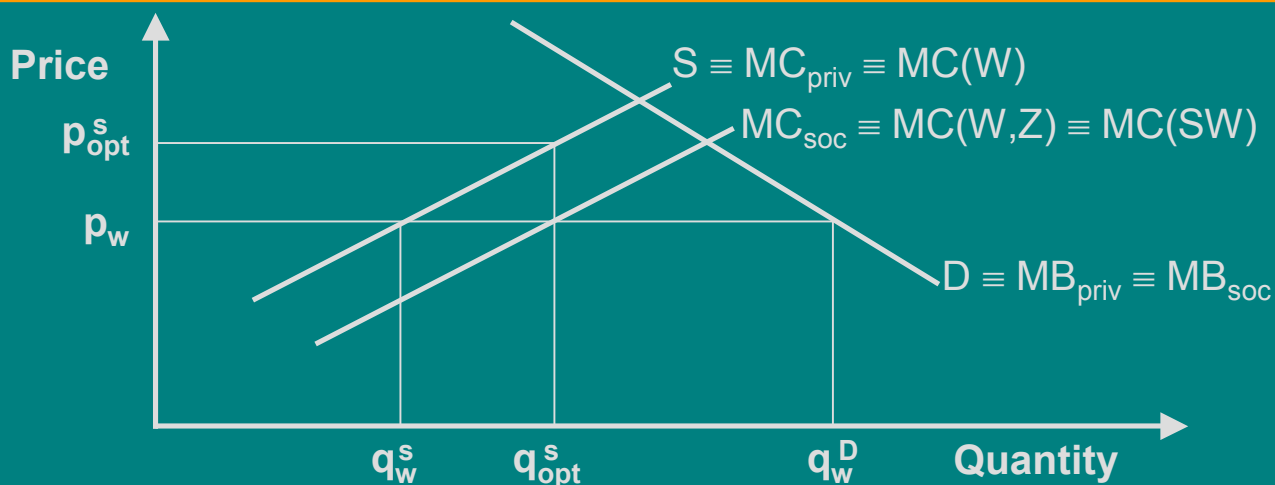
External Benefit from Oilseed Production



External Benefit from Oilseed Production



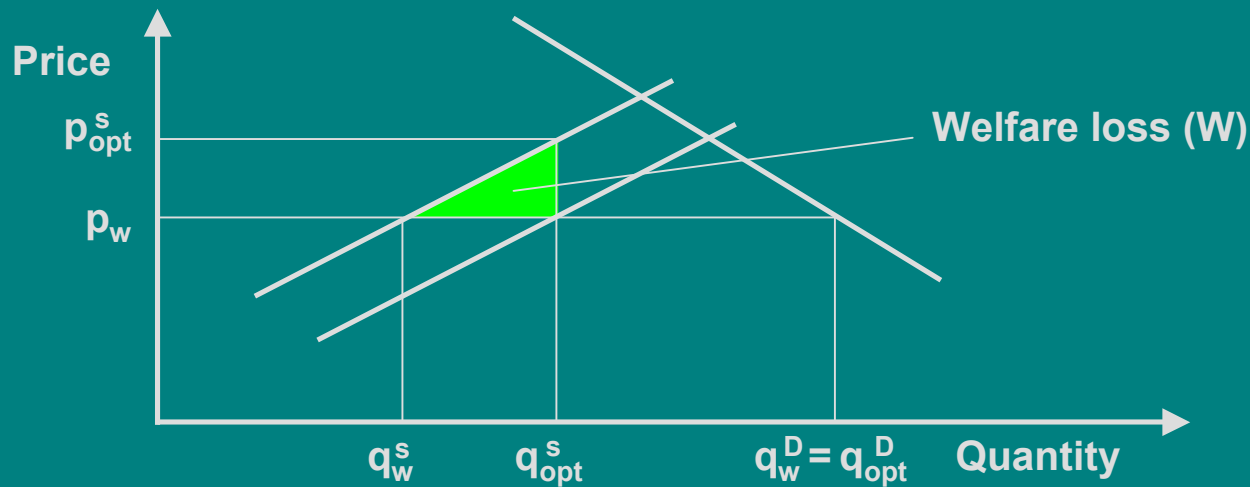
External Benefit from Oilseed Production



S - Domestic supply
D - Domestic demand

MC - Marginal cost
MB - Marginal benefit

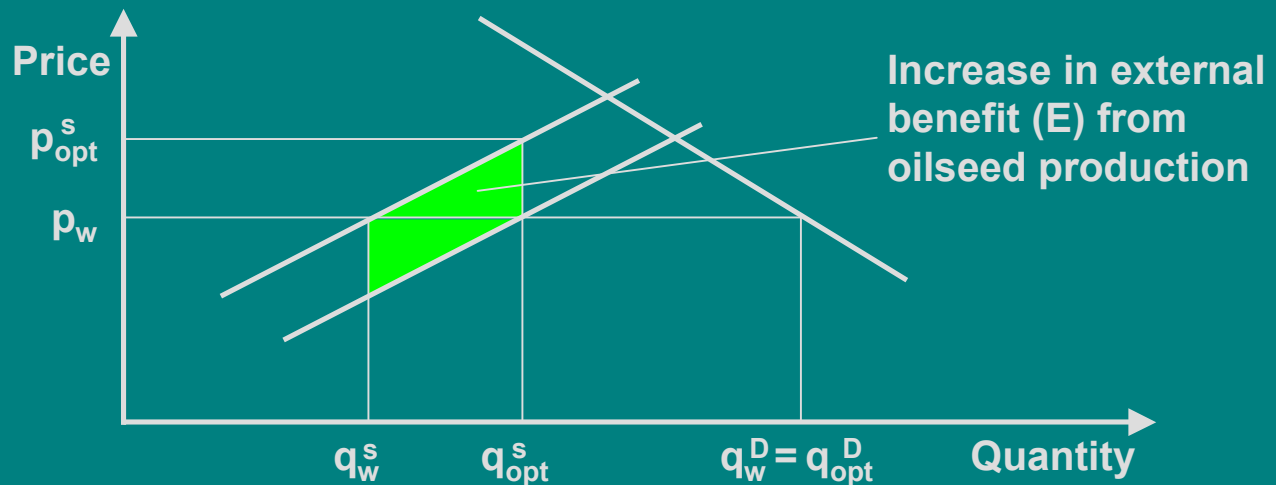
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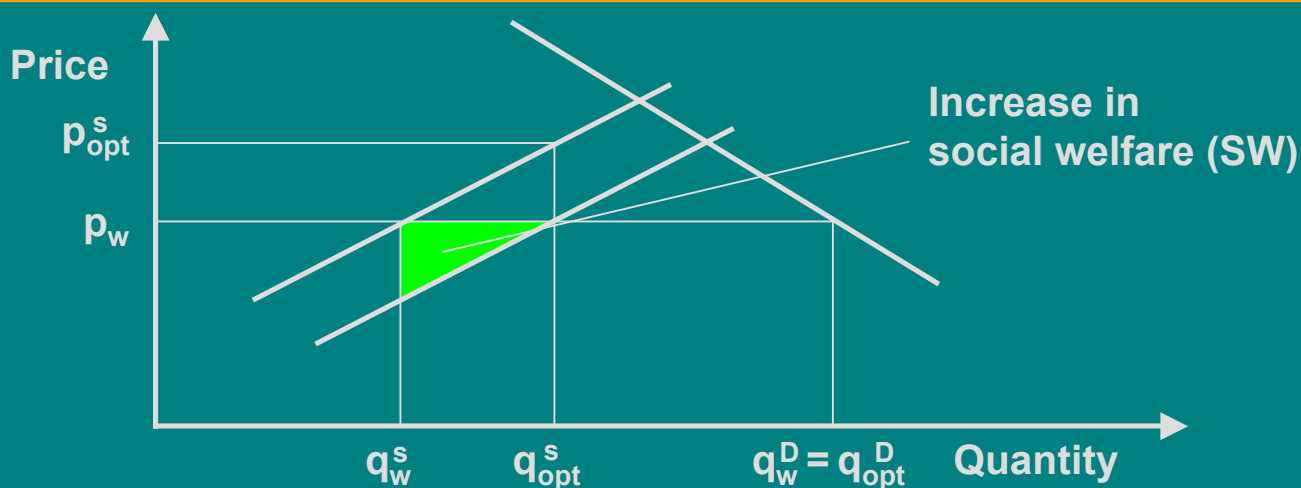
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External Benefit from Oilseed Production



S - Domestic supply
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Note:

$$\begin{array}{ccccc}
 \text{dSocial welfare (dSW)} & = & \text{dWelfare (dW)} & + & \text{dExternal benefit (dE)} \\
 (+) & & (-) & & (+)
 \end{array}$$

External Benefit from Oilseed Production

Note: External benefit

... results in divergences between private and social evaluation.

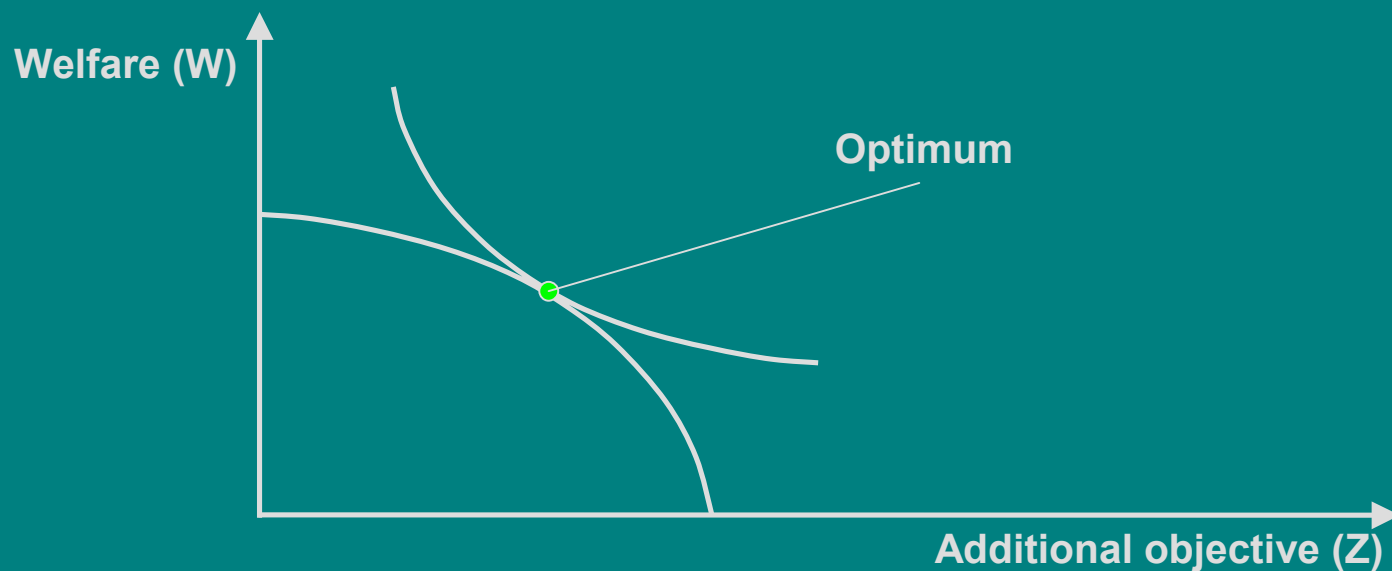
... results in market failure.

... suggests public intervention.

but: Will public intervention maximize social welfare?

Policy Making with Multiple Objectives

Textbook approach

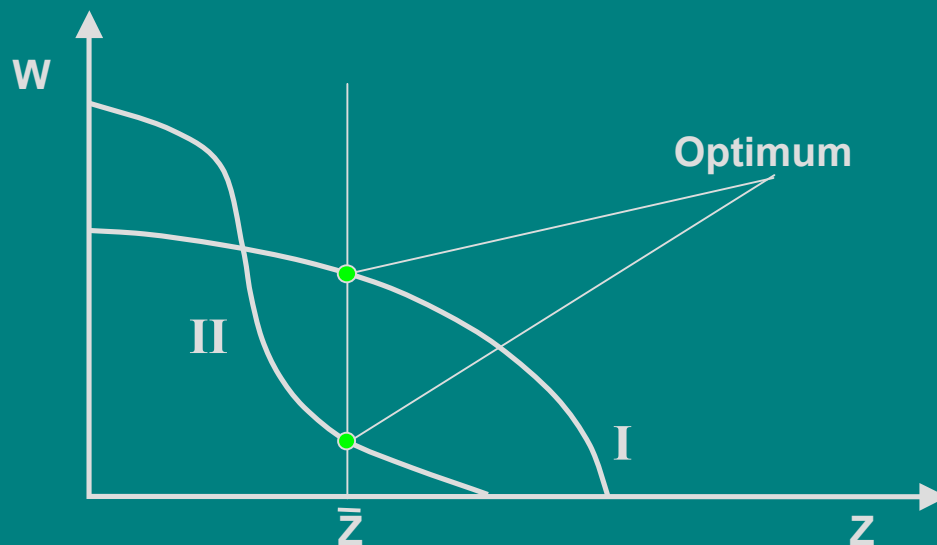


Note:

$$\text{Social welfare (SW)} = f(W, Z)$$

Policy Making with Multiple Objectives

Formulating restrictions

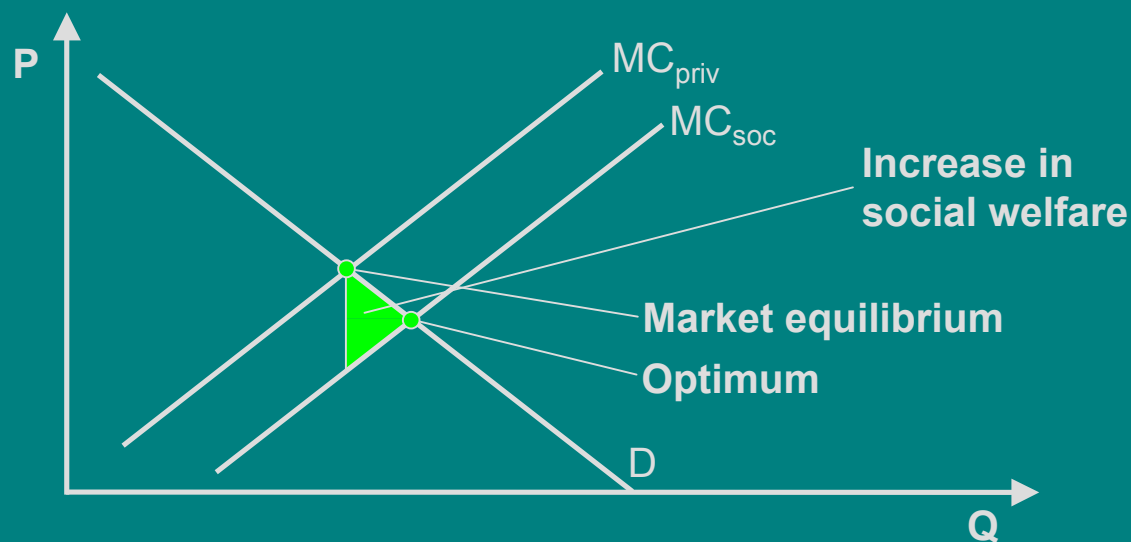


Note:

max. Welfare (W) = $f(W)$, subject to $Z \geq \bar{Z}$

Policy Making with Multiple Objectives

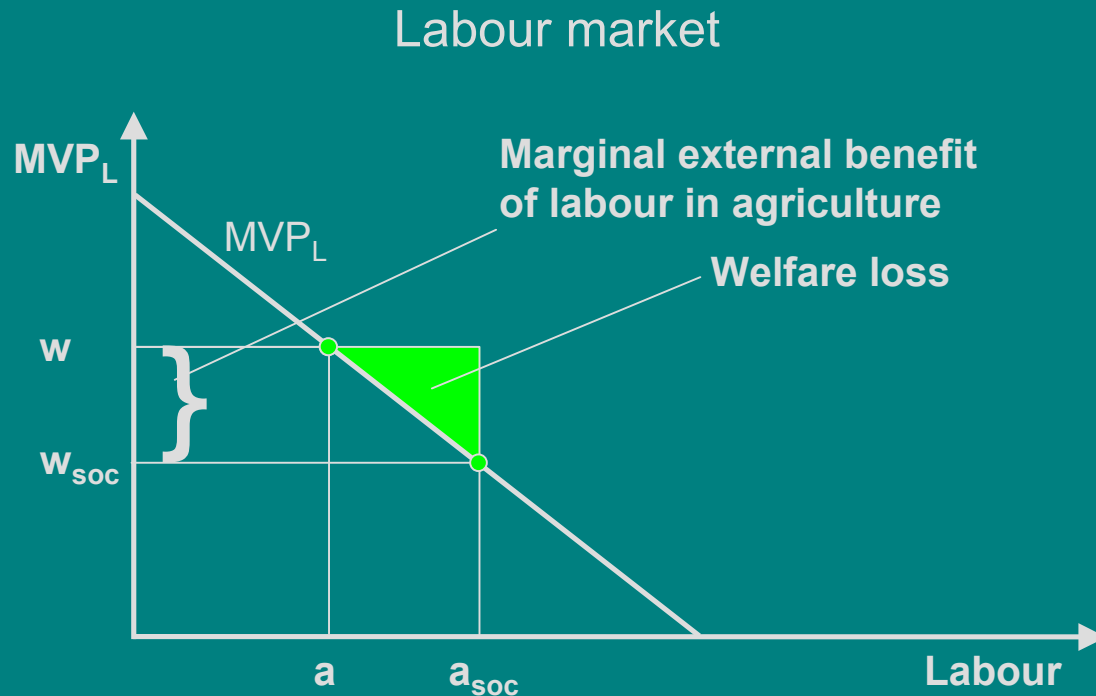
Willingness to pay approach



Note:

Social welfare (SW) = Welfare (W) + Willingness to pay for Z

Direct Income Payments

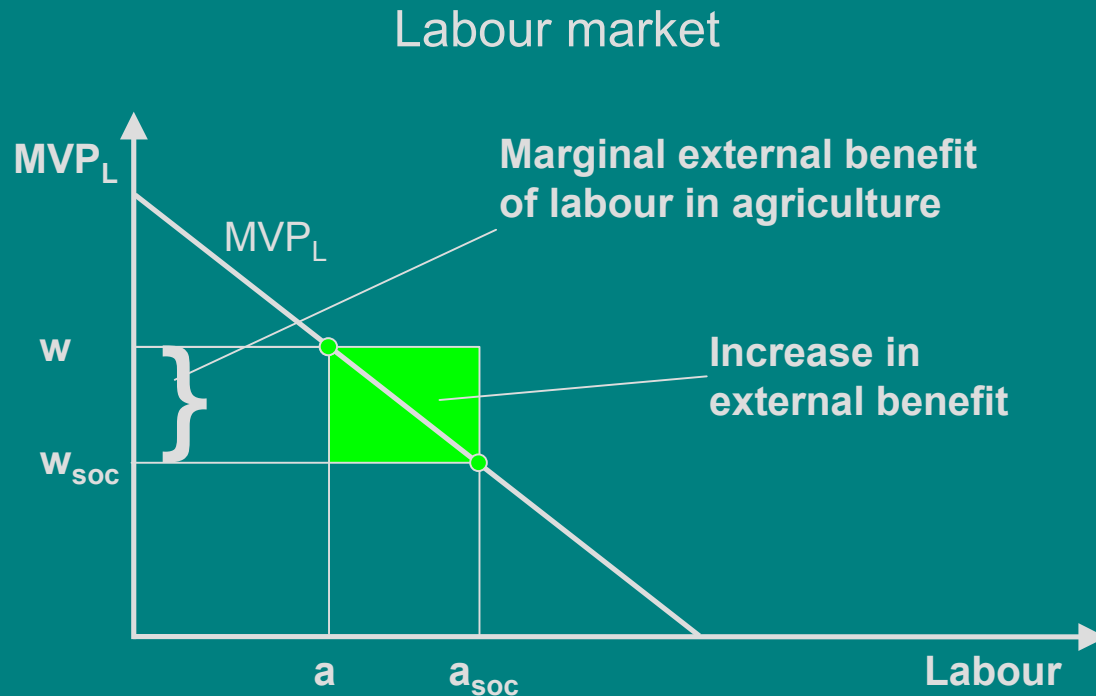


MVP - Marginal value product

w - Wage rate

a - Labour quantity

Direct Income Payments

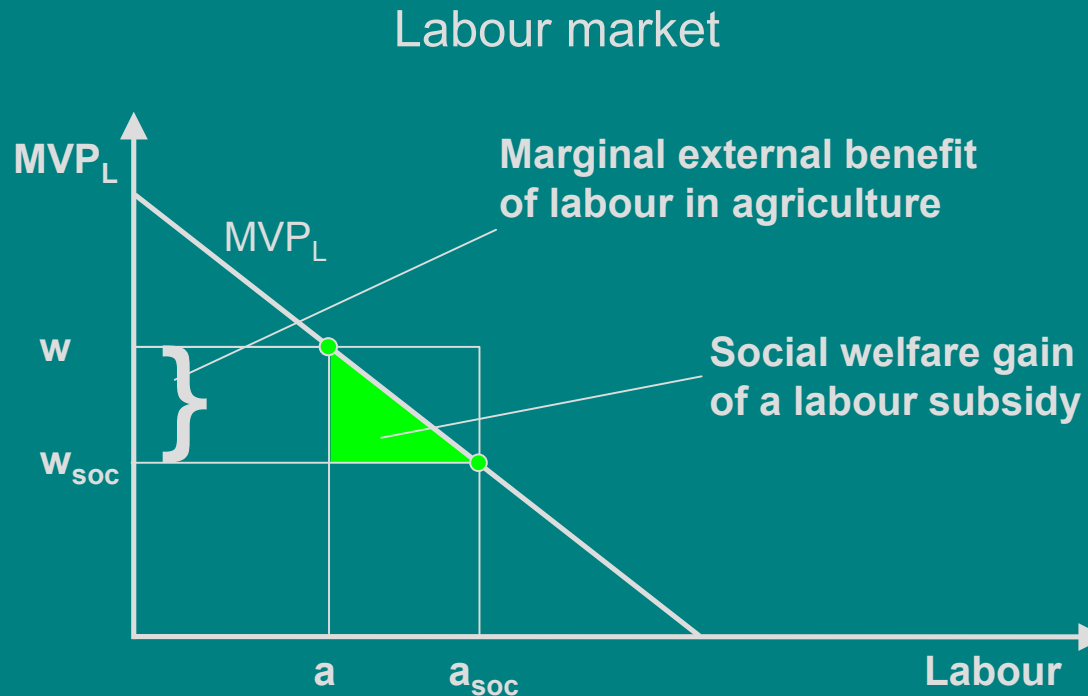


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Direct Income Payments



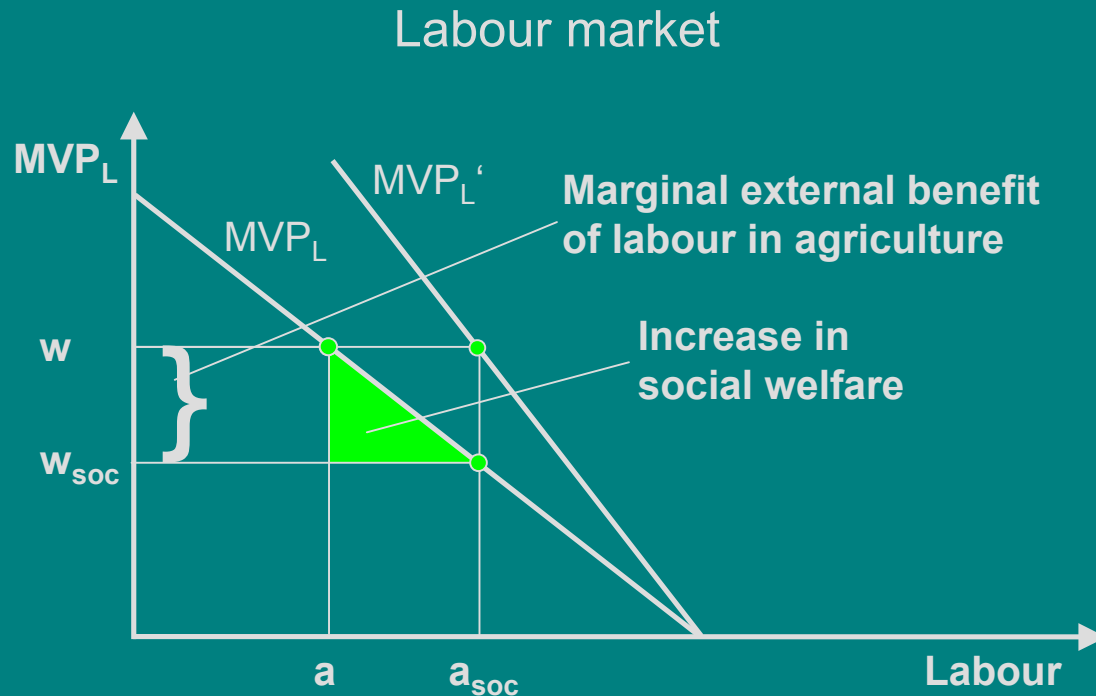
MVP - Marginal value product

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Direct Income Payments

Product subsidy



MVP - Marginal value product

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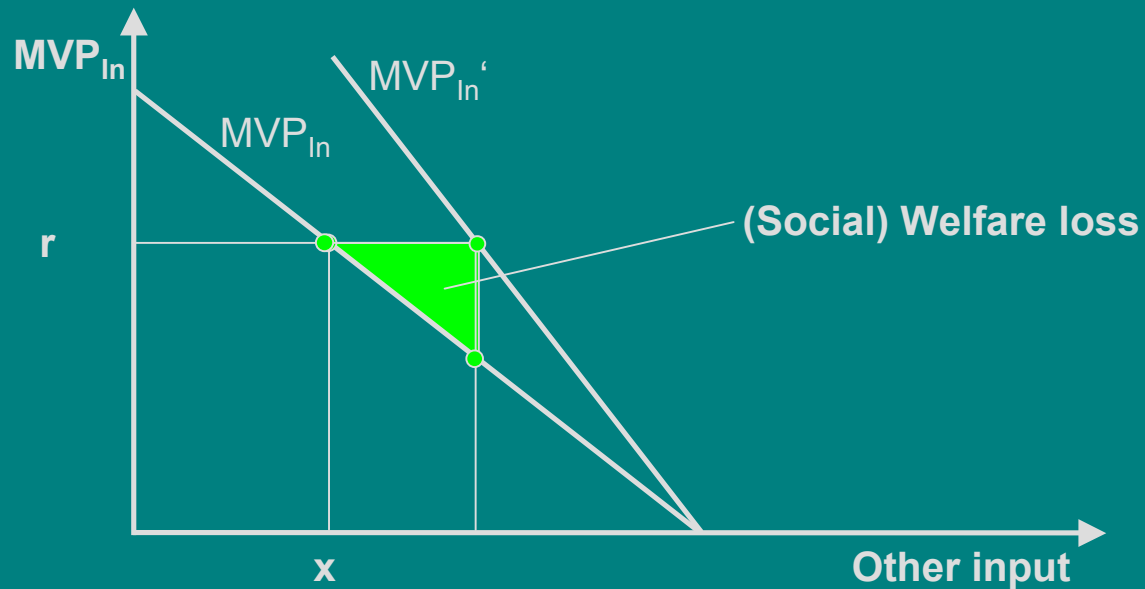
a - Labour quantity

r - Price for other input

Direct Income Payments

Product subsidy

Other input markets: distortion in input intensity



MVP - Marginal value product

w - Wage rate

a - Labour quantity

r - Price for other input

Agricultural Support and By-product Distortions

A policy hierarchy

Rank	Policy	By-product distortions
1	Input subsidy	None
2	Product subsidy	Distortion in input intensity
3	Border protection	Distortion in input intensity Distortion in consumption
4	Tariff only	Distortion in input intensity Distortion in consumption Home-market bias

Note:

- Policies should avoid by-product distortions to maximize social welfare
- Policies should directly address problems

Sustainability: Some Definitions

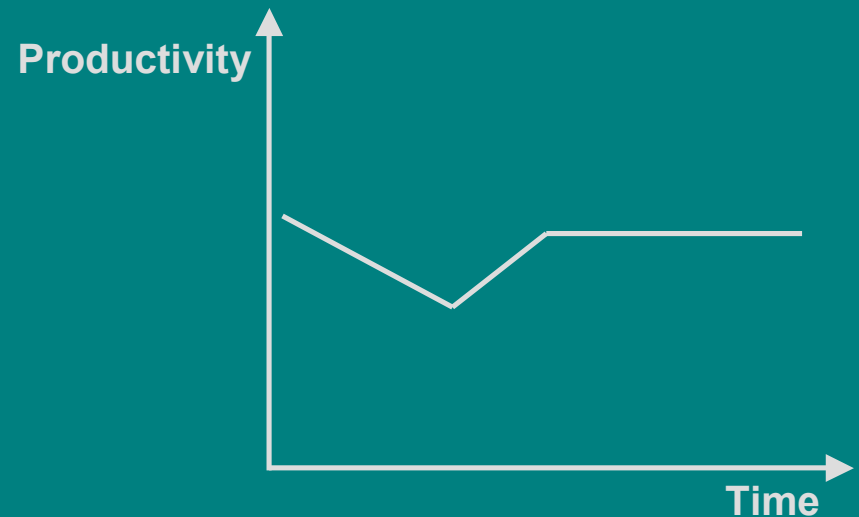
FAO Council, 1988:

"Sustainable development is the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmental nondegrading, technically appropriate, economically viable and socially acceptable."

Sustainability: Some Definitions

Conway and Barbier, 1988:

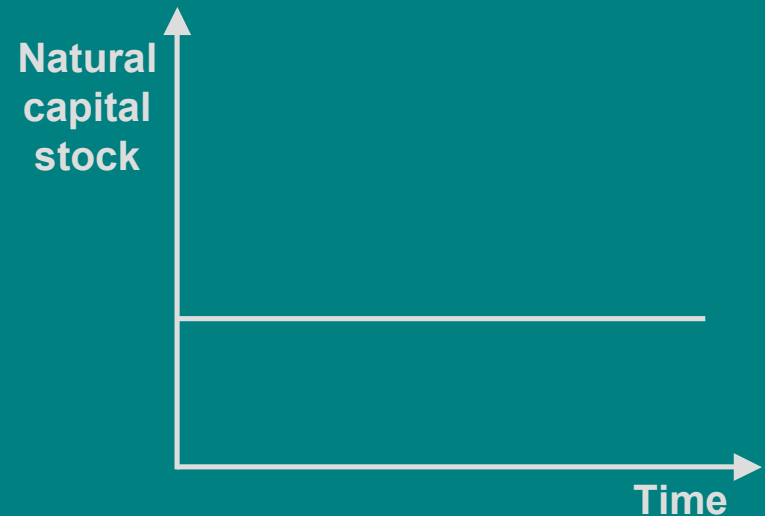
"...sustainability... the ability to maintain productivity, whether of a field, farm or nation, in the face of stress or shock."



Sustainability: Some Definitions

D. Pearce, 1988:

"Sustainable development is economic change subject to the constancy of natural capital stock - the stock of environmental assets is held constant while the economy is allowed whatever social goals are deemed appropriate."



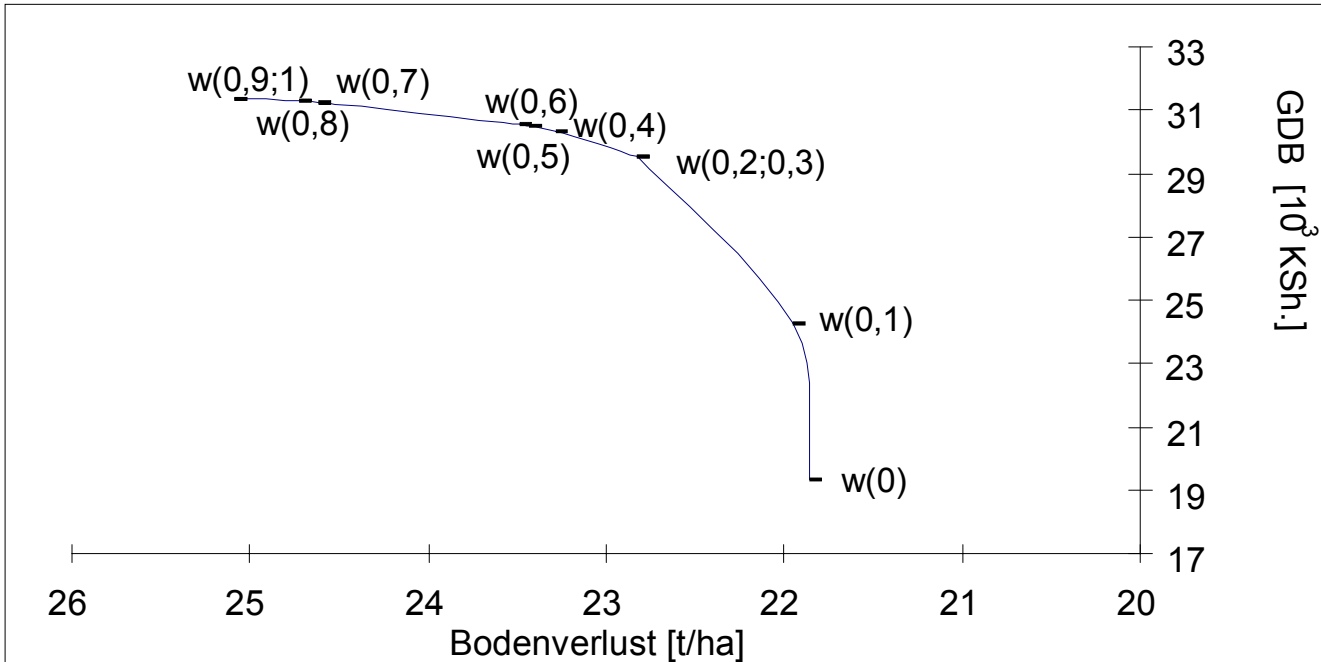
Sustainable development is about being fair to the future!

(Pearce, 1989)

Some Questions on Sustainability

- **What are relevant indicators for sustainable agricultural development?**
- **What is the link between instruments and indicators?**
- **What kind of trade offs between sustainability and welfare have to be faced?**
(food security, human capital, future generations, North-South)
- **Does sustainable agricultural development require government intervention or private cooperation?**

Trade off between soil conservation and income in subsistence agriculture (Kenya coffee zone)

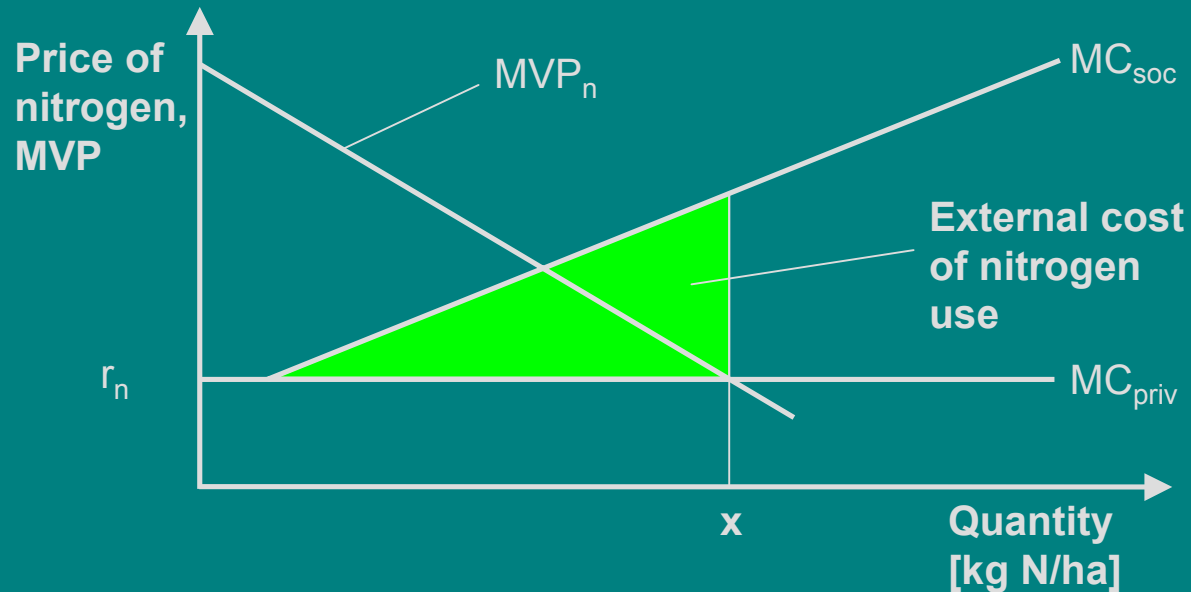


- GDB** = Gesamtdeckungsbeitrag
 $w(\alpha)$ = Zielgewichtung
 α = Wichtungsfaktor für das Einkommen als Ziel
 $(1-\alpha)$ = Wichtungsfaktor für den Bodenschutz als Ziel

Source: Wahby, D. (1996): Zur Relevanz von Preisen für die Bodenerosion in Entwicklungsländern. Berlin: Verlag Dr. Köster, S. 123

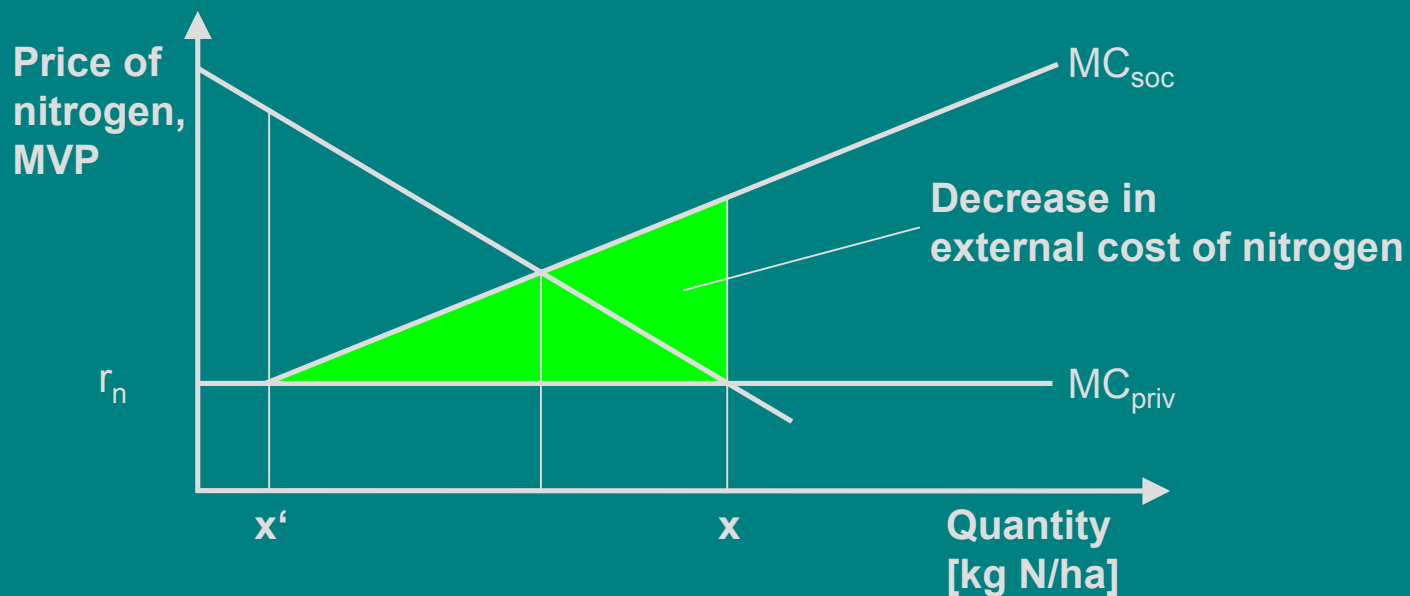
Nitrogen Tax Discussion

No intervention of the state



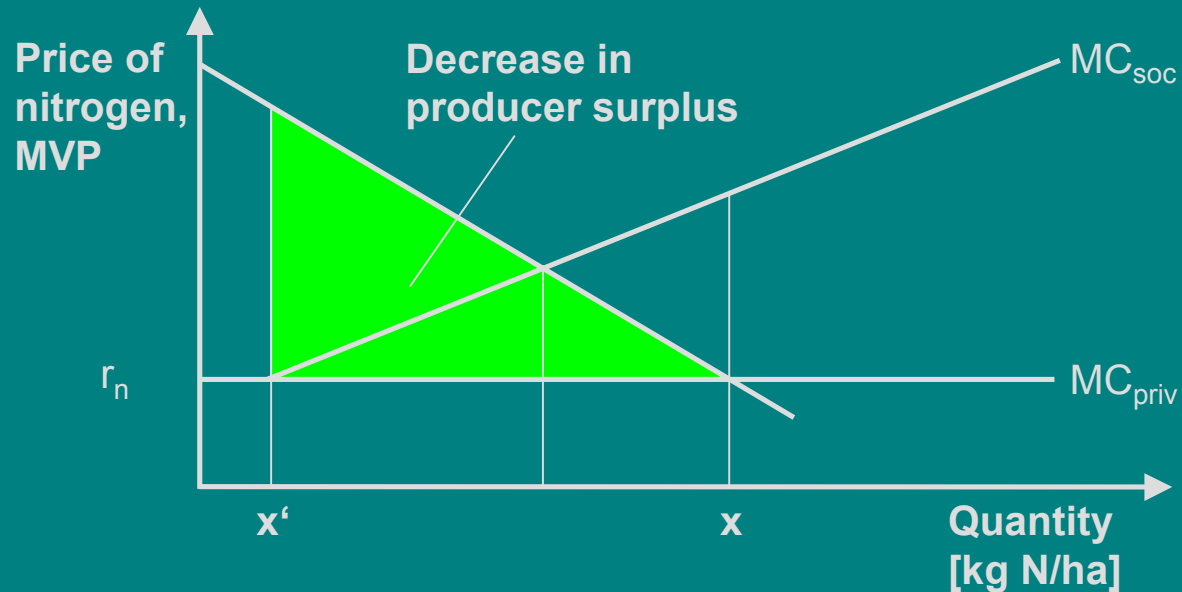
Nitrogen Tax Discussion

Ban on nitrogen use



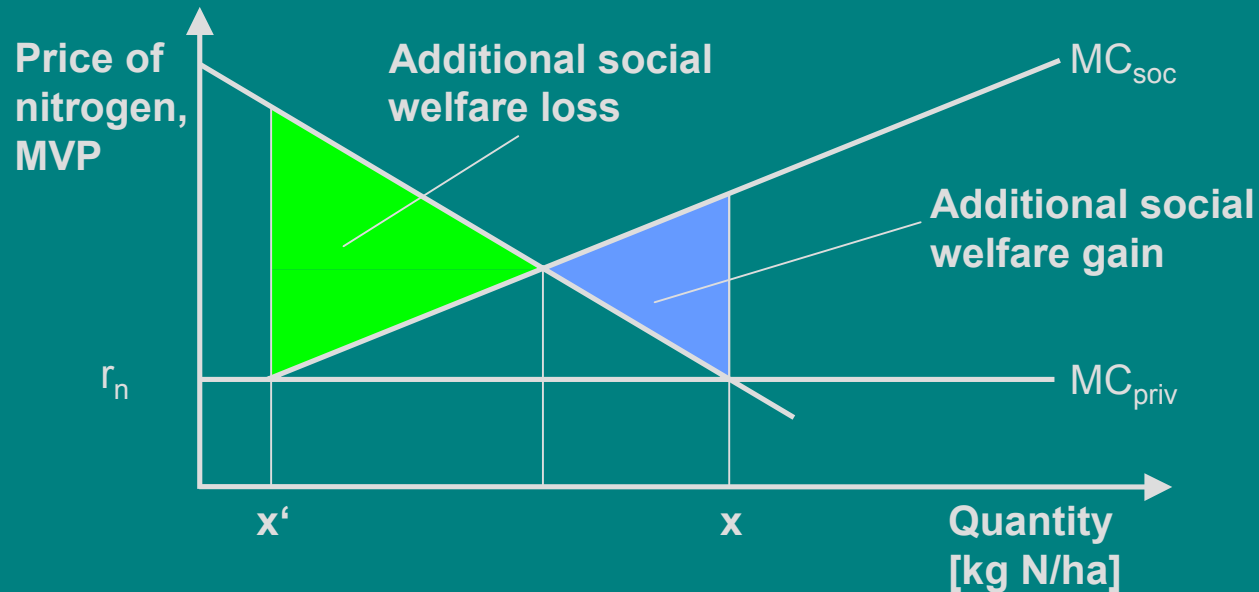
Nitrogen Tax Discussion

Ban on nitrogen use



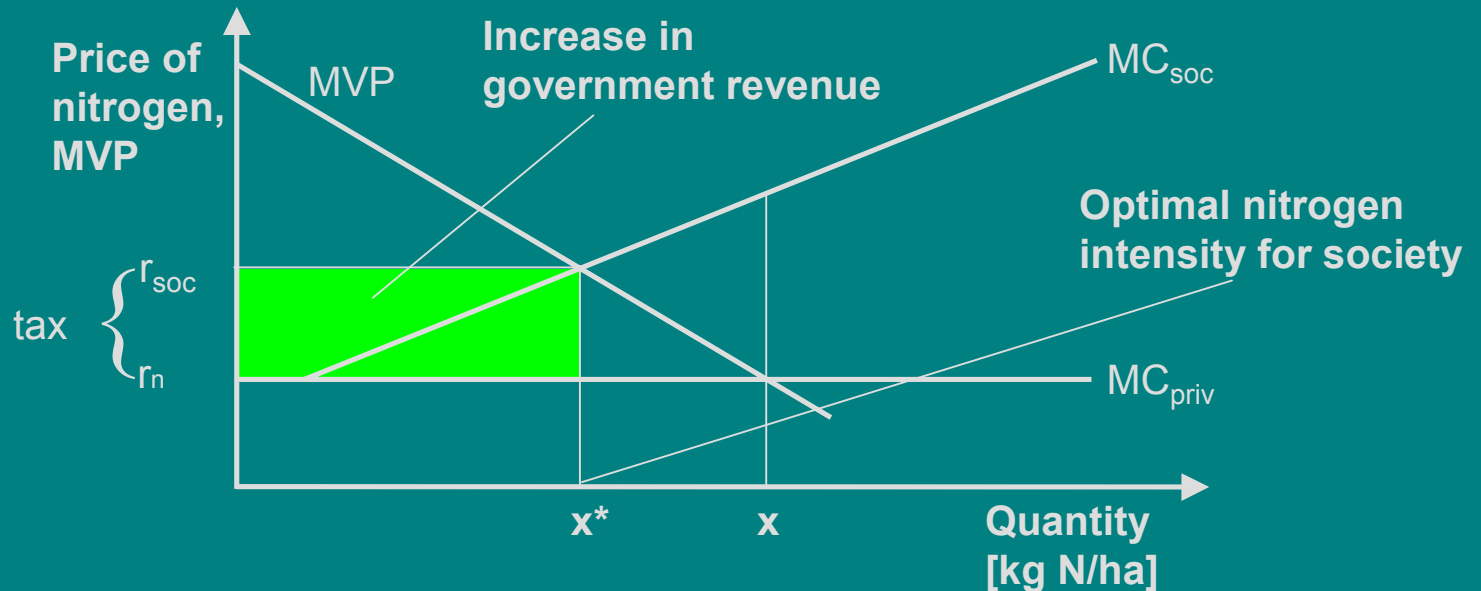
Nitrogen Tax Discussion

Ban on nitrogen use



Nitrogen Tax Discussion

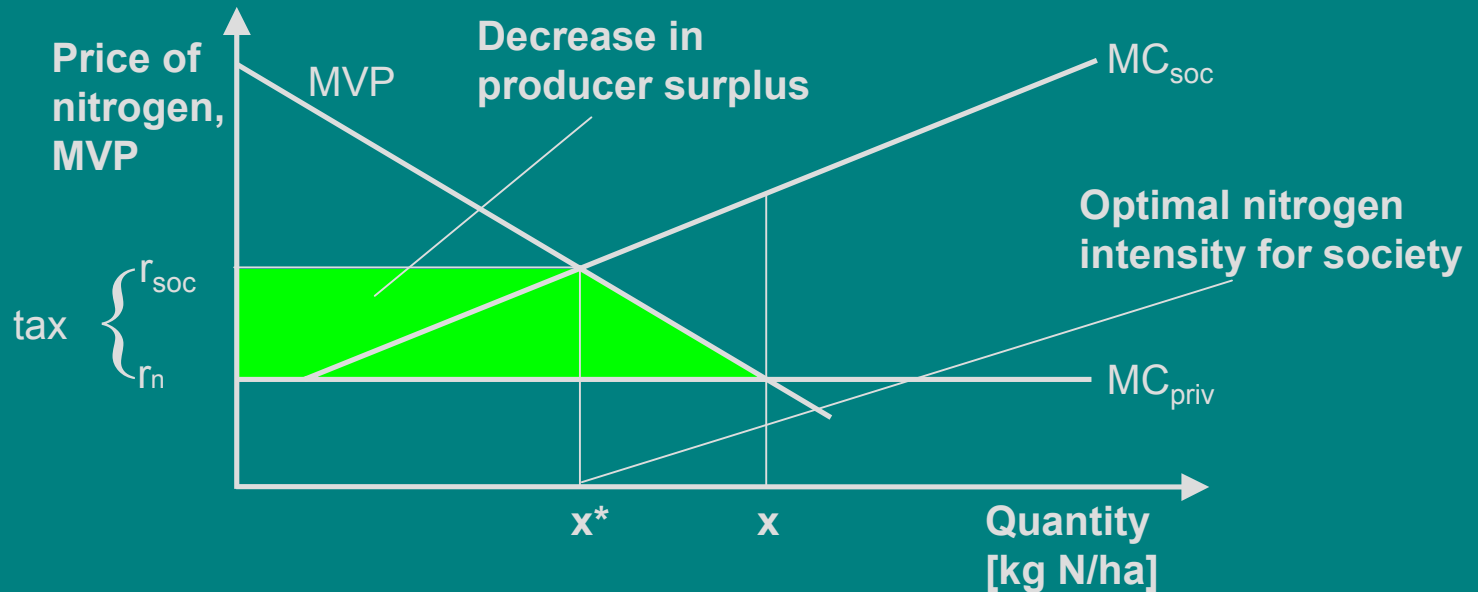
Nitrogen tax



r_{soc} - Social shadow price for nitrogen

Nitrogen Tax Discussion

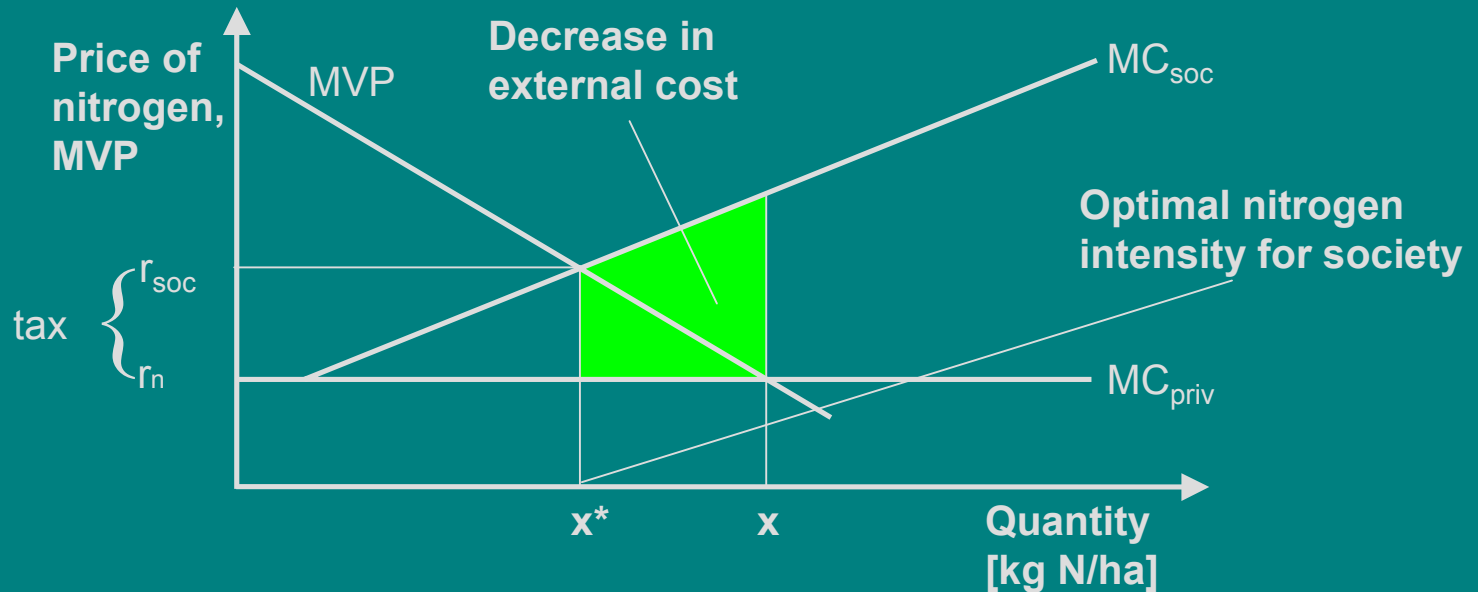
Nitrogen tax



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Nitrogen Tax Discussion

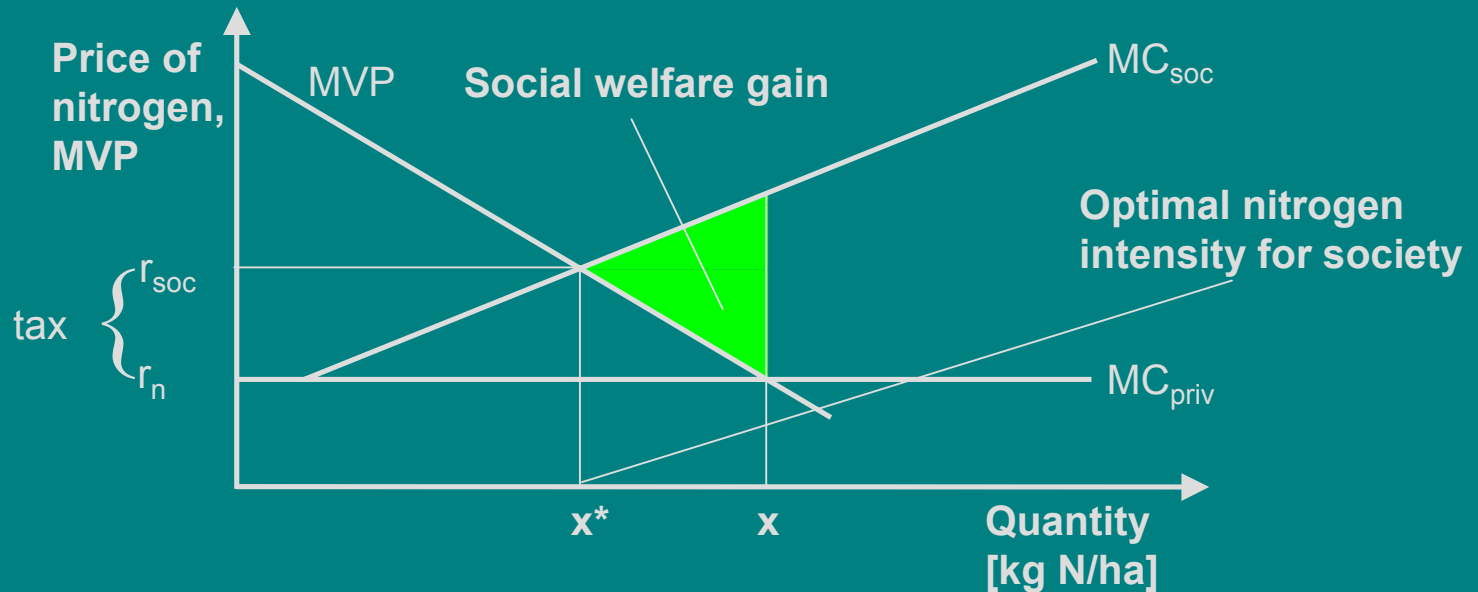
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Nitrogen Tax Discussion

Nitrogen tax



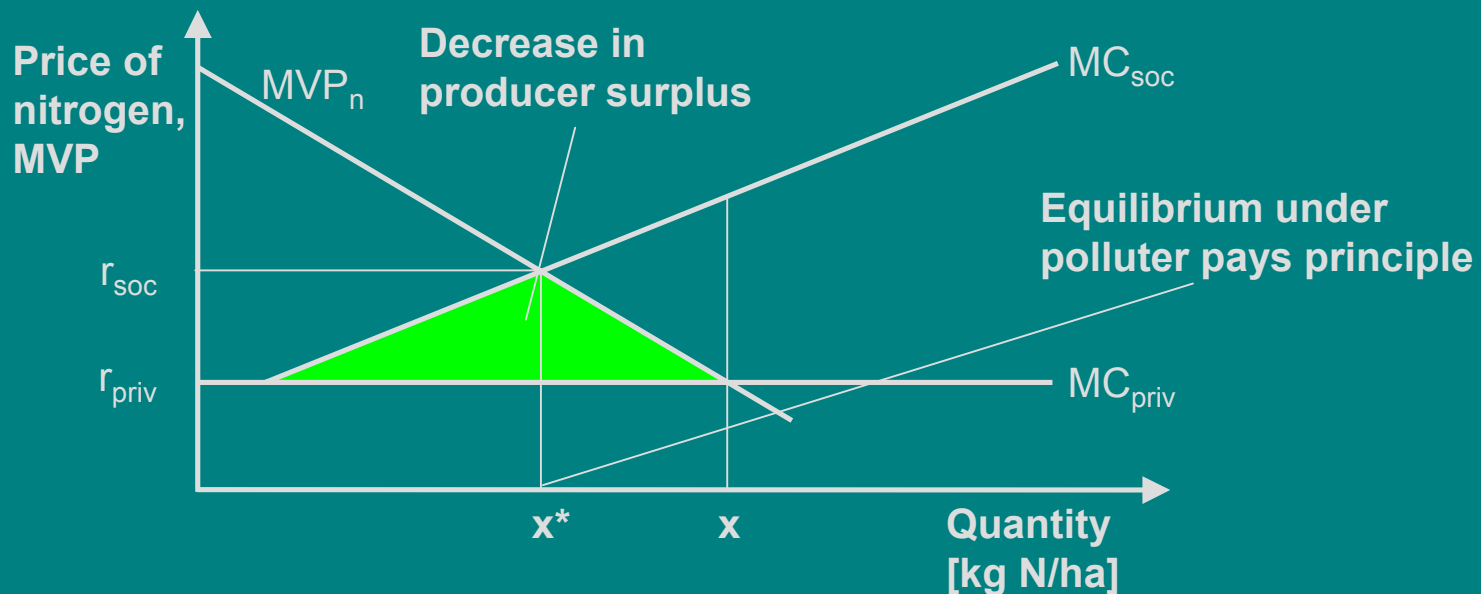
Note:

$$dSW = dCS + dPS + dG + dE$$

$$(+)= (./.) + (-) + (+) + (+)$$

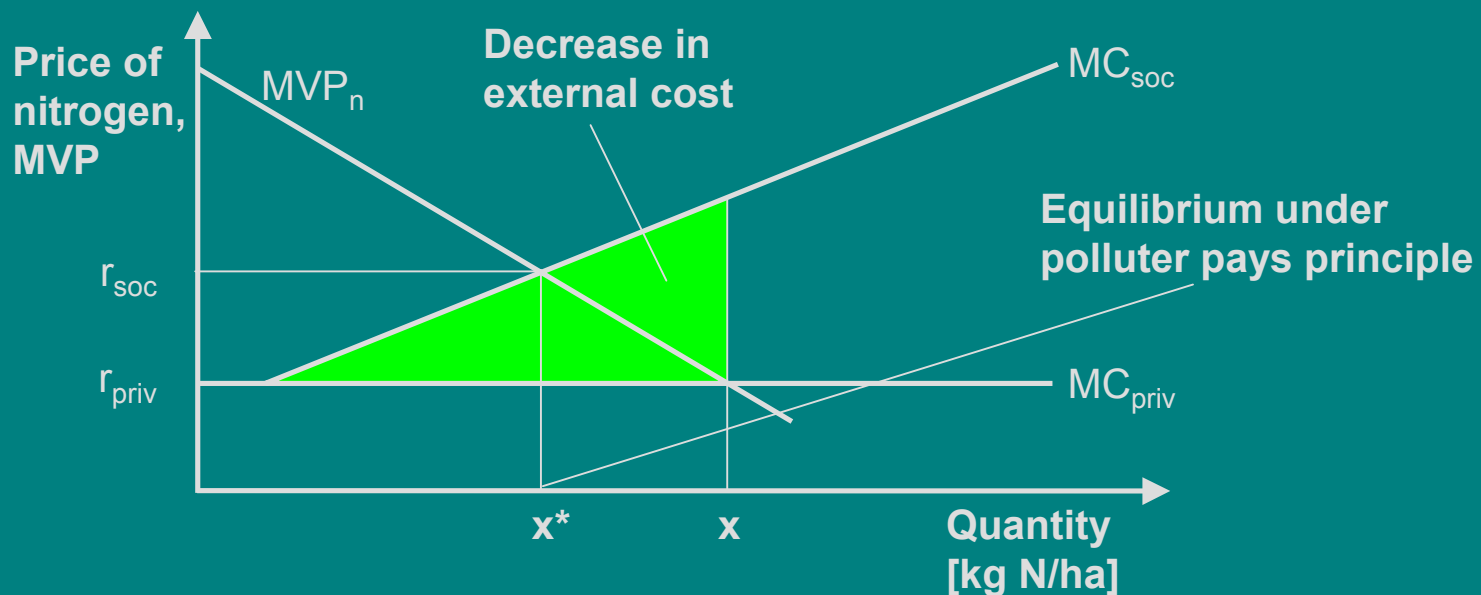
Nitrogen Tax Discussion

Polluter pays principle



Nitrogen Tax Discussion

Polluter pays principle



Nitrogen Tax Discussion

Polluter pays principle



Note:

$$dSW = dCS + dPS + dG + dE$$

$$(+)= (./.) + (-) + (./.) + (+)$$

Some Questions on Market Solutions

- What happens if the polluter is compensated for non-pollution?
- What happens if pollution rights are tradeable?
- What happens if property rights change over time?

Literature

- * **Cordon, W.M. (1974): *Trade Policy and Economic Welfare*. Oxford: Oxford University Press, pp. 9-41**
- Koester, U.; Tangermann, S. (1977): *Supplementing Farm Price Policy by Direct Income Payments : cost-benefit-analysis of alternative farm policies with a special application to German agriculture*. In: *European Review of Agricultural Economics* 4, No. 1, pp. 7-31
- Pearce, D.; Atkinson, G. (1995): *Measuring Sustainable Development*. In: Bromley, D.W. (ed.): *Handbook of Environmental Economics*. Oxford: Blackwell, pp. 166-181
- Pindyck, R.S.; Rubinfeld, D.L. (1998): *Microeconomics*. 4th ed. Upper Saddle River: Prentice-Hall, pp. 647-682

Questions

1. Explain that an external benefit in production can result in market failure and how it should be internalized!
2. How can “non-economic” objectives be integrated in multiobjective policy making?
3. Why would direct income payments avoid distortions in agricultural support policies?
4. Discuss some problems in implementing policies for sustainable agricultural development!
5. Explain the welfare effects of a nitrogen tax!