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WP 7
Case study analysis of existing and proposed grids

Conception and framework, preliminary results and following steps

Objectives WP7

- To analyse selected existing approaches to highlight impacts of standard costs and more differentiated approaches
  - contrast results of standard cost approaches with real variances
  - highlight effects of regional or farm individual differentiation
- To derive recommendations for differentiated approaches in new grids

  Milestone 7.1 month 12 (midterm workshop)

Outline

Principle issues and approach, literature review, technical framework for empirical analysis discussed in Aberdeen and Prague meetings

Today: focus on

- evaluation framework
- case study results
- linkage to existing grids
- extensions to partners
- implications for proposed grids
- time planning

Presentation

Discussion

Why differentiate ?

- WTO requirements: Limit overcompensation

- Budget constraints: Increase budgetary efficiency

- Welfare considerations: Increase economic efficiency

Different objectives

➢ different indicators measuring performance

➢ integrated assessment framework?

Reference system

Evaluating the performance of payment differentiation by comparing two policies P_1 and P_2

In our case:

- P_1 = Flat rate based on standard cost
- all policies aiming to provide public goods / reducing public bads

Welfare economics: P_2 better than P_1 if

$$W_2 > W_1 \quad \text{W = Welfare}$$

e.g. $PS_2+B_2+CS_2+EXT_2 > PS_1+B_1+CS_1+EXT_1$

PR = Producer surplus, CR = Consumer surplus; B = Budget; EXT = external effects

Difficult / impossible to measure external effects in monetary terms (here: societal benefits of farmers' program participation)

$\Rightarrow$ Solution: Compare policies that have the same results (same level of benefits)

Objective: Limit overcompensation

Terminology

Overcompensation arises whenever some producers receive higher transfers than necessary to cover their costs of participation

Alternative terms

Farm economics: profit / income / gross margin
Welfare Economics: producer surplus
OECD: unintended transfers

compliance costs (Latacz-Lohmann and Schlizzi, 2007): *"landholders' true costs of service provision"*

intended transfers (OECD 2007): *"the minimal level of transfers to agricultural producers needed to produce the desired outcome, and only those transfers"*

Indicators

Overcompensation rate: Total transfers / Compliance Costs
Targeting rate: Intended transfers / Total transfers

Objective: Increase budgetary efficiency

Terminology

Budget: Total expenditure by state
           = transfers to producers (payments)
           + policy related transaction costs (PRTC)

PRTC: administrative or implementation costs; the costs of setting-up, maintaining, changing and implementing policies (e.g. information gathering, planning, monitoring)

Indicator

Budgetary Cost Effectiveness   = Budget / Result (e.g. € per kg N abated)
or for policies with same result: = B_2 / B_1

Objective: Increase economic efficiency

Terminology

Focus on welfare <u>changes</u>

Welfare components in our analysis:

- deadweight losses (here: focus on production side)
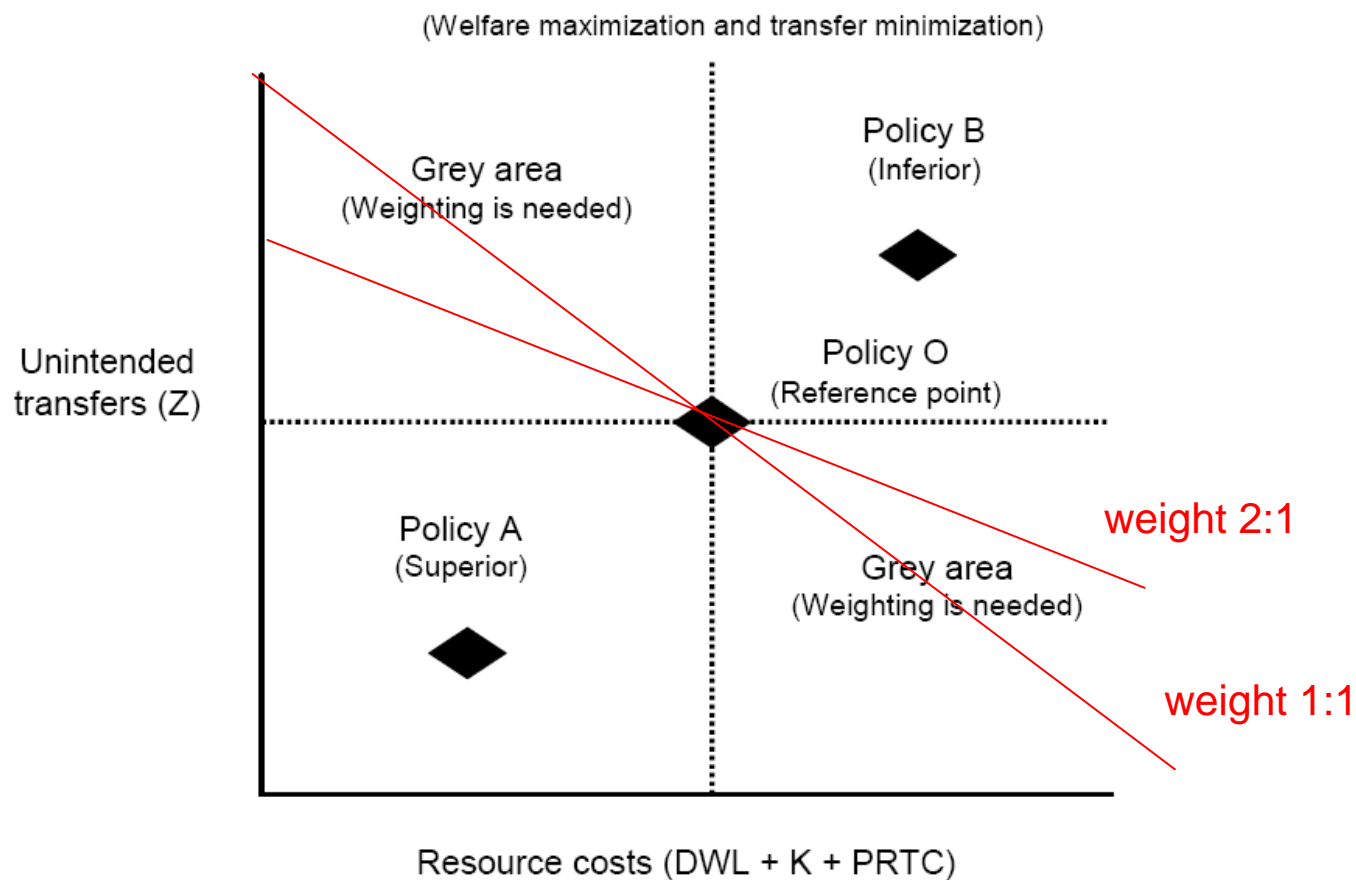- change in policy related transaction costs
- (marginal cost of taxation)

Resource costs

Indicator

Economic Cost Effectiveness   = Resource costs / Result
or for policies with same result: = RC_2 / RC_1

Multiple objectives: Resource costs and unintended transfers

(Welfare maximization and transfer minimization)

Grey area (Weighting is needed)

Policy B (Inferior)

Unintended transfers (Z)

Policy O (Reference point)

Policy A (Superior)

Grey area (Weighting is needed)

weight 2:1

weight 1:1

Resource costs (DWL + K + PRTC)

DWL: Deadweight losses; K: Additional cost of de-linkage; PRTC: Policy-related transaction costs.
Source: OECD (2007), Annex I.3.

Basic conditions and assumptions I

According to EU regulations payment calculations compensate for

- Income foregone
- Additional costs

	Reference situation €/ha	Flowering strips €/ha
Income foregone	**257** high variances	
Additional costs		
• **Seeds**	**0**	**140**
• **Variable machine costs**	**0**	**109** small variances
• **Labour costs**	**0**	**148**
Total loss	**- 540**	

Basic conditions and assumptions II

Hypothetical measure (based on cultivating two different crops / using a typical crop rotation) which is causing adaptation costs of:

- yield reductions / gross margin reductions
- additional costs (non)

Examples of corresponding RD measures in Germany:

- Natura 2000 (grassland), Natural handicap payments (NRW)
- Nature conservation programs on grassland (MWP)
- Organic farming schemes (Germany)

Basic conditions and assumptions III

Calculation conditions

Federal states: Lower Saxony (NIE); Bavaria (BAY); North-Rhine-Westphalia (NRW)

Time period: 2000 – 2005 (5 years); test with 3 years, test with 1 year;

Example crops: wheat, potatoes, typical crop rotation (cereals, rapes, sugar beets, potatoes, set-aside)

Sample size: total farms approx. 11000 in data base; number has been reduced to farms cultivating corresponding crops in corresponding time period in corresponding federal states

Reference: Flat-rate payment per ha based on average resource costs (50 % participation)

Basic conditions and assumptions IV

Performance indicators:

- Overcompensation rate (OR)
- Budgetary Cost Effectiveness (BCE)
- Economic Cost Effectiveness (ECE)

Levels of payment differentiation:

- Administrative district level (NUTS I)
- Rural district level (NUTS II)
- Individual level

Comparing results

Basic conditions and assumptions V

Assumed result levels and applied differentiation:

- Each ha (participant) provides same (ecological) benefit (i.e. holding numbers of participants constant)
  - Administrative district level [Admin_dist]
  - Rural district level [Rural_dist]
  - Individual (Farm) level [Individual]
- Result is positively correlated with resource costs:
  - Administrative district level [Admin_dist_Eco]
  - Individual (Farm) level [Individual_Eco]

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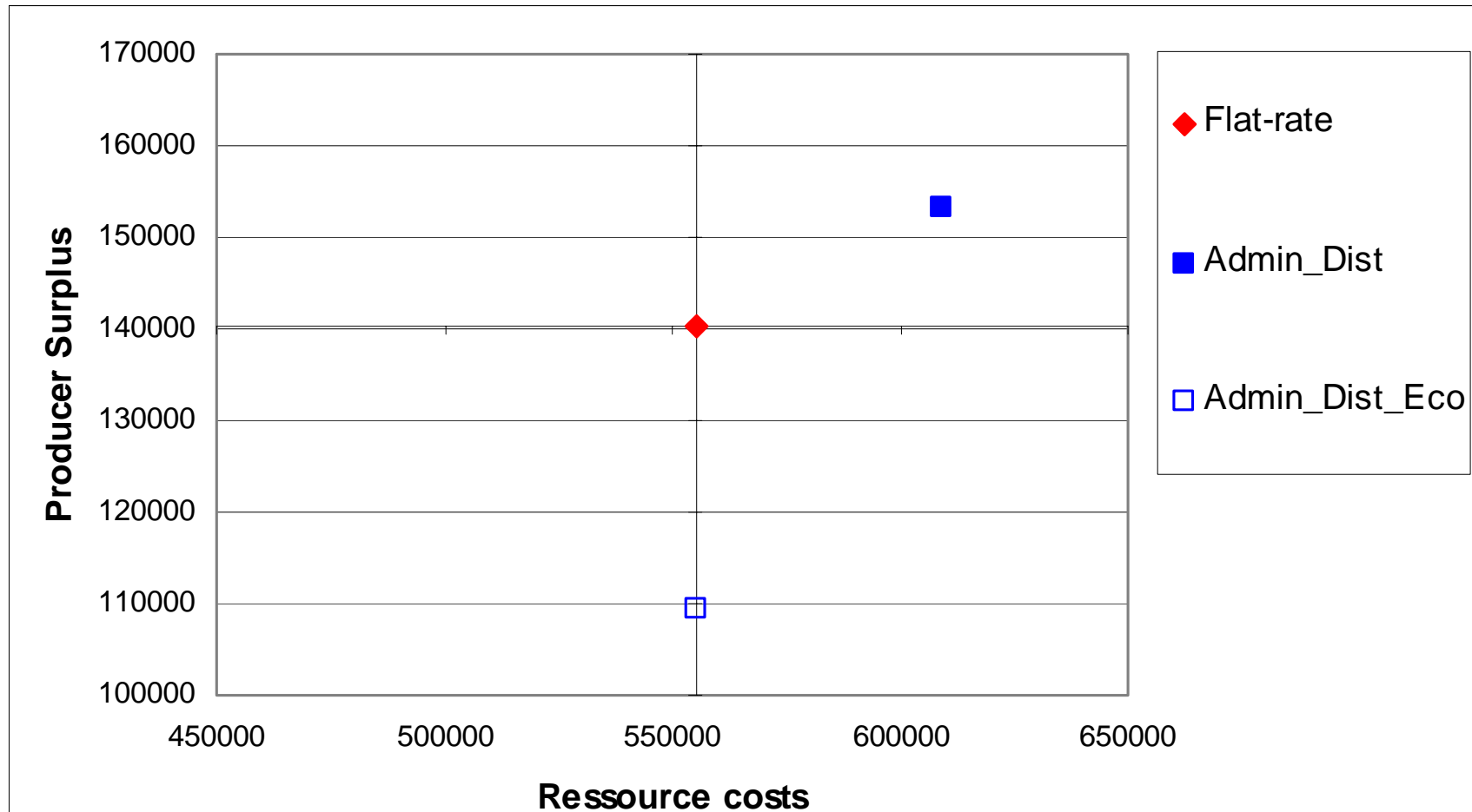# Performance of differentiation: Example Lower Saxony
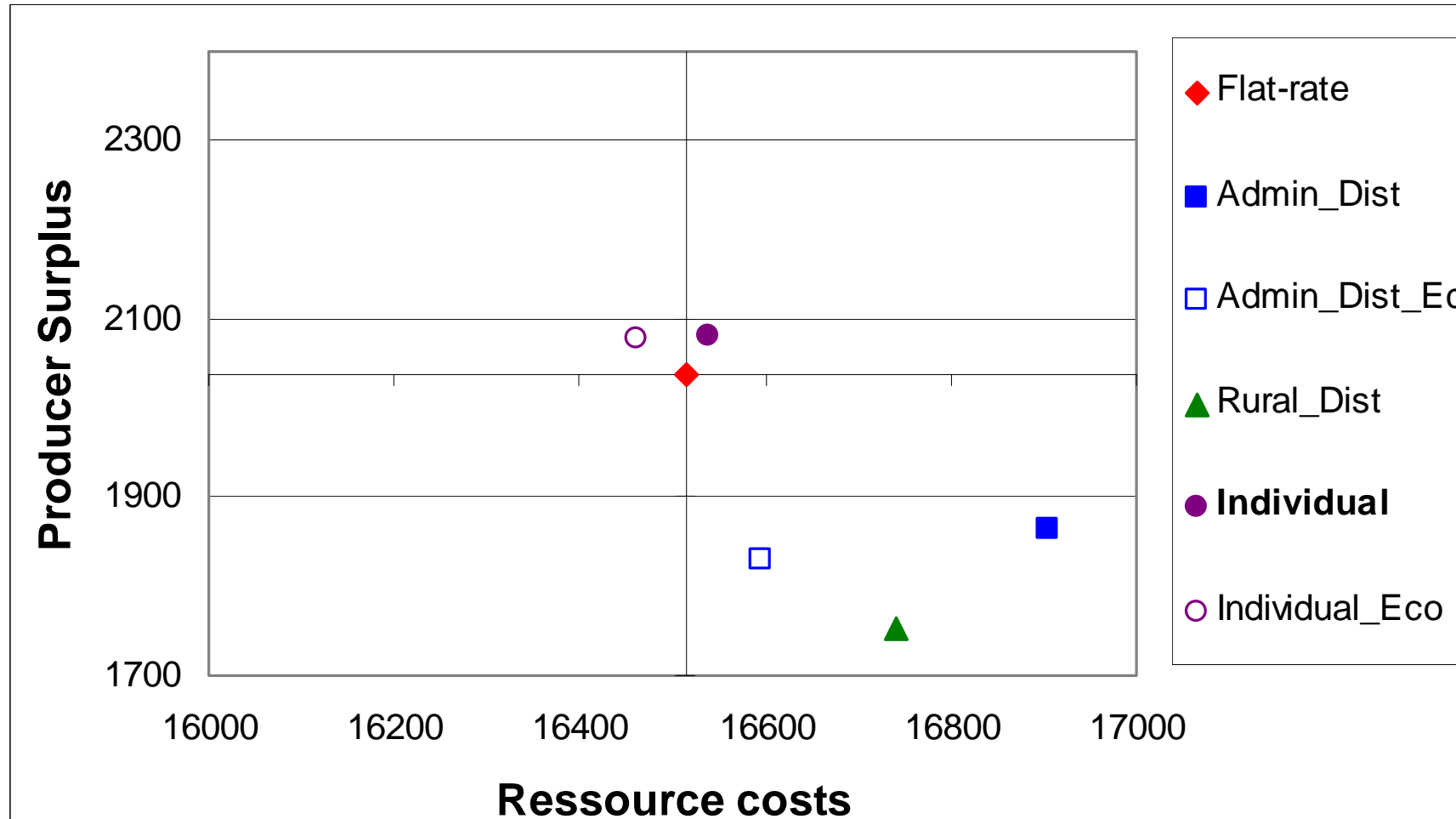
# Performance of differentiation: Example Bavaria
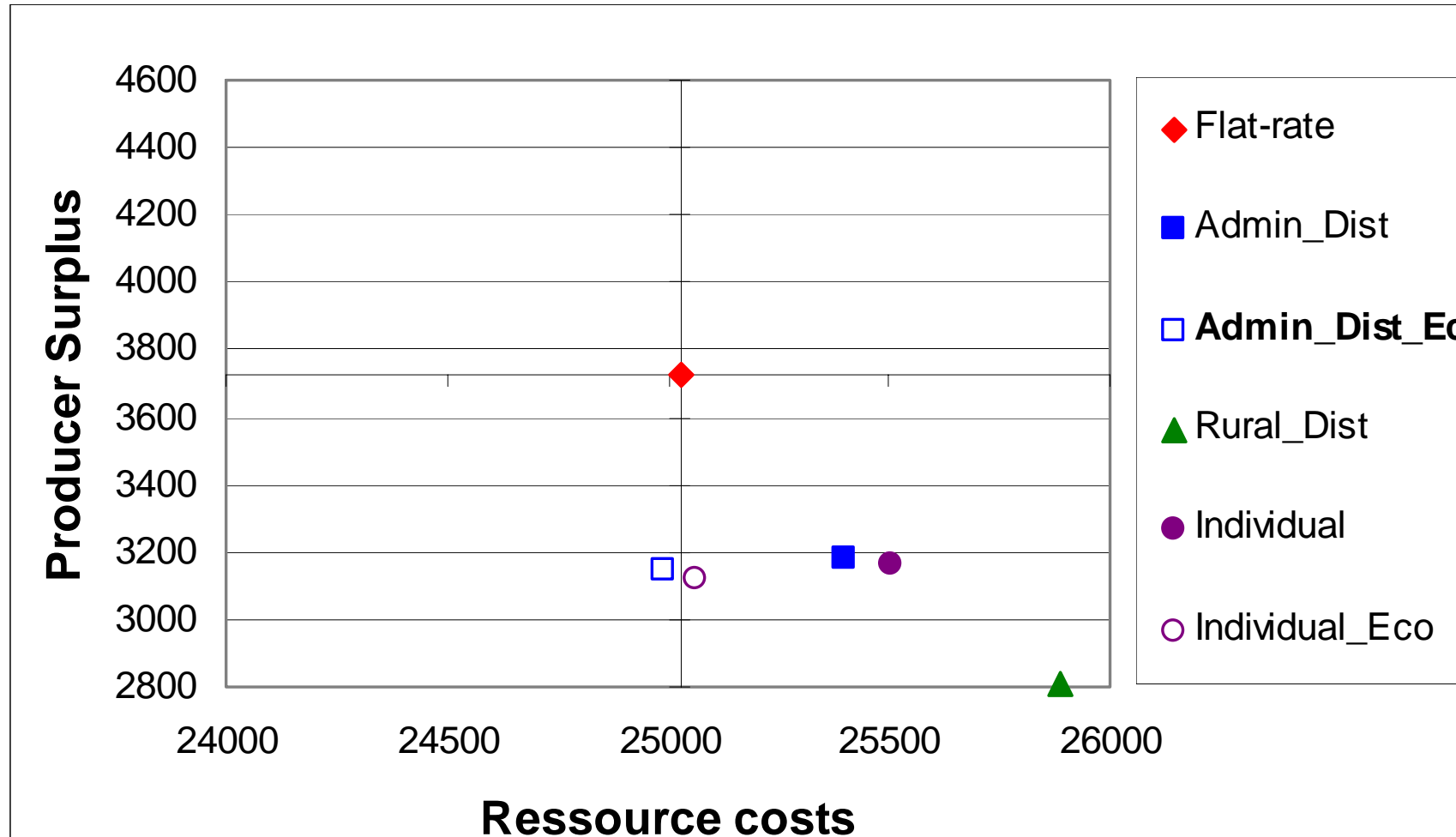
Improvement by differentiation: Example Lower Saxony

Improvement by differentiation: Example Lower Saxony

	Budget (B)	Resource costs (RC)	Overcompensation (PS)	Participants	B / RC	Budgetary Cost Effectiveness	Rate of overcompensation	Economic Cost Effectiveness
	1000€	1000€	1000€	N	1000€ /1000€	%	%	%
Flat-rate	1030	756	274	758	1,36	100,0	100,0	100,0
Admin_Dist	981	760	221	758	1,29	95,2	94,8	100,4
Admin_Dist_Eco	975	757	218	756	1,29	94,7	94,6	100,1

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Effects of weighting: Example Lower Saxony
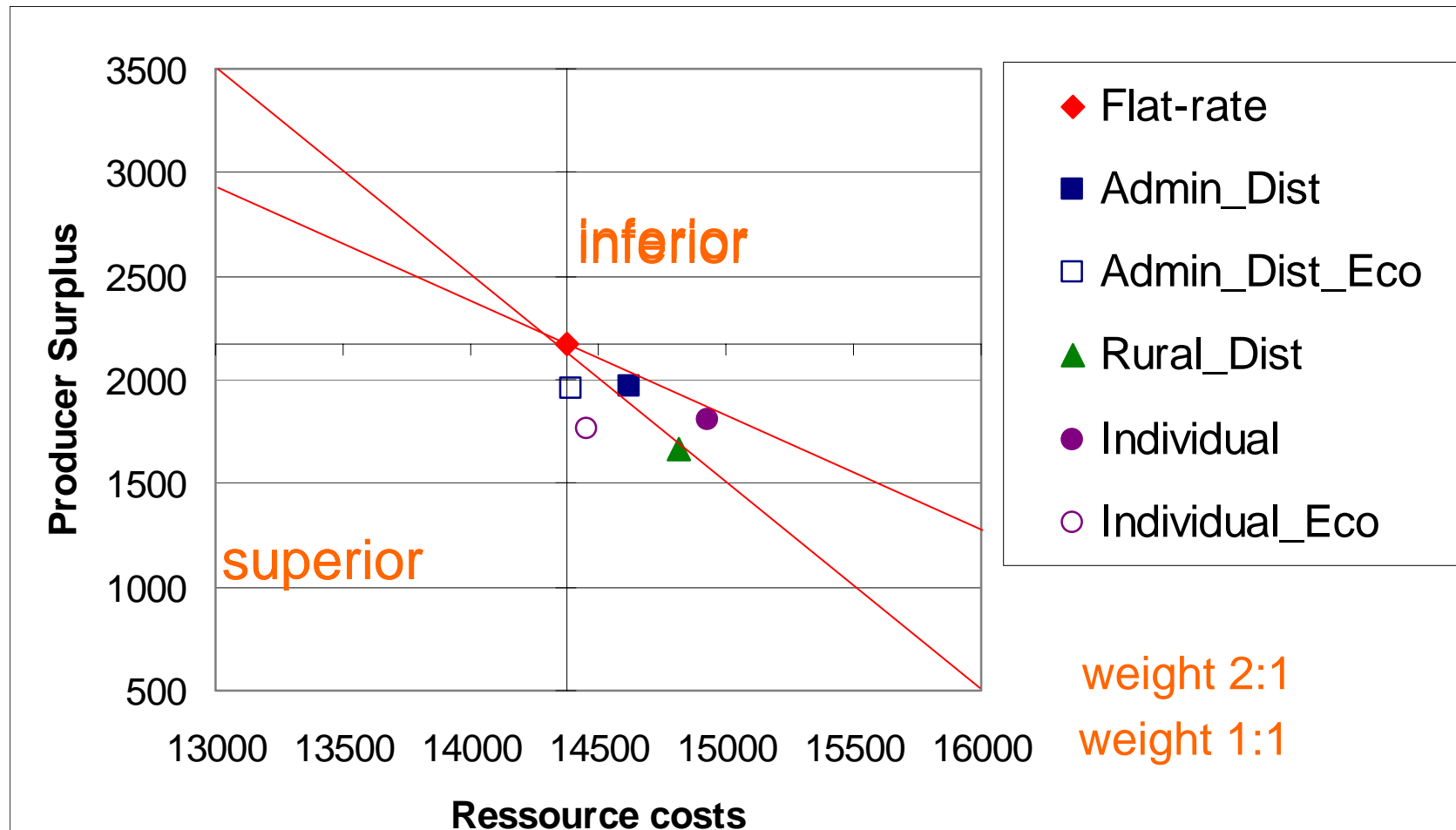
Considering policy related transaction costs (PRTC): Example Bavaria I

WHEAT	Weithing			
	1:1		1:2	
	BCE		BCE	
Without PRTC				
Admin_Dist	0,994	superior	0,978	superior
Admin_Dist_Eco	0,979	superior	0,963	superior
Rural_Dist	0,998	superior	0,970	superior
Individual	0,997	superior	0,980	superior
Individual_Eco	0,980	superior	0,964	superior
Low PRTC				
Admin_Dist	1,024	inferior	0,930	superior
Admin_Dist_Eco	1,008	inferior	0,915	superior
Rural_Dist	1,028	inferior	0,943	superior
Individual	1,027	inferior	0,934	superior
Individual_Eco	1,009	inferior	0,917	superior

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Considering PRTC's: Example Bavaria II

WHEAT	Weithing			
	1:1		1:2	
	BCE		BCE	
Low PRTC				
Admin_Dist	1,024	inferior	0,930	superior
Admin_Dist_Eco	1,008	inferior	0,915	superior
Rural_Dist	1,028	inferior	0,943	superior
Individual	1,027	inferior	0,934	superior
Individual_Eco	1,009	inferior	0,917	superior
High PRTC				
Admin_Dist	1,243	inferior	1,098	inferior
Admin_Dist_Eco	1,223	inferior	1,080	inferior
Rural_Dist	1,247	inferior	1,112	inferior
Individual	1,246	inferior	1,102	inferior
Individual_Eco	1,225	inferior	1,083	inferior

Considering PRTC: Example Lower Saxony I

	Budget (B)	B / RC	Budgetary Cost Effectiveness	Rate of overcompensation	Economic Cost Effectiveness
	1000€	1000€ /1000€	%	%	%
FR	1030	1,36	100,0	100,0	100,0
AD	981	1,29	95,2	94,8	100,4
AD_Eco	975	1,29	94,7	94,6	100,1
FR	1030	1,36	100,0	100,0	100,0
AD + Low PRTC	1011	1,33	98,1	97,4	100,4
AD_Eco + Low PRTC	1005	1,33	97,5	97,6	100,1
FR	1030	1,36	100,0	100,0	100,0
AD + High TC	1171	1,54	113,7	112,9	100,4
AD_Eco + High TC	1165	1,54	113,0	113,2	100,1

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Outlook

- **Sensitivity analysis with relation to**
    - **Share of participation**
    - **Marginal Costs of Taxation**
    - **Measures with windfall profits**
    - **Non-linear correlation environmental benefit and compliance costs**
    - **Measures with variation in costs**
- **Extension to**
    - **EU FADN**
    - **Partners**
- **LADSS**

Adaption to partner countries

What we provide:

- **Guidelines for case-study analysis**
- **Summary of main results from Germany**
- **Used tools (standardised program + excel transfers)**
- **Personal assistance in applications (visiting partners)**

What we require:

- **National FADN-data**
- **Other data sources + assistance for tool adaptations**
- **Summary of main results from partner countries**

Time table

Depending on date for mid-term workshop

- **First draft of guidelines for case study**   **01.03.**
- **Summary of main results from Germany**   **15.03.**
- **Guidelines for case-study analysis**   **20.03.**
- **Standardised program + excel transfers**   **20.03.**
- **Personal assistance in applications**   **afterwards**