The impacts of the new CAP on farm income distribution in Germany

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Motivation

EU Regulation 1307/2013 of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy:

- „ The distribution of direct income support among farmers is characterised by the allocation of disproportionate amounts of payments to a rather small number of large beneficiaries.
- Larger beneficiaries, due to their ability to exploit economies of size, do not require the same level of unitary support in order for the objective of income support to be efficiently achieved.
- Moreover, the potential to adapt makes it easier for larger beneficiaries to operate with lower levels of unitary support. “

Structure of the presentation

1. **Motivation**

   → *analyzing distributional impacts of the CAP reform*

2. **Current and new CAP**

   → *a schematic comparison of direct payments systems*

3. **Data and methods**

   → *German FADN data and the Gini coefficient*

4. **Empirical analysis**

   → *Does inequality of direct payments and income decrease?*

5. **Summary and outlook**

   → *… after the reform is before the reform*

Direct payments in Germany - current and new system

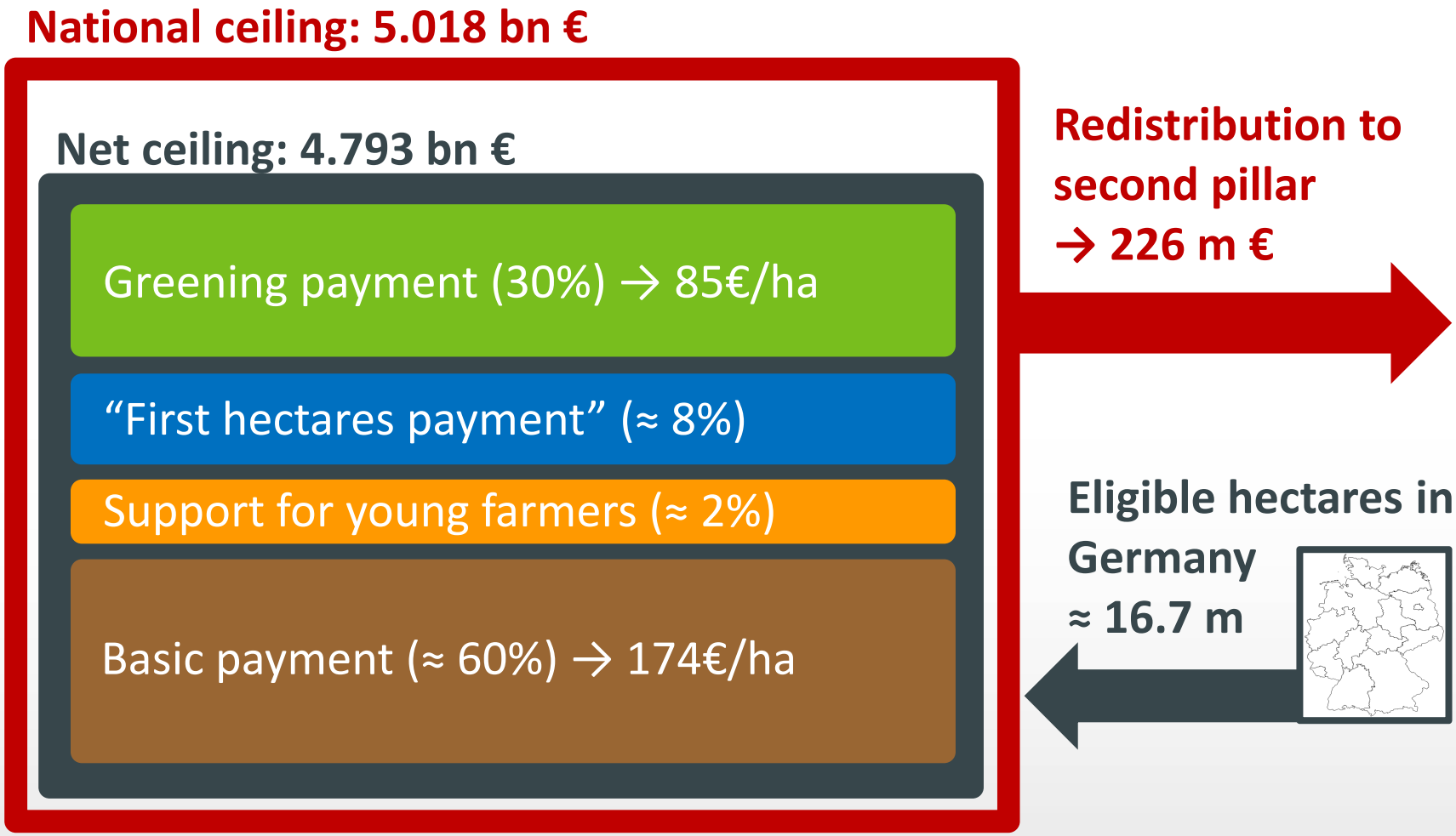
Current direct payment system in Germany:

- Regional model (all payment entitlements are uniform in each region, i.e. “Länder”)
- Fully decoupled since 2012
- Modulation (size-dependent curtailment of direct payments)

Implementation of the new CAP in Germany:

- Redistribution from first to second pillar (4.5%)
- Basic payment and greening payment
- Support for young farmers (max. 90 hectares and < 40 years)
- Supplement to small and medium-sized farms (50 €/hectare for the first 30 hectares and 30 €/hectare for additional 16 hectares)

Direct payments in Germany - the new building blocks



Reactions to the decision on the national implementation in Germany

„strengthens traditional family farms“

„strengthens the ‚middle-class‘ of rural farms“

„disadvantages farms with larger structures“

„ensures more justice concerning the distribution of funds“

„redistribution at the expense of specific organisational forms“

„redistribution in favour of traditional (peasant) farms too small“

Objective, data and method

Impact of the national implementation of the first pillar reform …

- on the distribution of direct payments and on farm income
- with a focus on the additional premium for the first hectares

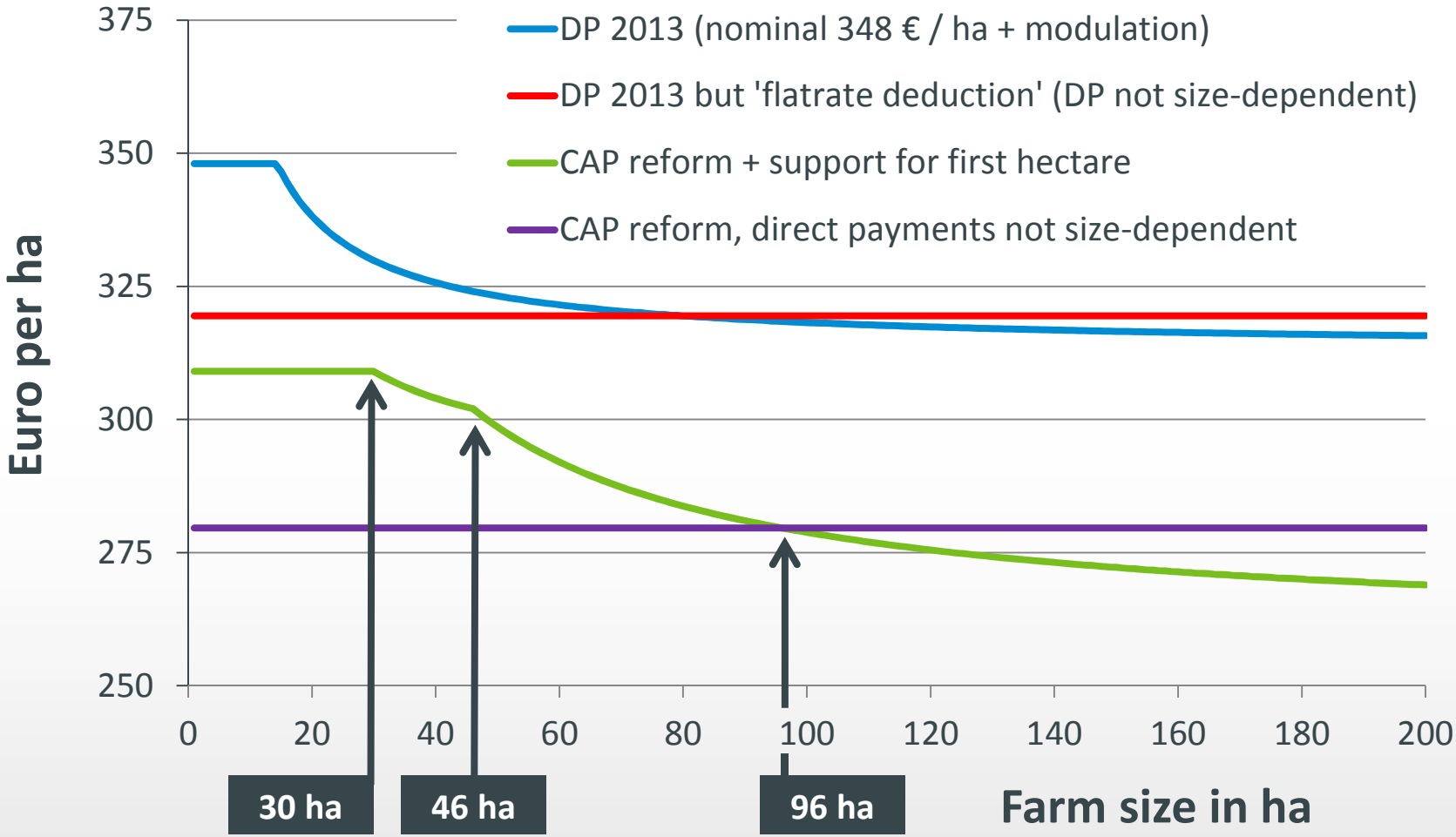
German FADN data

- 3-year average of (2009/10, 2010/11, 2011/12) to reduce the impact of income variability
- Sample selection → full-time family farms

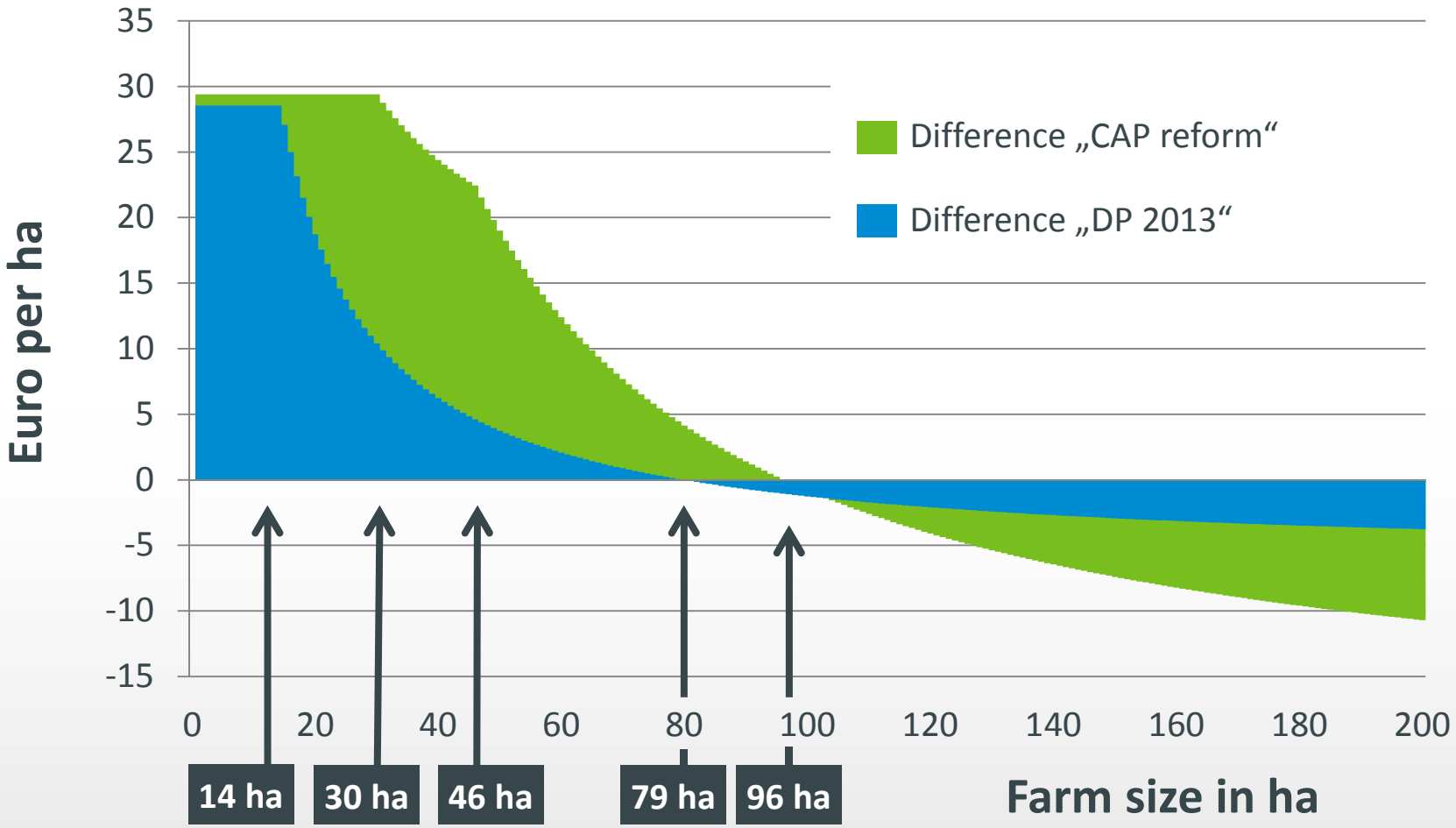
Contribution of an income source to aggregate inequality

- Decomposition of the Gini coefficient by income (or direct payment) component

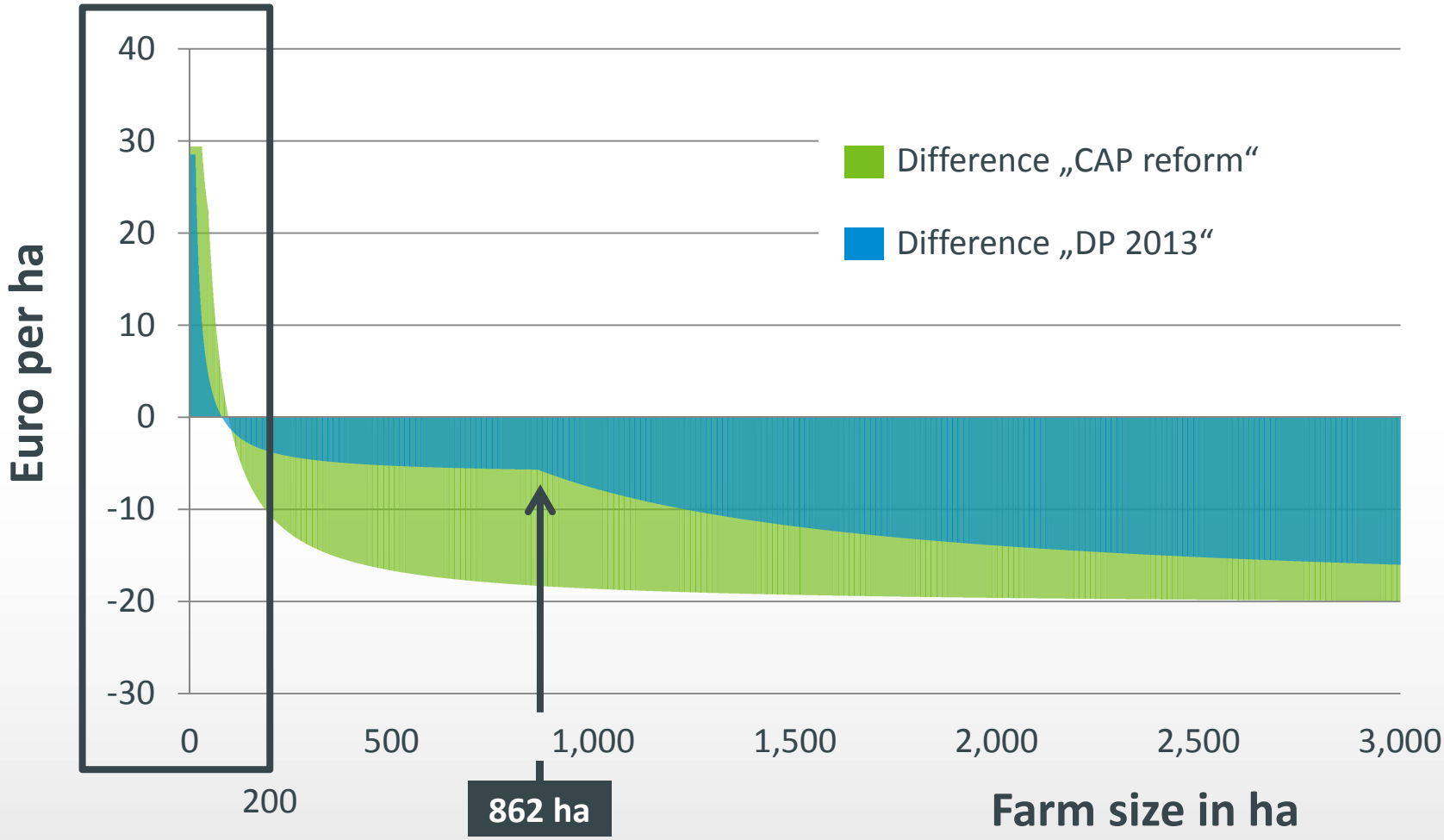
Average direct payments per hectare (ha) in relation to farm size in Germany



Difference between size-dependent and uniform direct payments size in Germany (I)



Difference between size-dependent and uniform direct payments size in Germany (II)



Distribution of farm income and first pillar payments by deciles of income classes in Germany (in %)

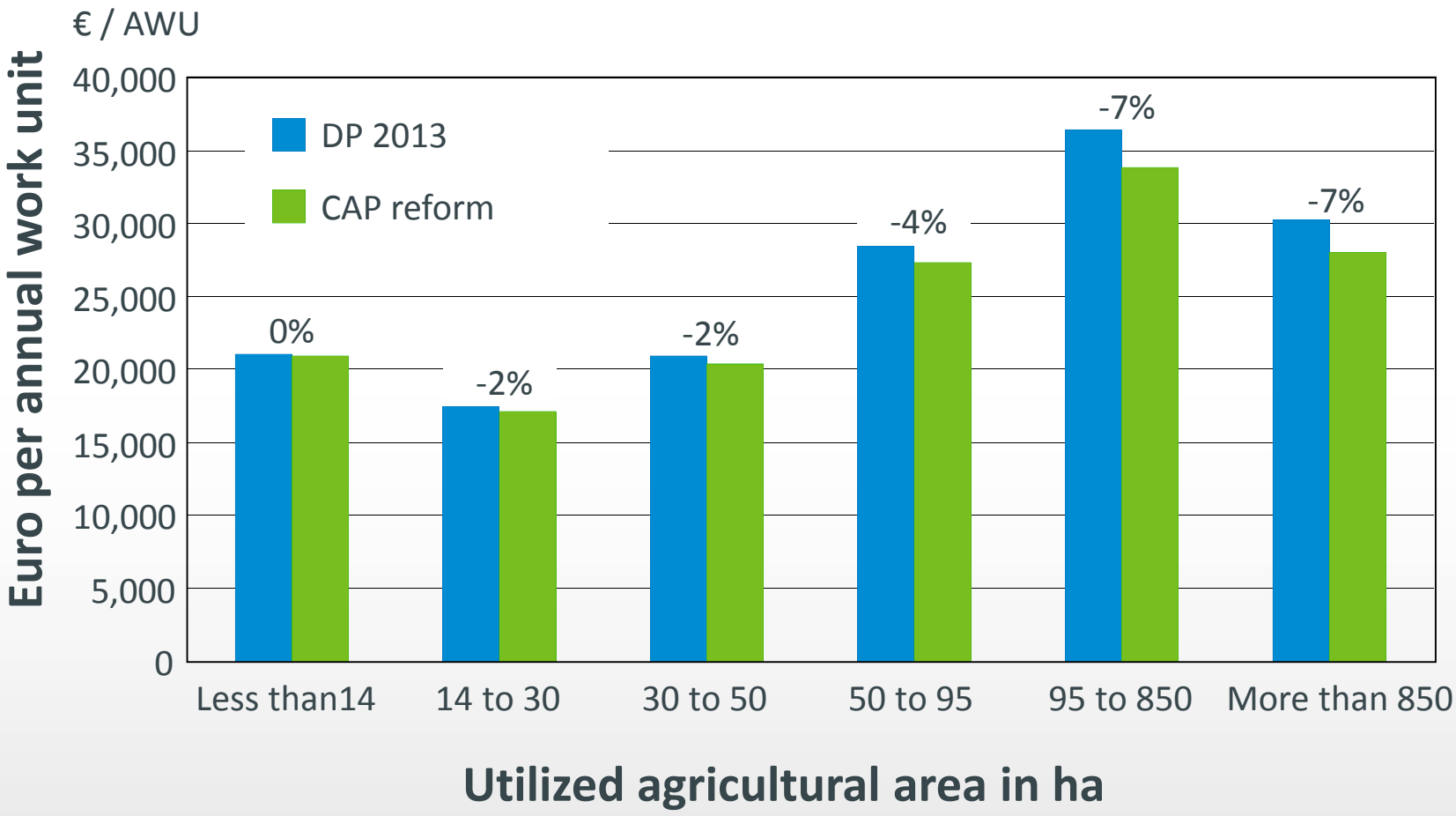
	Current system (2013)		CAP reform (national implementation)	
Decile groups	Farm income	Direct payments first pillar	Farm income	Direct payments first pillar
1	-1.1	7.4	-1.5	8.1
2	2.7	6.3	2.6	7.1
3	4.4	7.0	4.3	7.4
4	5.8	7.1	5.8	7.7
5	7.2	8.3	7.2	8.3
6	8.8	8.6	8.8	8.8
7	10.5	9.6	10.7	9.6
8	13.0	10.9	13.0	10.6
9	17.1	13.4	17.3	12.7
10	31.5	21.5	31.8	19.8
Sum	100.0	100.0	100.0	100.0

Distribution of farm income and first pillar payments by deciles of income classes in Germany (in %)

CAP reform (national implementation)

Decile groups	Farm income	Basic payment	Greening payment	First hectares payment	Support to young farmers
1	-1.5	8.0	8.0	9.3	6.5
2	2.6	6.9	6.9	9.4	6.1
3	4.3	7.2	7.2	9.3	8.6
4	5.8	7.5	7.5	9.6	10.3
5	7.2	8.2	8.2	9.8	9.8
6	8.8	8.6	8.6	10.2	10.7
7	10.7	9.5	9.5	10.2	8.5
8	13.0	10.6	10.6	10.6	12.1
9	17.3	12.9	12.9	10.7	12.3
10	31.8	20.6	20.6	10.8	15.3
Sum	100.0	100.0	100.0	100.0	100.0

Change in income, by farm size (ha UAA)



Distributional analysis using the Gini coefficient (G)

The Gini coefficient

- distributional measure
- calculated as

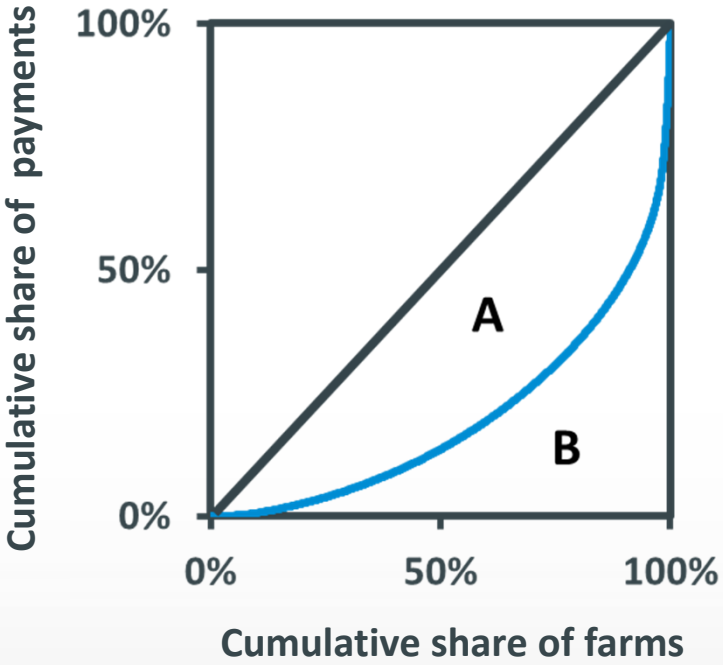
$$\frac{\text{Area A}}{\text{Area A + Area B}}$$

- values range from 0 to 1

  G = 0 indicates equal distribution

  G = 1 indicates maximal concentration

- in the presence of negative values G may exceed unity



Gini coefficient (G), its decomposition and the Gini elasticity

$$G = \frac{2\sum_{k=1}^{K}[cov(Y_k, r(Y))]}{N\mu(Y)}$$

$$G = \sum_{k=1}^{K} \underbrace{\frac{\mu(Y_k)}{\mu(Y)}}_{S_k} \times \underbrace{\frac{2cov(Y_k, r(Y_k))}{N\mu(Y_k)}}_{G_k} \times \underbrace{\frac{cov(Y_k, r(Y))}{cov(Y_k, r(Y_k))}}_{R_k}$$

S_k: Component *k* 's share in total income

G_k: Gini coefficient of income component *k*

R_k: Gini correlation between total income and component *k*

Gini elasticity $\longrightarrow$ $$\varepsilon_k = \frac{\partial G}{G} \times \frac{\mu(Y_k)}{\partial\mu(Y_k)} = \frac{R_k \times G_k \times S_k}{G} - S_k$$

Source: Following Lerman and Yitzhaki 1985, p. 152 and Podder 1993, p. 54

Gini coefficient (G) for first pillar payments (full-time family farms and all farms)



Gini coefficient (G) for first pillar payments and its components (full-time family farms)

	Current system (2013)	CAP reform (national implementation)
G	0,438	0.423

Gini decomposition for first pillar payments "CAP reform"

Component of first pillar payment	Share (S_k)	Gini coefficient (G_k)
Basic payment	0.612	0.449
Greening payment	0.299	0.449
First hectares payment	0.081	0.145
Support to young farmers	0.007	0.963

Gini coefficient (G) for farm income and its decomposition (full-time family farms)

	Share (S_k)	Gini coefficient (G_k)	Gini correlation (R_k)	Elasticity ε_k
Current system				
Farm income		**0.463**		
Market income	0.357	1.231	0.764	0.367
First pillar payments	0.477	0.438	0.474	-0.263
Second pillar payments	0.166	0.559		
CAP reform				
Farm income		**0.473**		
Market income	0.376	1.231	0.797	0.404
First pillar payments	0.449	0.423	0.401	-0.288
Second pillar payments	0.175	0.559		

Summary

„CAP reform and its national implementation in Germany“

- … will lead to a redistribution of direct payments between regions and farms.
- Farm-specific impacts depend on
  - region (unification of basic payments until 2019)
  - size in hectares (small and medium-sized vs. large farms) and
  - eligibility for support to young farmers.
- Results show a small reduction in inequality of direct payments … but no reduction in inequality of distribution of incomes.
  - First hectares support is almost equally distributed across income deciles, however
  - low “leverage” due to limited financial magnitude.

… and outlook

„CAP after 2020“

- Legitimization and evaluation of income-oriented direct payments is required.
  - Greening payment → environmental services
  - Support for young farmers → agricultural structures
  - First hectares payment → agricultural structures/income support
  - Basic payment → income support
- Rapid and dynamic changes in the (German) agricultural sector

  → Definition of “income” is crucial:
  - agricultural versus household income,
  - part-time versus fulltime-family farms versus “corporate farms”.

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