

# Analysis of Competitiveness of German Agriculture based on FADN data

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$$GCI = \frac{FNI}{OC_w + OC_l + OC_c} \begin{matrix} > \\ = 1 \\ < \end{matrix}$$

# 1 Introduction

**Competitiveness is a rather complex question dealing with interactions between firms, sectors, national and global economies, etc.**

**Measurement concepts are market shares, productivity changes and economic performance indicators.**

**Depperu and Cerrato (2010): 'Profitability is generally considered the most important measure of competitive success...'**

# Structure

## 1. Introduction

## 2. Data an Method

## 3. Results

- Distribution of profit and opportunity costs
- Distribution between Global Competitive Index (GCI) classes
  - sector level
  - by farm types
  - organisational forms and regions

## 4 Summary and conclusions

## 2 Method and data

**Working hypothesis:** generating income is necessary to remunerate own factors of production, financing net investments for farm growth and innovations.

If the profit is greater than factor costs entrepreneurs are able to compete and stay in business, otherwise they could try to adjust or go out of business and using the factors otherwise.

# The Global Competitive Index (GCI) (Gallardo, 2001)

Relation between profit and opportunity costs of own factors

$$GCI = \frac{FNI}{OC_w + OC_l + OC_c} \begin{matrix} > \\ = 1 \\ < \end{matrix}$$

... < 1 partial, .... >= 1 full compensation of family owned factors

Classification wrt GCI into 4 groups:

- Negative income (GCI1)
- $0 < GCI < 1$  (GCI2)
- $1 \leq GCI < 2$  (GCI3)
- $GCI \geq 2$  (GCI4)

# Data

**Data:** German national FADN data 2004/5 to 2012/13

- Sample of farms by main farming types (excl. Horticulture, Permanent crops and Wine ...due to problems in valuation of opportunity costs for land)
- Income indicator: Profit, similar to Farm Net Income (FNI)

**Opportunity costs (OC)** of own factors derived by regions (Länder) and main farming types

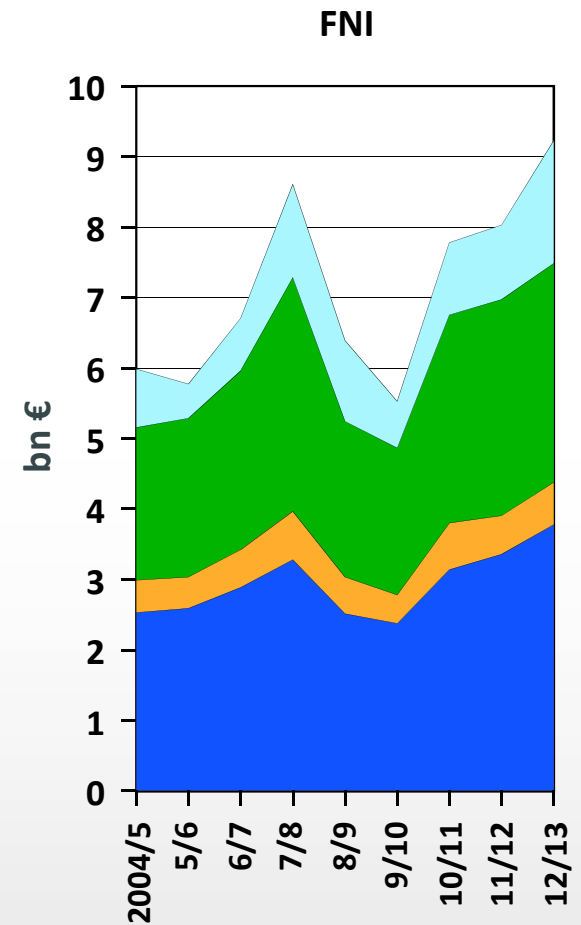
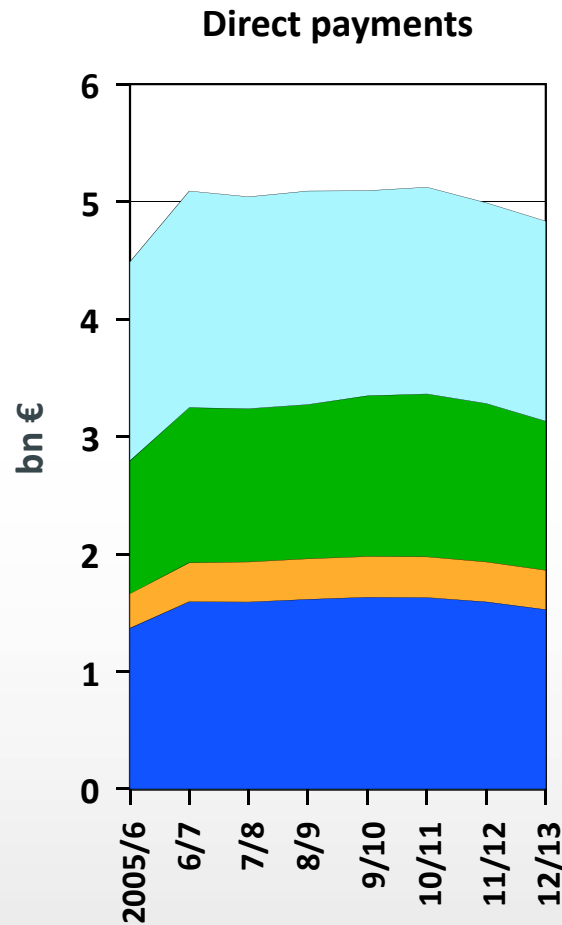
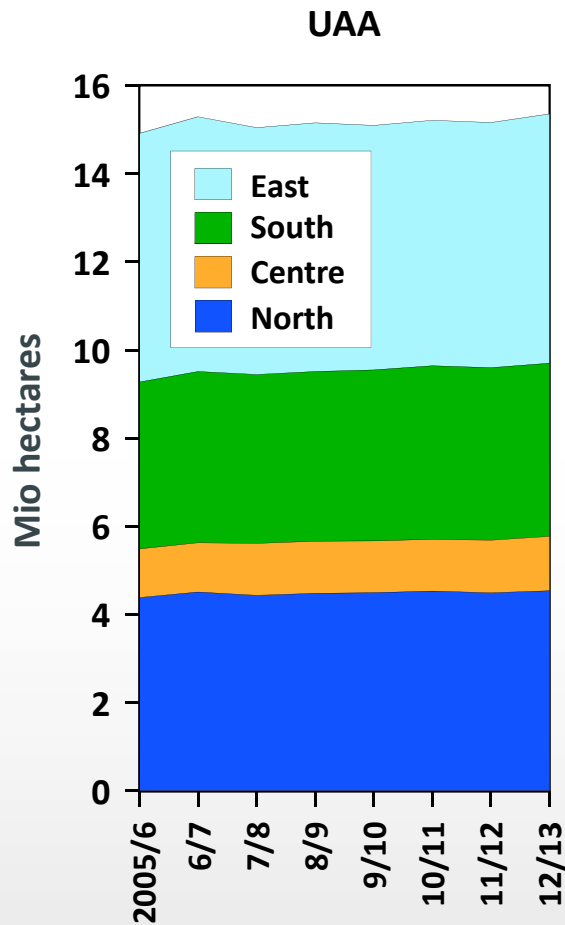
- Land ... based on rental prices of land rented
- Labor ... based on labor costs of salaried workers
- Capital ... based on interest rates

Aggregation at sector level using farm individual weighting factors

## 3 Results

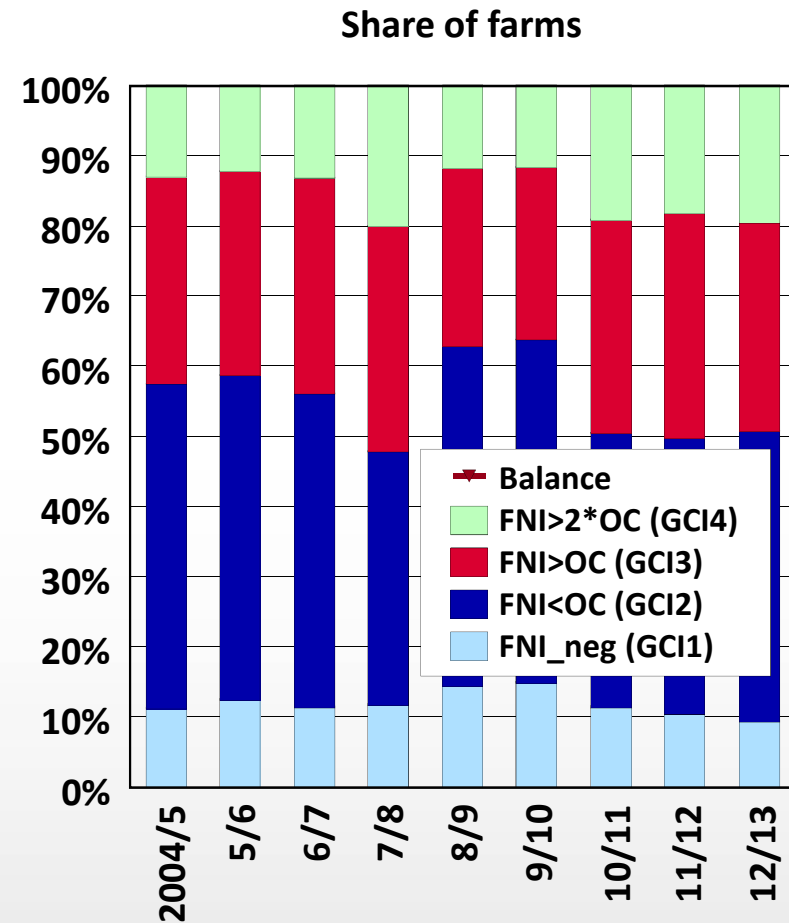
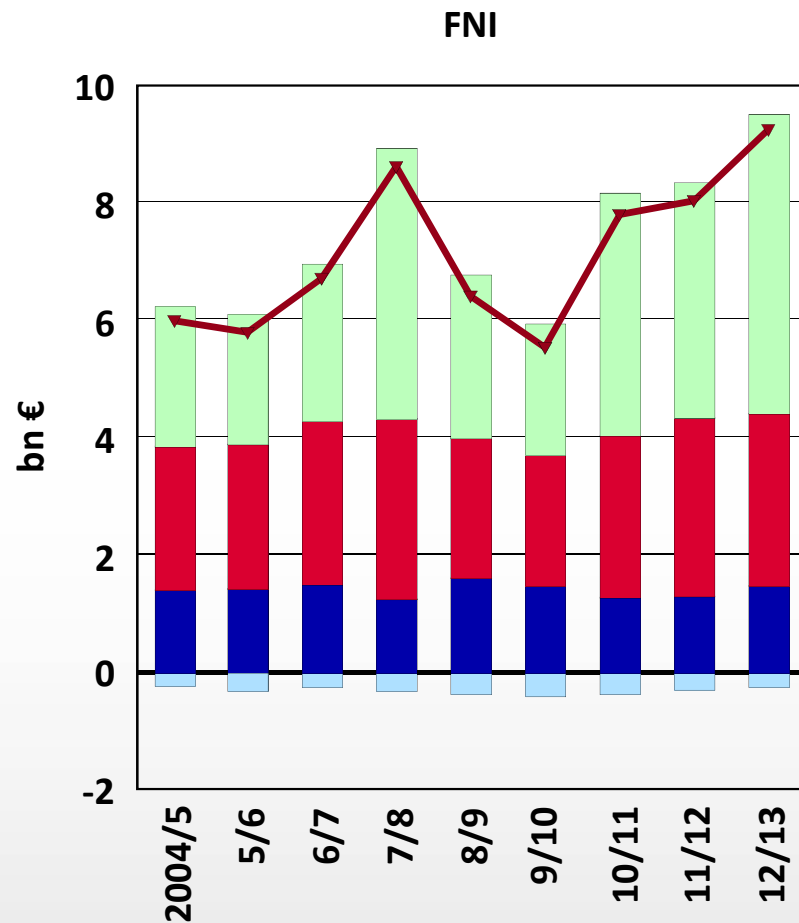
- **Distribution of income, subsidies and opportunity costs**
- **Results by sector, farm type and regions**
- **Modification of Direct Payments**

# Distribution of UAA; direct payments and income (FNI) by regions (represented by the sample)

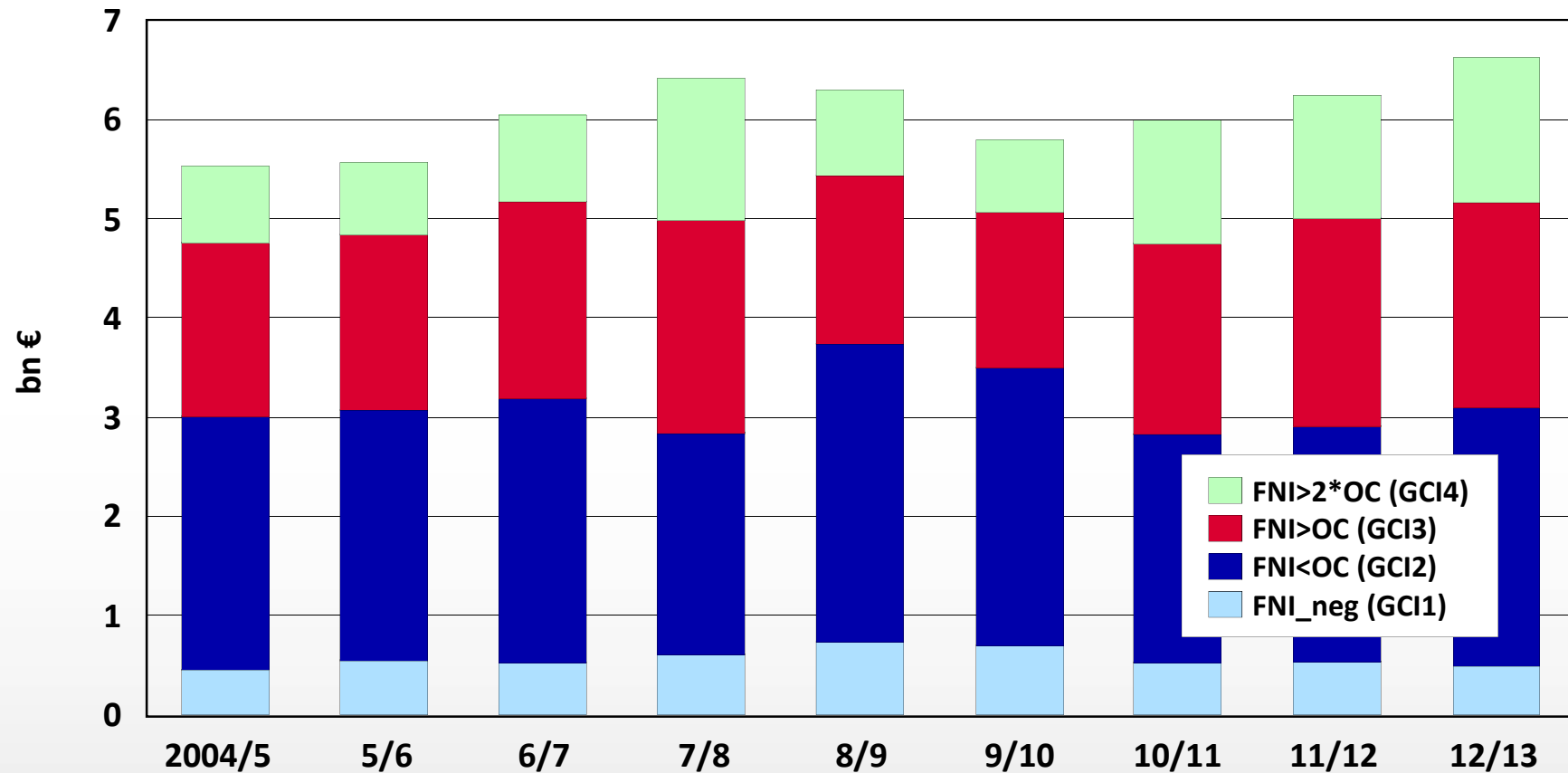




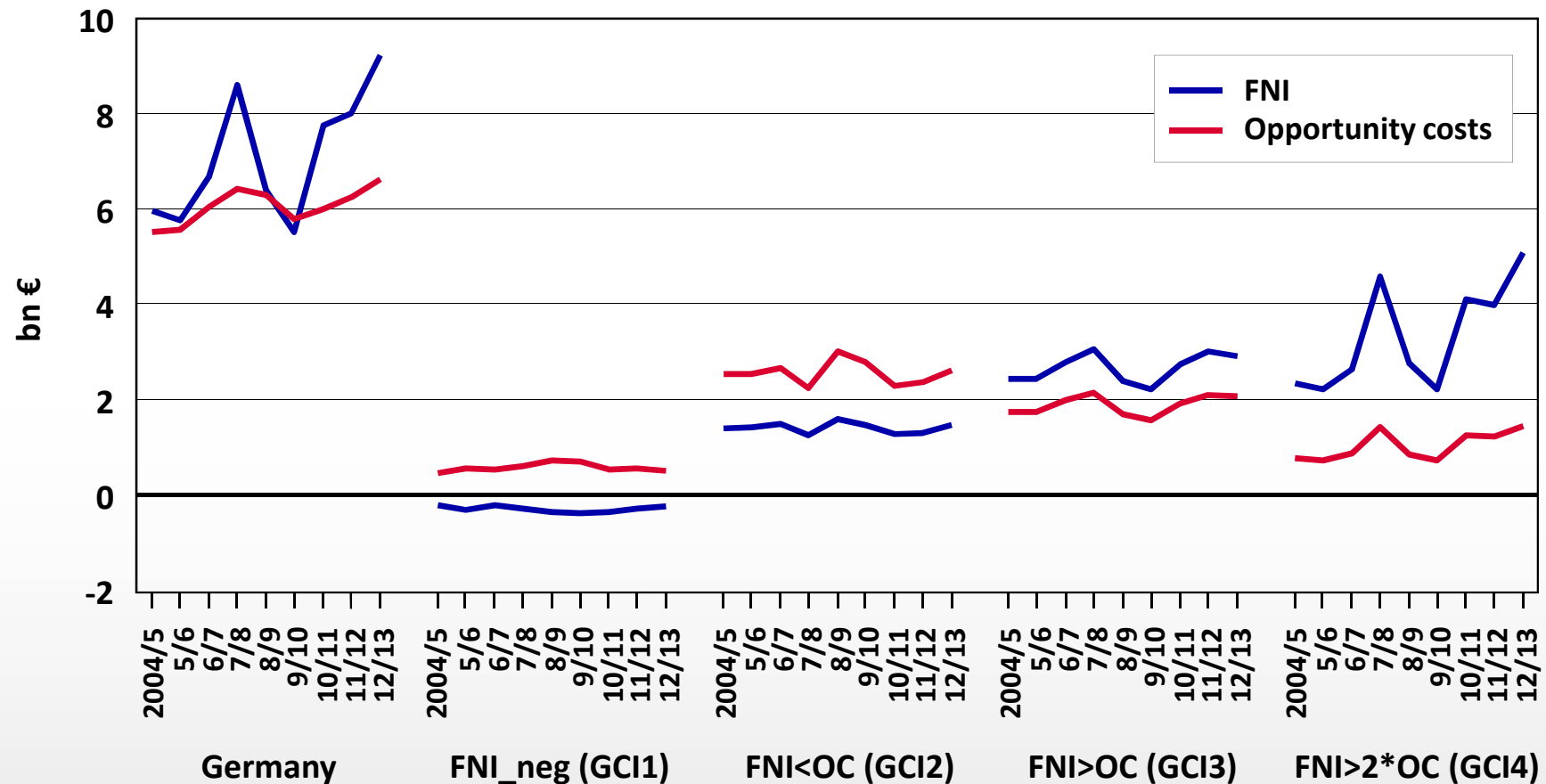
# Development / distribution of FNI and share of farms by GCI classes - sector



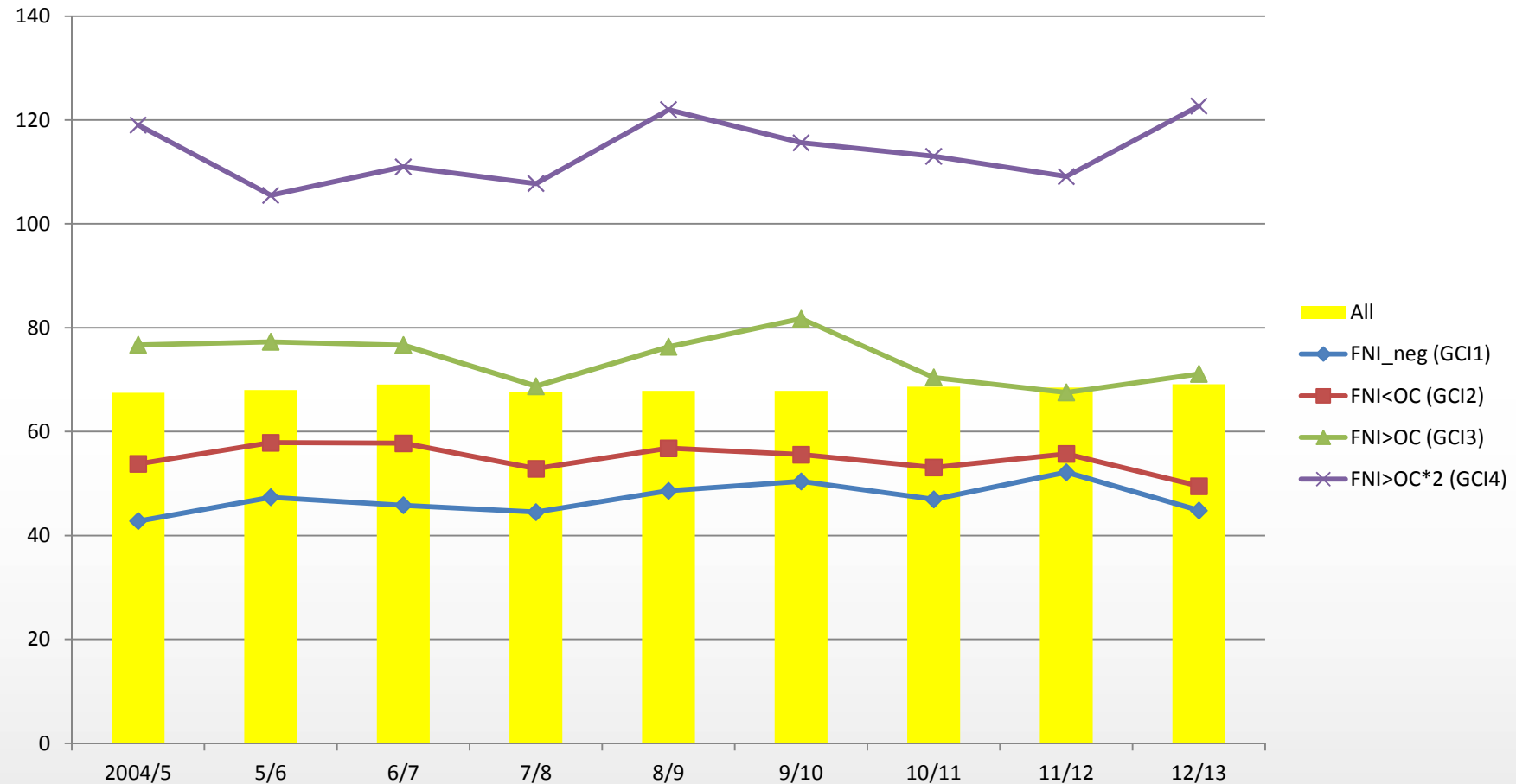
# Development of opportunity costs of farm owned factors by GCI classes - sector



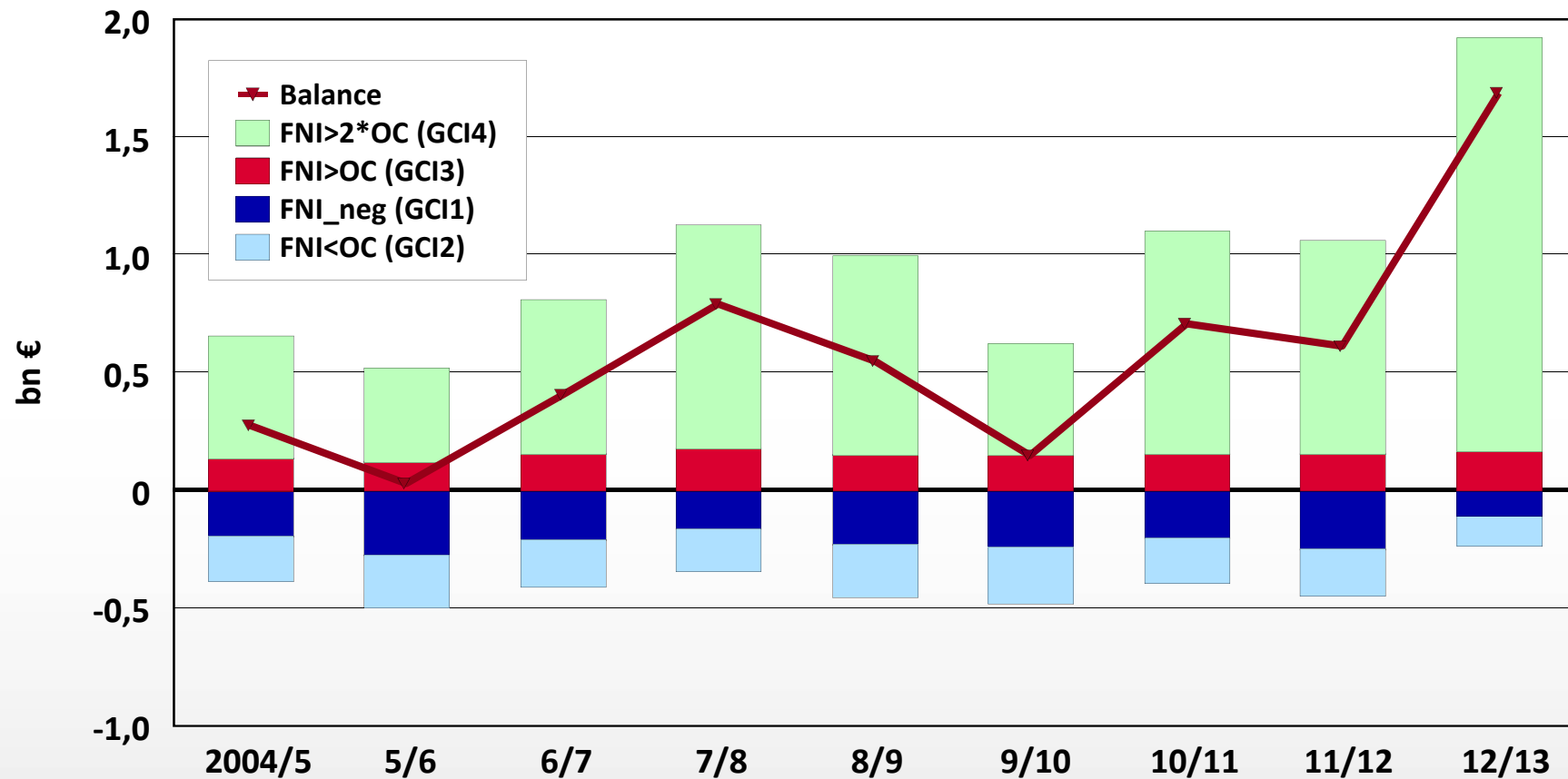
# Relation between income and opportunity costs - sector level



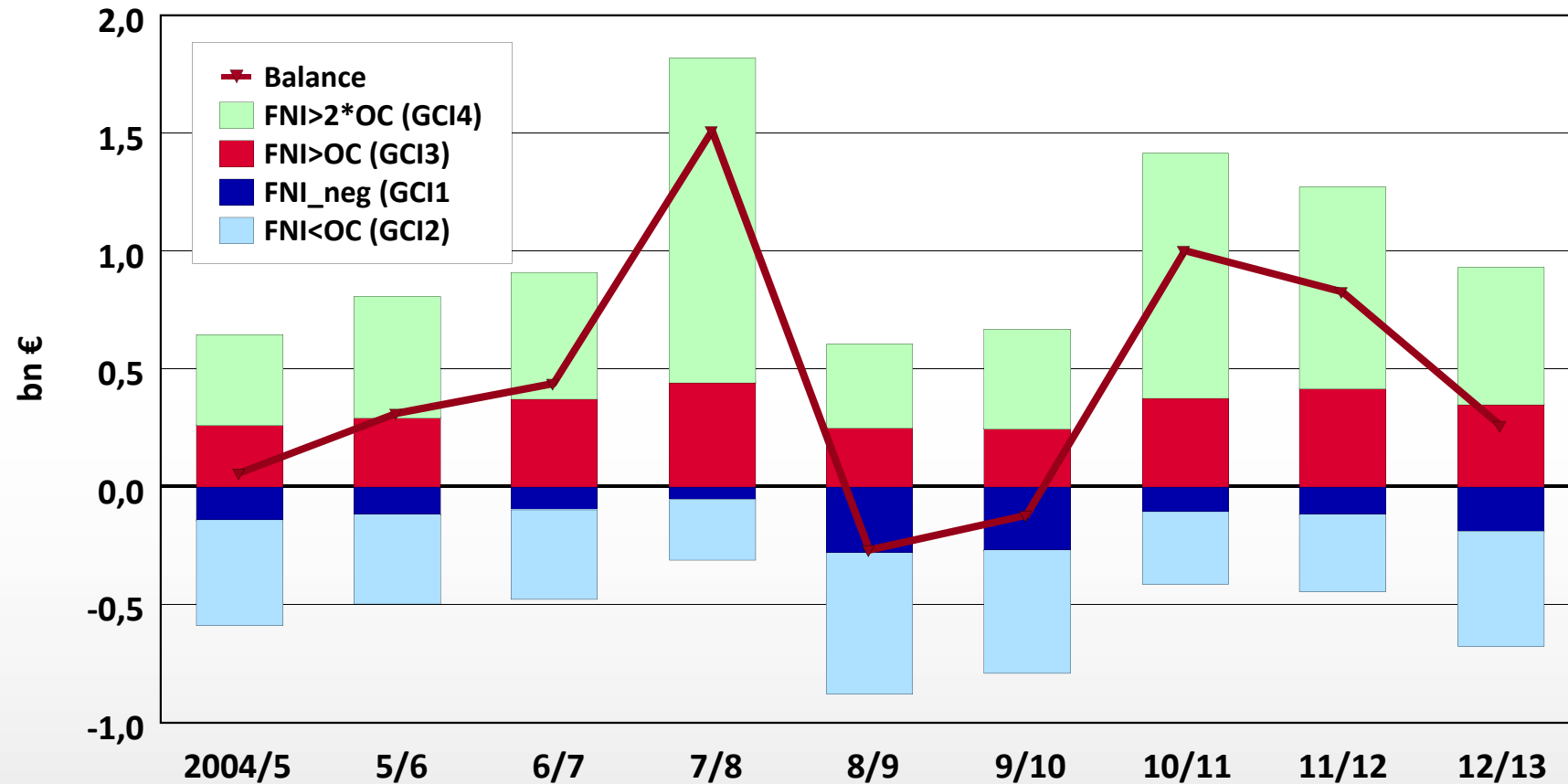
# Size of farms (ha UAA) in the different GCI classes – Individual farms



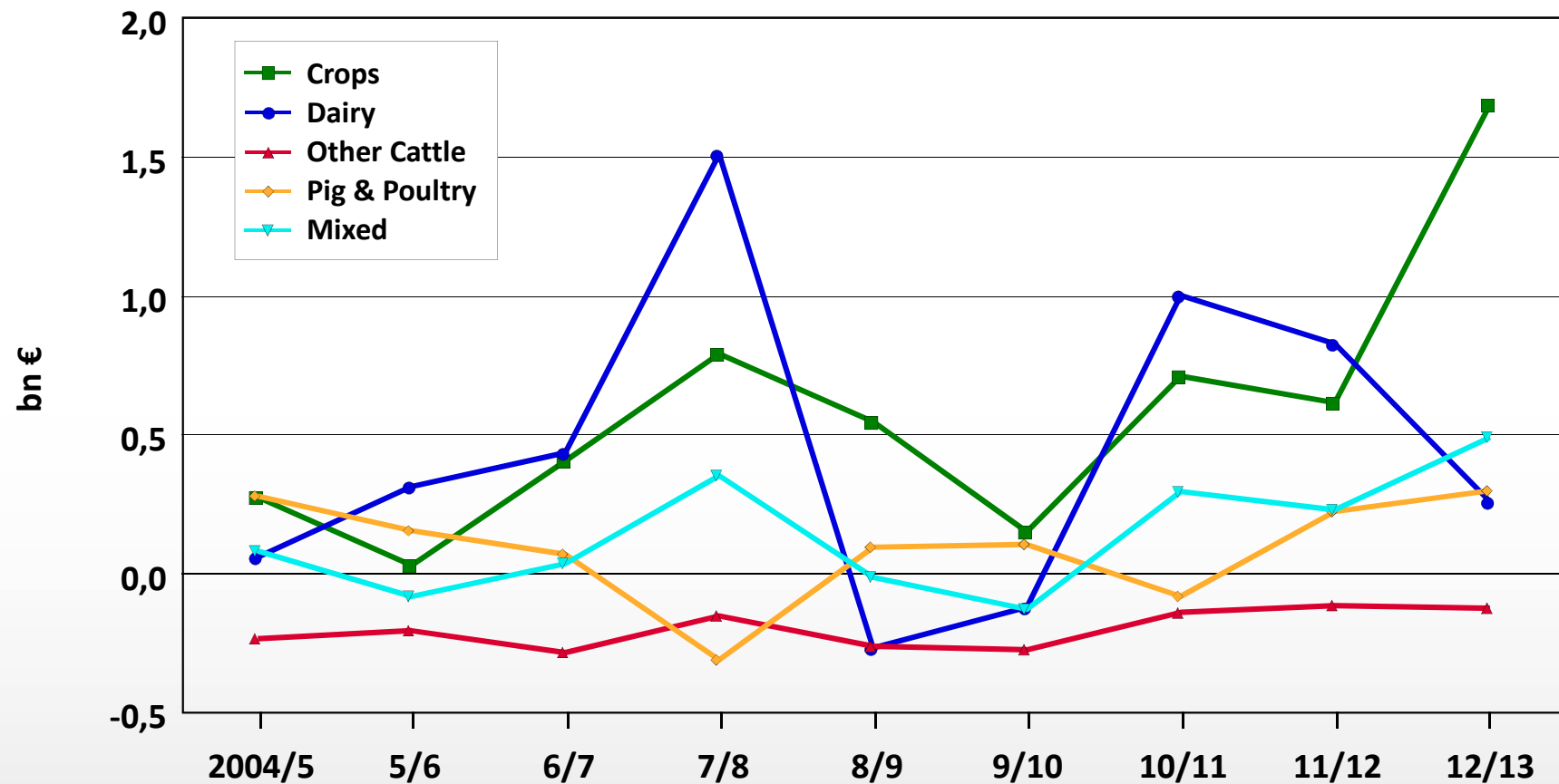
# Development, distribution and balance (FNI minus opportunity costs ) – Arable farms (aggregated)



# Development, distribution and balance (FNI minus opportunity costs) – Dairy farms (aggregated)



# Development of balance (FNI minus opportunity costs) by farm types

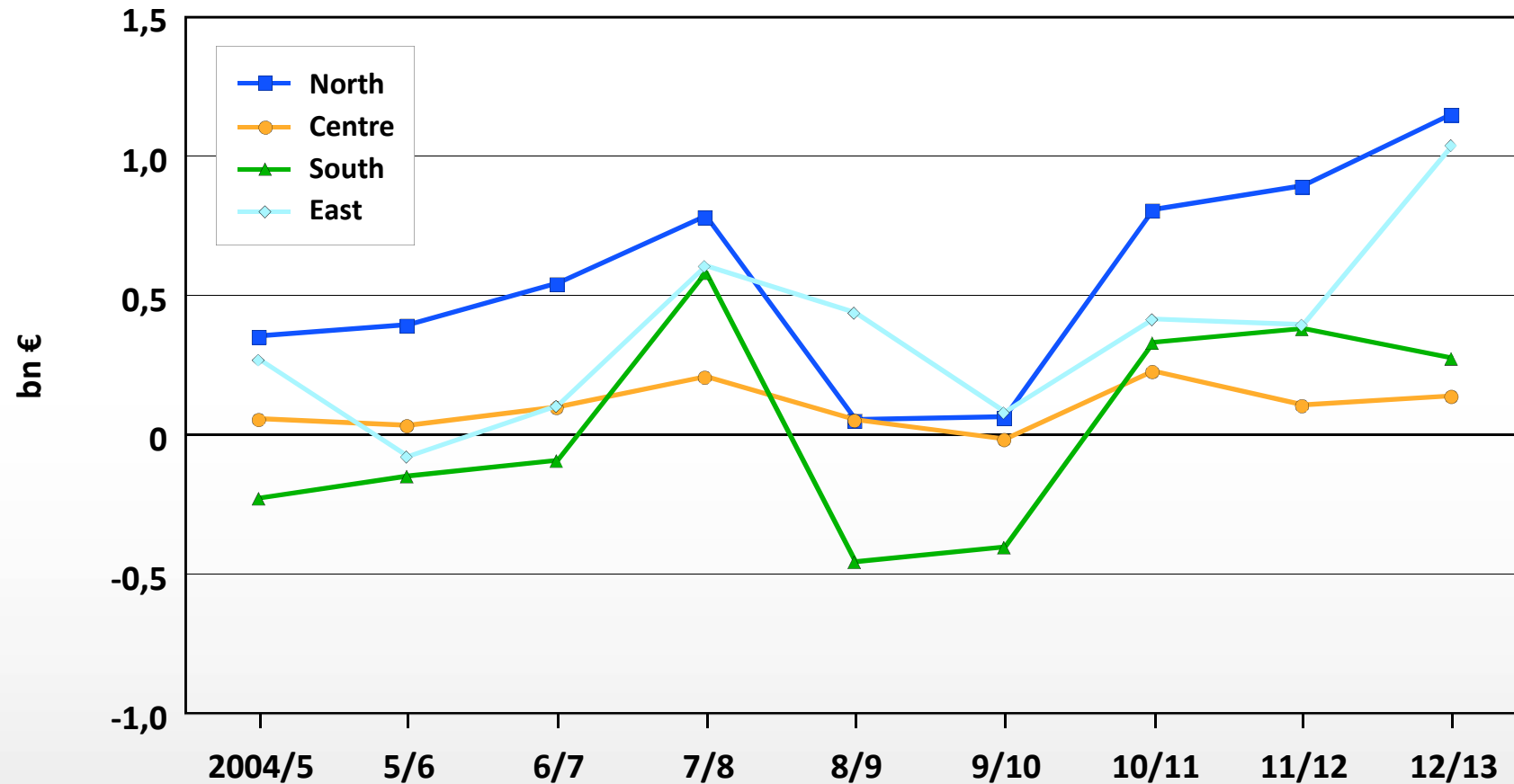


## ... by farm types

- **High performance of arable farms due to**
  - favourable market prices
  - redistribution of direct payments under decoupling via regional flat rates
- **Mixed and pig farms slightly positive**
- **High variation of performance of dairy farms with (+) balances beside the economic crisis**
- **(-) balance for other cattle farms in all the years (negatively affected by decoupling)**



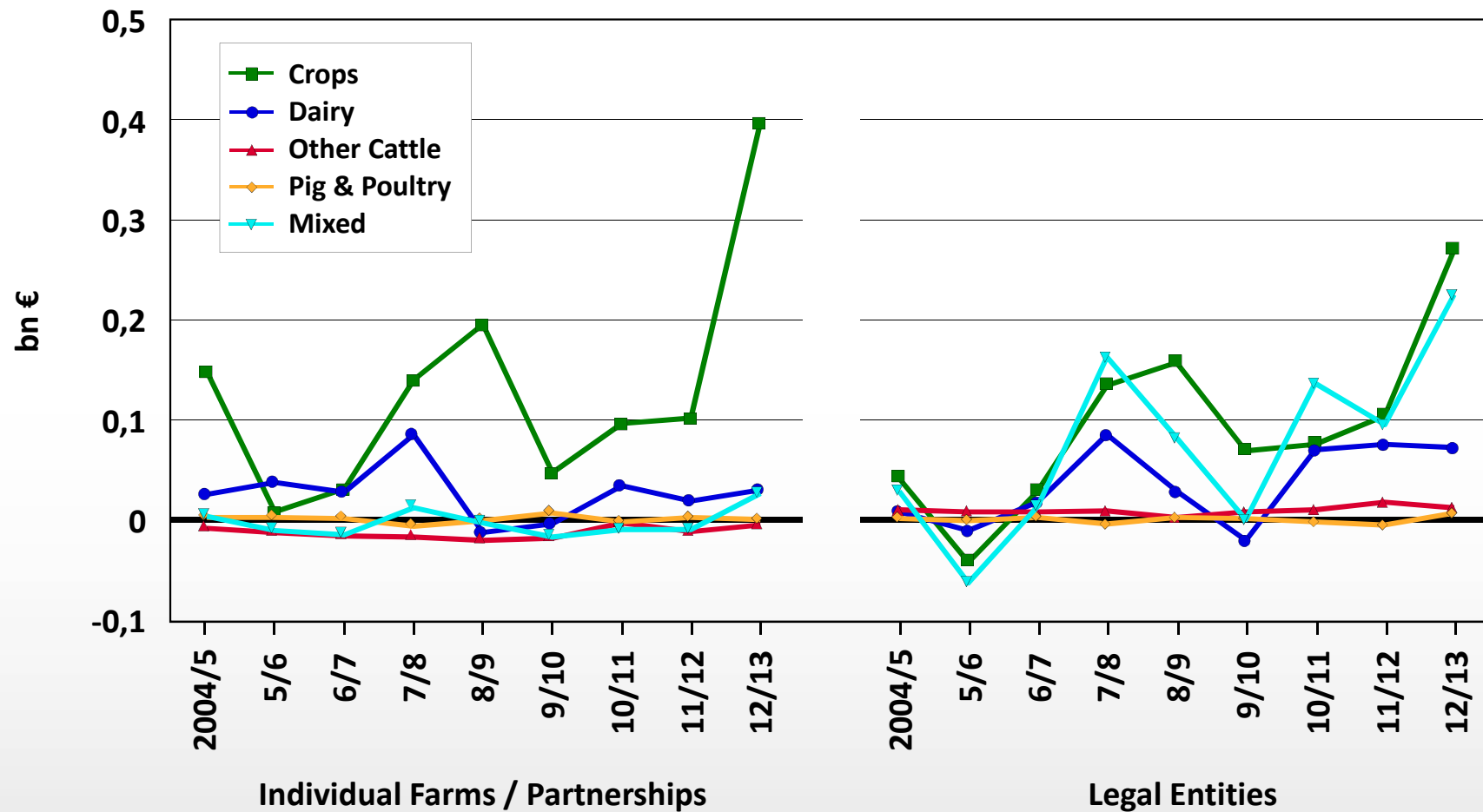
# Development of balance (FNI minus opportunity costs) by regions



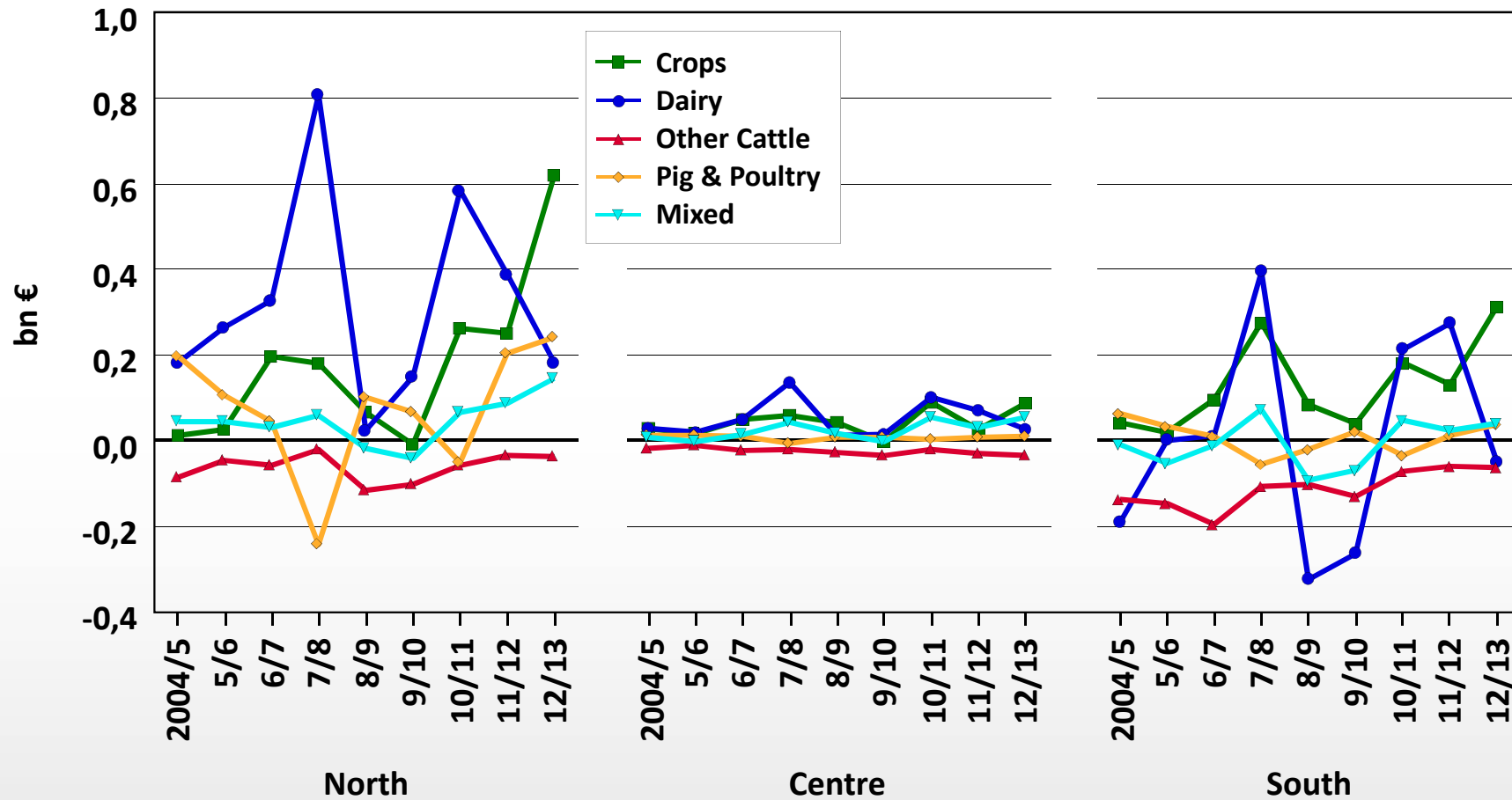
## ... by regions

- **(+) but high variation in region North**
- **(+) balance in region East**
- **Close to zero in region Centre**
- **Less favourable conditions in the South in half of the period, due to high opportunity costs (land rental prices, small farms)**

# Development and balance of FNI minus opportunity costs by organizational forms (region East)



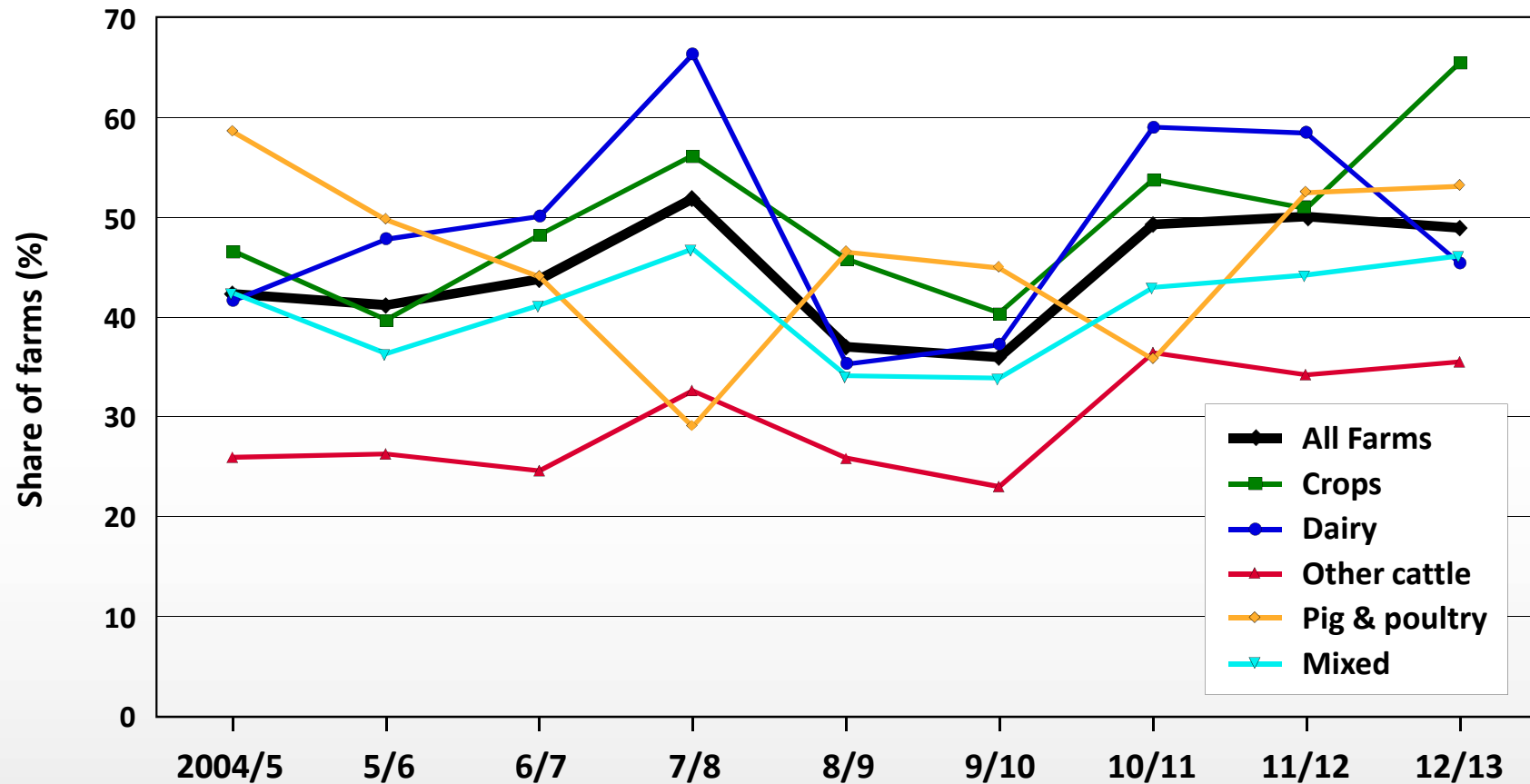
# Development and balance of FNI minus opportunity costs by farm types (West)



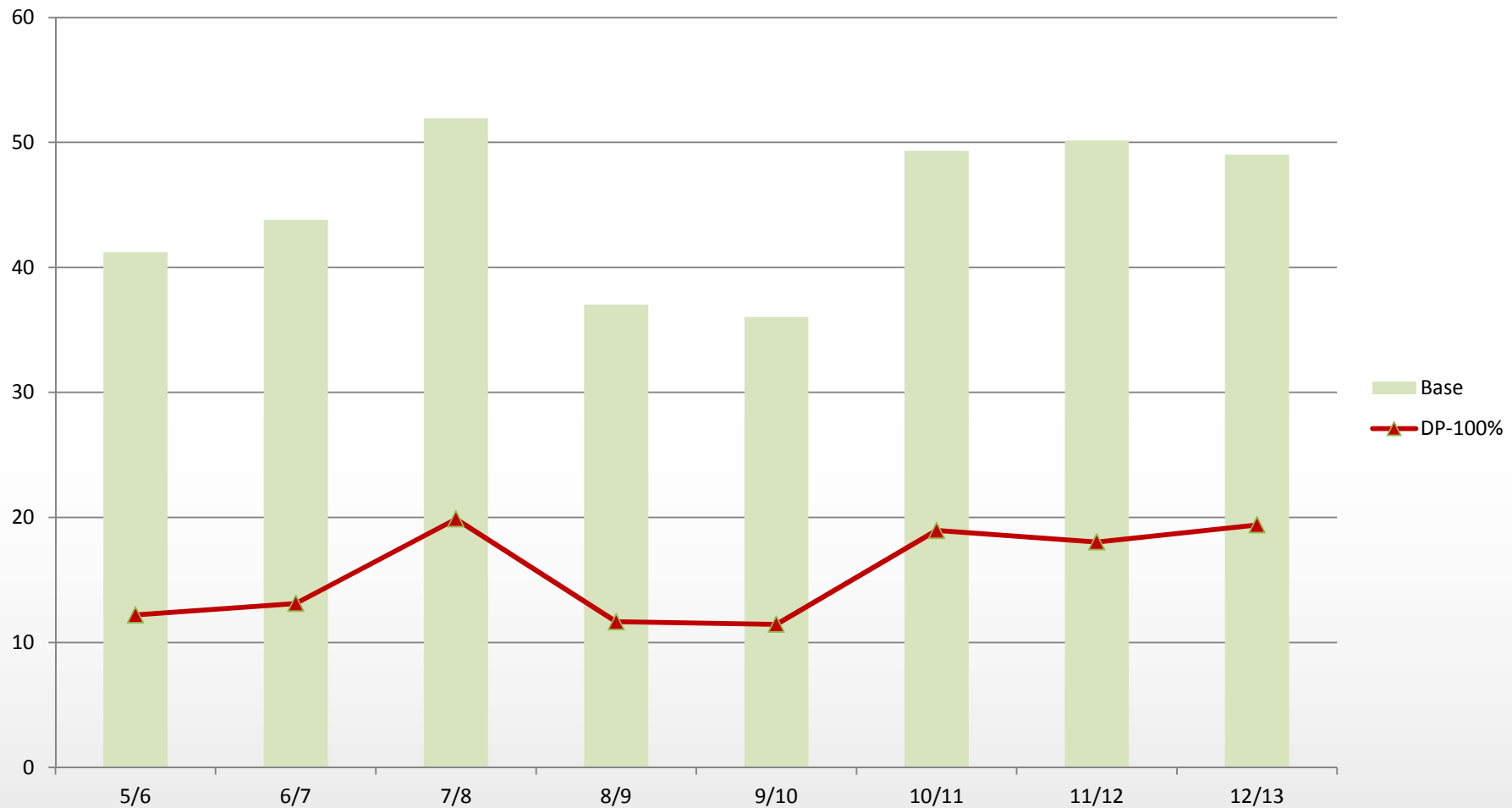
## ... region West (individual farms)

- **(+) balance of arable farms**
- **Dairy farms**
  - (+) in region North
  - (+/-) in region South (structure → high opportunity costs)
- **Pigs & poultry**
  - Variation of balance close to zero (influenced by pig price cycles and rising feed costs)

# Share of farms with at last full remuneration of opportunity costs



# Influence of Direct Payments on the share of farms with full remuneration of opportunity cost (averages)



## 4 Conclusions

- **About 10 % of farms with negative FNI (5%), unable to sustain in the medium term (structural change)**
- **About half of farms with partial compensation of opportunity costs**
- **Strong competitiveness of arable farms due to size, high market prices and decoupled payments**
- **Less favourable conditions for livestock production**
  - Dairy farms with good performance in the North, but less in the South,... high variation



## Conclusions (2)

- **Worse competitiveness of other cattle farms, unable to sustain in the long term**
- **Balance in pig & poultry farms (+) with but variations due to changes of market prices and feed costs**
- **Competitiveness significantly depending on direct payments  
→ phasing out of DP would negatively affect**
  - the remuneration of factors and hence competitiveness

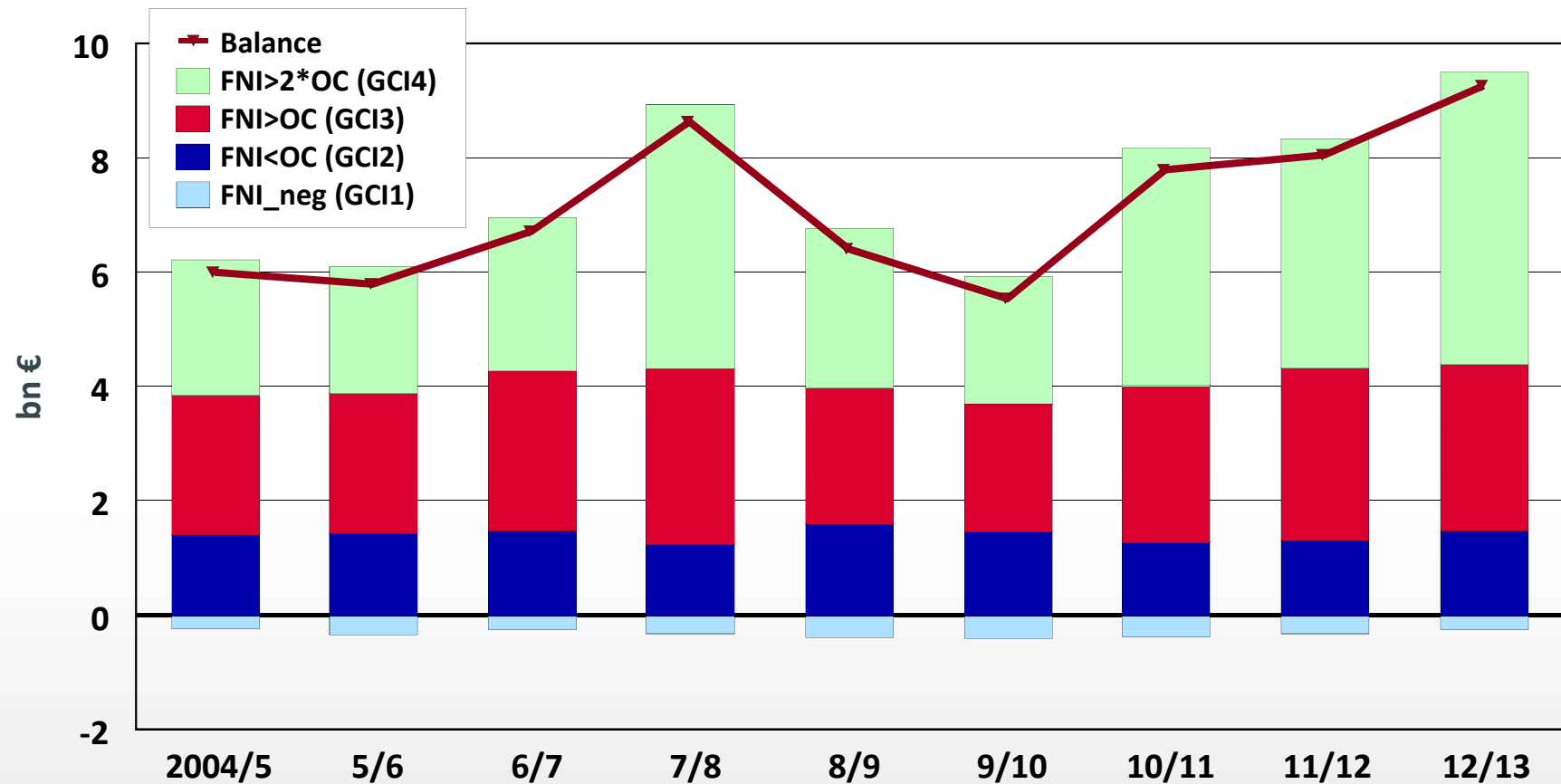
## Source

GALLARDO, R., RAMOS, F, RAMOS, E (2001): THE FARM STRATEGY APPROACH TOWARDS COMPETITIVENESS UNDER THE CAP REFORMS. THE CASE OF ANDALUSIA IN SOUTHERN SPAIN. Xth European Association of Agricultural Economists Congress. <http://ecsocman.hse.ru/data/087/640/1219/012-151-x20r.x20gallardox2cx20f.x20ramosx2cx20e.x20ramos.pdf>

Depperu, D. Cerrato, D: ANALYZING INTERNATIONAL COMPETITIVENESS AT THE FIRM LEVEL: CONCEPTS AND MEASURES  
[http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDAQFjAB&url=http%3A%2F%2Fwww.researchgate.net%2Fpublication%2F228681715>Analyzing+international+competitiveness+at+the+firm+level+concepts+and+measures%2Flinks%2F02e7e52031fae57208000000&ei=1NNYVMWPBILT7Qa-noGQAQ&usg=AFQjCNFfnn\\_CJNs1pN9Dbk5gXVBS-bhgvA&bvm=bv.78677474,d.ZGU](http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDAQFjAB&url=http%3A%2F%2Fwww.researchgate.net%2Fpublication%2F228681715>Analyzing+international+competitiveness+at+the+firm+level+concepts+and+measures%2Flinks%2F02e7e52031fae57208000000&ei=1NNYVMWPBILT7Qa-noGQAQ&usg=AFQjCNFfnn_CJNs1pN9Dbk5gXVBS-bhgvA&bvm=bv.78677474,d.ZGU)

# Annex

# Development of income (FNI) by GCI classes – sector



# Development and distribution of FNI (-) OC – Pig & poultry farms (aggregated)

