

Evaluation of productive and environmental performance of pig farming systems in France

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Pigs are extremely efficient at converting feed to meat. However, one of the main concerns with the pig sector is its environmental impact, especially water and air pollution. While different types and scales of production have potentially different effects on the environment, little evidence is available to judge between pig farming systems. This work is an attempt to study the competing claims between relative efficiency in productive and environmental terms.



Materials and methods

Dataset

- Farm Accountancy Data Network (FADN)
- 3000 Farms with a pig farming activity
- Time period 1996-2000

Explanatory data analysis: Classification of productive structure built on three items

- Land use
- Labour use
- Degree of specialisation

Data Envelopment Analysis (DEA)

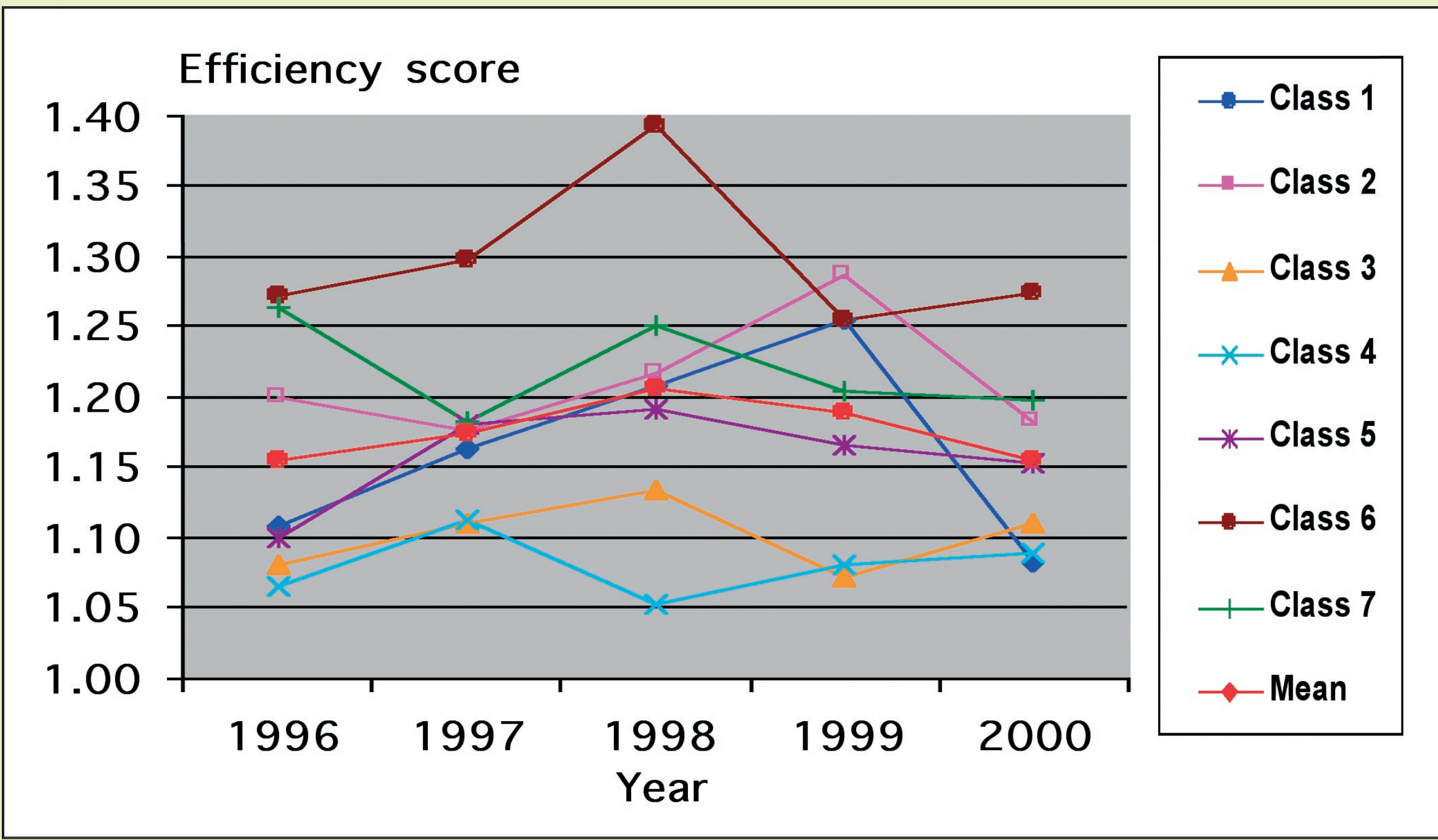
- Evaluation of productive efficiency and environmental performance
- Ability of producers to increase their production jointly with a decrease in pollution in the same proportion

Results 1 • Classification of the dataset

Class 1	Large-scale farms specialised in crop production
Class 2	Medium-scale farms specialised in crop production
Class 3	Large-scale farms specialised in pig production
Class 4	Medium-scale farms specialised in pig production
Class 5	Large-scale farms specialised in dairy production
Class 6	Small-scale farms specialised in beef and dairy production
Class 7	Small-scale farms specialised in beef production

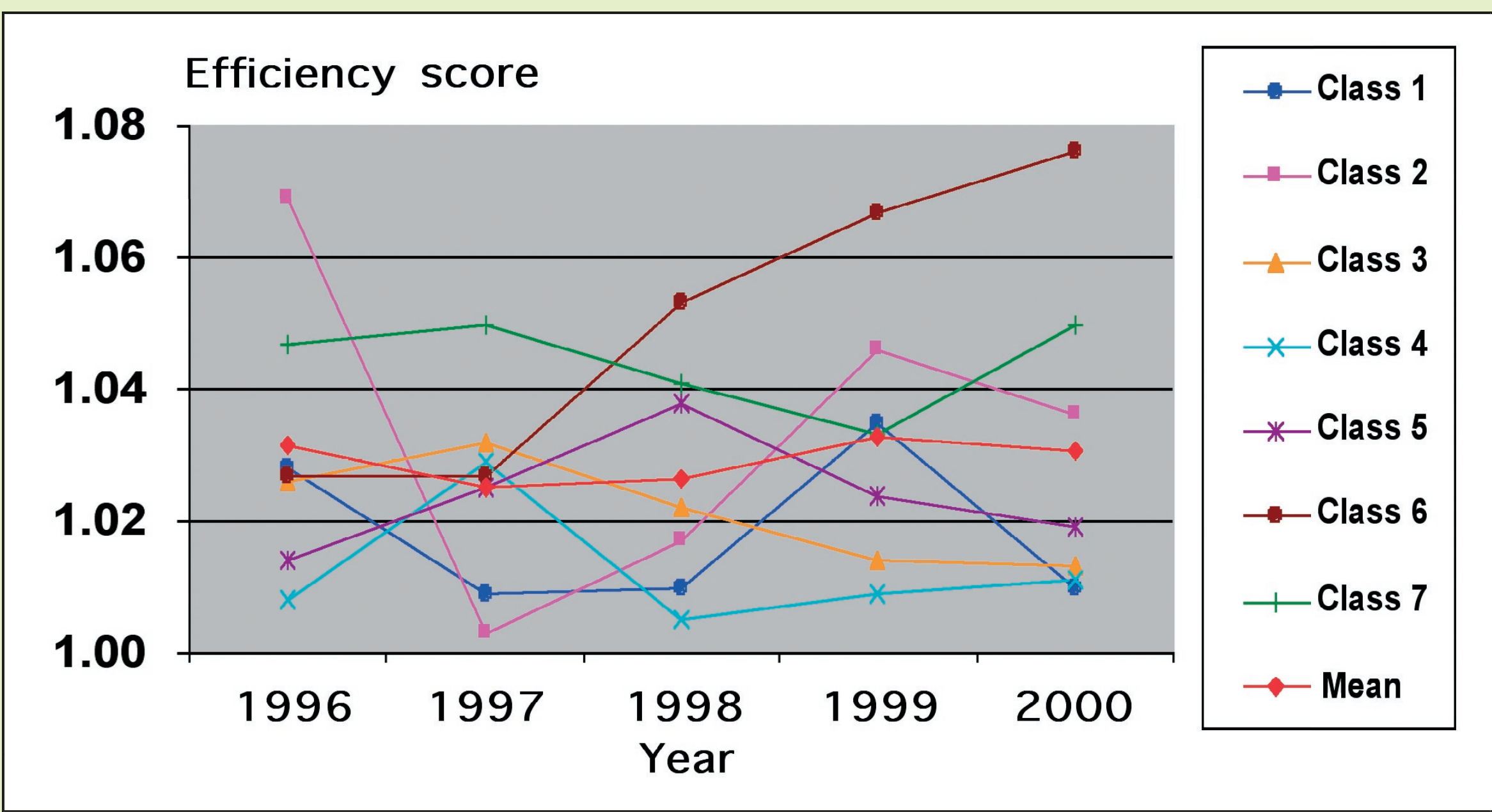
25-27 May 2005, Paris, France
International Workshop on Green Pork Production: « Porcherie verte », a research initiative on environment-friendly pig production »

Results 2 • Productive efficiency



- Average possibility to increase production from 15% to 20% over the time period, jointly with a decrease in pollution.
- Most productive efficient farms are specialised in pig production (Class 4 & Class 3) ; Less efficient farms have a mixed activity: Pig production with beef and dairy production (Class 6) or beef production (Class 7).

Results 3 • Environmental efficiency



- Most efficient farms in environmental terms are farms specialised in pig production (Class 4) or in crop production (Class 1).
- Less efficient farms are small-scale farms (Class 6 & Class 7).



Results highlight that farms classified in different pig farming systems based upon the scale of their activity and the specialisation of their production

- have integrated environmental constraints
- can still improve their production by taking advantage of the state of the art in technologies which control pollution.

However, smaller producers seem to have more difficulty to manage with environmental regulation.