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A competitiveness index for national pork chains in Europe

For the years 2010, 2011 and 2012

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A competitiveness index of the national pork chains of Europe has been developed by IFIP. Competitiveness is calculated from 39 variables, brought together in nine themes representing the links in the pork chain. The synthetic index is the simple average of the nine thematic indexes. It is calculated for Denmark, France, Germany, the Netherlands and Spain. This paper gives the results for the year 2012, in comparison to 2010 and 2011.
Each variable is converted into a dimensionless index, whose value lies between 0 and 1. The synthetic index is in the same range. In 2012 France is the least competitive country (0.29), Denmark obtaining the highest score (0.71). The three remaining countries obtain intermediary results. France suffers from a lack of competitiveness in the meat packing industry, made obvious by low commercial performance. French pig farms are rather competitive, but their low investments are an ominous sign. The industrial and commercial efficiency of Germany compensates for the slight de-crease in economic performance of the slaughtering and cutting industry. Denmark benefits from efficient farming facilities and a meat packing industry well managed by a strong leader, which obtains high value from exporting its products. But a decrease in the profitability of slaughtering and cutting companies, in particular Vion, impacts the competitiveness of the Netherlands. Spanish exports have continued to grow since 2010, thanks to the organization of its sector and competitive products. The performance of the major companies and retailers sustain the sector.

Un indicateur de compétitivité des filières porcines européennespour les années 2010, 2011 et 2012

L'Ifip a développé, depuis 2010, un indicateur synthétique de la compétitivité des filières porcines européennes. La compétitivité est évaluée à travers 39 variables, regroupées en neuf thèmes représentant les maillons de la filière. L'indicateur de synthèse est la moyenne des indicateurs thématiques. Il est calculé pour l'Allemagne, l'Espagne, la France, le Danemark et les Pays-Bas.
Dans cet article, sont présentés les résultats de 2012, comparés à ceux de 2010 et 2011. Chaque variable est réduite en un indicateur adimensionnel, compris entre 0, minimum des pays pour cette variable, et 1, le maximum. L'indicateur de synthèse est lui-même compris entre 0 et 1. La France est en 2012 la moins compétitive (0,29), le Danemark obtenant le score le plus élevé (0,71). Les trois autres pays ont des résultats intermédiaires. La France souffre d'un déficit de compétitivité dans l'industrie de la viande, qui se reflète dans les faibles performances commerciales. Elle est plutôt bien positionnée en élevage, mais avec des investissements faibles, de mauvais augure pour l'avenir. Les performances commerciales et industrielles allemandes compensent la légère baisse des performances économiques en abattage-découpe. Le Danemark bénéficie de structures d'élevages performantes et d'une industrie de l'abattage-découpe très structurée autour d'un leader qui valorise bien ses produits à l'exportation. La baisse de la rentabilité d'exploitation des entreprises d'abattage-découpe, notamment celle de Vion, pèse sur la compétitivité des Pays-Bas. L'Espagne poursuit depuis 2010 sa croissance à l'export grâce à une filière organisée et des produits compétitifs. Les performances économiques des principales entreprises et de la distribution soutiennent la filière.

Keywords: competitiveness, pork chain, synthetic index, performance, structures
Mots clés : compétitivité, filière porcine, indicateur synthétique, performances et structures

Introduction

Competitiveness is a multiple concept. Applied to the pork chain, it encompasses a wide variety of aspects, concerning various operators. Comparing the competitiveness of countries is no easy matter, because of its multidimensional character. Many criteria have been identified at different stages, from production to slaughtering and cutting, with the aim of going beyond the approach that only considers costs. Such an approach takes a simplistic view of economic realities, of interactions between the people involved, and of the links in the chain. But in addition to costs, the criteria identified here concern qualitative aspects of organization, the size of companies or their presence on national or international markets.

To obtain a composite vision, this study begins by proposing a **method to summarize in only one figure the competitiveness of the pork chains of five countries that are among the main pork producers in Europe** (Germany, Denmark, Spain, France, and the Netherlands). The method takes its inspiration from those employed in international authorities or at national level. In particular, it aims at "standardizing" the variables to make them comparable.

The article begins by describing the method adopted to define the competitiveness index of the pork chains. This method was chosen with a view to communicating on this index, to ensure that it is understood and appropriated by the actors in the supply chain. The calculation method must therefore be transparent and enable discussions to take place with professionals to ensure that the index accurately reflects the reality of the chains and markets

Then the results for the year 2012 are presented. The variables are distributed among nine themes, and a composite index is calculated for each theme. The composite competitiveness index is the average of these nine indices. An analysis is then provided on the evolution of the index between 2010 and 2012.

Material and methods

The existing synthetic indices

The interest of the synthetic indices lies in their capacity to give a vision of a complex phenomenon in its entirety (Florence Jany-Catrice 2009). Many indices have been worked out with the aim of measuring the level of development or the competitiveness of geographical zones, at the level of a country or a region. At national level, the following indices are to be found:

- Global Competitiveness Index (GCI), formulated by the World Economic Forum
- World Competitiveness Yearbook, formulated by the Institute for Management Development (IMD)
- United Nations Human Development Index
- French Inequality and Poverty Barometer
- French Social Health Index

The Human Development Index (HDI)

This index was developed by the UBDP (United Nations Development Programme) in the 1990s, with the aim of providing an analysis that complemented the single analysis of the GDP, to assess the development of the countries of the world. The GDP, a calculated index of economic growth, is insufficient to assess the development of individuals and integrate notions of education, health and social protection. This approach was supported by the Noble prize-winner for economic science, Amartya Sen.

The HDI is based on three pillars:

- Access to wealth measured by the GDP per head of population: standard of living
- Access to health measured by life expectancy at birth: level of health
- Access to education which combines the gross rate of schooling and the literacy rate of adults: level of education

It is worked out from 200 indices for all the countries of the world (ONU 2003).

The French Inequality and Poverty Barometer and the Social Health Index (SHI)

The French Inequality and Poverty Barometer, a composite index, takes six dimensions into account: Health, housing, education, justice, work and employment and income. To work it out, a group of experts from civil society selects 60 variables. For example the rate of household debt can be found alongside the rate of students leaving the education system with no qualification, the rate of super-tax ...

The French social health index (SHI) adopts the same method, but on a more reduced territorial scale. It is constructed from 16 variables, including the GDP. The variables are ranked in classes linked to categories of age:

- Children: Infant mortality / Child abuse / Childhood poverty.
- Adolescents: Suicide of young people / Drug use / Abandonment of university studies / Children with adolescent mothers.
- Adults: Unemployment / Average weekly wage/ Health insurance cover.
- The Elderly: Poverty of the over-65s / Life expectancy at 65.
- All ages: Violent crime / Fatal road accidents linked to alcohol / Access to reasonably priced housing / In-equality of family incomes.

It is obtained by taking the average of the sixteen variables, each of which takes values of between 0 and 100.

The « 0 » value is attributed to the region with the worst situation and the « 100 » value to the one with the best situa-tion attained while the index was being constructed (in gen-eral two or three decades). In the case of the SHI, the data are standardised to allow for comparisons in time for a country rather than comparisons between countries. The calculation formula of each variable is:

$$\text{SHI of the region} = \frac{\text{Variable of the region - lowest perf.}}{\text{Best perf.- lowest perf.}} \text{x100}$$

The average of these scores makes it possible to have a social health index (SHI) that can be compared among the regions.

World Competitiveness Yearbook

This index had been worked out each year since 1990 by the Institute for Management Development (IMD) prior to the preparation for the World Economic Forum.
The objective is to make a classification of the countries according to the environmental quality of companies. It is based on the collection of 200 data items in the following fields: competitiveness, macroeconomic stability, quality and cost of the factors, infrastructures, research and innovation, business management, administrative, fiscal or regulatory environment. The synthetic index obtained by each country is the average of the results obtained for each index (Hatem 2005).

Global Competitiveness Index

The World Economic Forum separated from the IMD in 1997 and since then has worked out its own competitiveness index for countries. This task is carried out by a team from Harvard University, directed by Professor Jeffrey Sachs (Hatem 2005). This work leads to the publication of the Global Competitiveness Report.

It differs in several ways from the IMD index:
- The selection of data with a more limited number of indices
- Thought given upstream to competitiveness and its quantitative measurement
- The publication of two indices, on the macroeconomic competitiveness of a country and on the corporate business environment.

Indices established by independent experts

Some indices cannot be quantified, either for lack of statistical data, or for reasons of confidentiality.
In this case, the experts who work out an index can choose to give a value to the countries considered, on the basis of their experience and their knowledge of the subject. This kind of method is exposed to criticisms relating to subjectivity, if the choices selected cannot be justified.

Criticisms directed at these indices

The composite indices worked out by different institutes are subject to many criticisms, in particular about the calculation method:
- Aggregation of heterogeneous data, mixture of quantitative and qualitative data.
- Weightings which suggest that choices may be subjective and sometimes political (Florence Jany-Catrice 2009)
- Problems associated with the quantification of a complex reality (Florence Jany-Catrice 2009). A simplistic aspect of the composite index.

Finally, it appears that every composite index is necessarily skewed, depending on its calculation method and on choices made upstream to define the variables and possibly their relative weighting.
At all events these indices can provide interesting information, if the hypotheses used to work them out are specified. Nevertheless, the message spread by a composite indicator of wealth, competitiveness or anything else can appear sim-plistic when compared to the complexity of the information used for its creation. Vigilance is therefore required in the use of such tools; the hypotheses and methodology under-lying their construction have to be borne in mind; and the detail in the joint information and classifications must not be obscured, on the various themes under consideration.

The method chosen by the Ifip for a competitiveness index of pork chains

A multidimensional index

The objective is to work out a synthetic index for the competitiveness of pork chains. Complementary determinants are added to the notion of production costs, in the same way as development indices have added social or education notions to the sole economic dimension of GDP.
The prices of production factors, technological efficiency, economies of scale, additional costs involved in differences in regulations, all these determine **the costs. Non-cost** (or non-price) **factors** can also generate differentiation in competitiveness: organization of the sector, effectiveness of relations between stakeholders, social consensus concerning production. **Competitiveness by price fixes** the position on markets, the capacity to win market shares, the situation of the trade balance. Depending on the types of products, **non-price competitiveness** assesses the products' capacity to innovate and adapt on demand, and thus their capacity to be sold « at a higher price » than their competitors.
The synthetic index of the competitiveness of pork chains incorporates these various dimensions.

The competitiveness of a supply chain can also be seen in relation to its capacity to survive in the long term and ensure the future of its companies and producers. The notion of competitiveness, which is assessed at a given moment, must be complemented by the idea of continued existence associated with the long term. These two concepts can be contradictory (Courleux 2012). Thus, low production costs can result from reduced depreciation which reveals low invest-ments that are penalizing for the future.

The construction of the competitiveness index

The synthetic competitiveness index of pork chains is created in several stages:

Stage 1: *choice of the purpose of the index, comparison of com-petitiveness*

Stage 2: *definition of nine themes making up the index*

- **Industry and macroeconomic environment**

The 9 themes and the 39 variables of the competitiveness index of the pork chains

Theme	Variable	Type of competitiveness
Supply chain and macro-economic environment	Dynamism of production	Non-cost
	Pork consumption	Price / Non-price
	Organisation of chains	Non-cost
	Link to industry - Mass distribution	Non-price
	Regulatory and institutional environment	Non-cost
Foreign trade of pork products	Self-supply rate	Non-cost
	Trade balance vis-à-vis the EU	Price
	Trade balance vis-à-vis third countries	Price
	Presence on third country markets	Price / Non-price
	Export of boned cuts	Price
	Creation of value on exported offal	Price
Performances of pig farms	Productivity of sows	Costs
	Cost of feed	Costs
	Labour costs	Costs
	Miscellaneous and structural expenses	Costs
	Breeder income	Costs / Non-cost
Structure of pig farms	Dimension of farms	Costs / Non-cost
	Investments in farms	Costs / Non-cost
	Link with the soil	Costs / Non-cost
Structure of slaughtering-cutting companies	Presence of a national leader	Non-cost
	Establishment outside France	Non-price / Non-cost
	Sales force outside France	Non-price
	Proximity of the EU consumer zone	Costs / Non-cost
	Export logistics	Costs / Non-cost
Industrial performances of slaughtering-cutting companies	Labour costs	Costs
	Level of automation	Costs
	Standardisation of cutting	Non-cost
	Size of slaughtering facilities	Non-cost
	Optimisation of slaughtering facilities	Non-cost
Commercial performances of slaughtering-cutting companies	Profitability of the industrial activities	Costs and Prices
	Ratio of labour costs	Costs
	Ratio of investments	Costs / Non-cost
Cured meats	EU balance for processed products	Price
	Turnover/processing company	Non-cost
	Gross Operating Profit (EBITDA)/ employee	Cost
Distribution	Turnover/large-scale food retail outlet	Non-cost
	EBITDA/ employee in a large-scale food retail outlet	Cost
	Turnover/butcher's shop with delicatessen	Non-cost
	GOS/ employee in a butcher's shop with delicatessen	Cost

Source : Ifip

- **Foreign trade of pork products**
- **Performances of pig farms**
- **Structures of pig farms**
- **Structures of slaughtering-cutting companies**
- **Slaughtering-cutting industrial performances**
- **Slaughtering-cutting economic performances**
- **Cured meat products**
- **Retail.**

Stage 3: *choice of indices*

- **From 3 to 6 indices are defined per theme.** According to Jany-Catrice 2009, limiting the number of variables guarantees a certain form of efficiency, both for the an-alysis and for public debate.
- These indices are chosen to be representative of the level of competitiveness of the pork chains.
- The indices are selected to be independent from one another.
- The indices that are chosen by expert opinion can be open to discussion.

Stage 4: *choice of the data normalisation rule, necessary be-cause the variables have disparate units*.

- **A minimum value and a maximum value** for each of the variables must be defined, which correspond to a poor or a very poor level of competitiveness. Two solutions are possible:
  - *Fixed rate: t*he experts choose the higher and lower delimit-ers beyond the values actually observed in the sample. This method includes a certain amount of subjectivity.
  - *Variable rates:* the chosen minimum is the least good per-formance of the sample and the maximum is the best. These values are re-examined when the area of study widens or as the variables evolve from one year to another. It is this solu-tion which has been adopted.

In this case, the extreme values are less far apart, which **increases the differences between geographical areas and makes the index more discriminatory.**

- Each variable receives a **value for each country**, obtained from various statistical sources or, if required, from expert opinion. The index takes a value between 0 and 1 according to the following formula:

$$\text{Indicateur} = \frac{\text{Valeur du pays -valeur min des pays}}{\text{Valeur max- Valeur min}}$$

Stage 5: *Calculation of the final index*

- **For each theme a synthetic index** is calculated from the average of the indices which compose it.
- **It is chosen not to weight the variables** according to an importance estimated in the final level of competitive-ness. Carried out according to expert opinion, this would introduce subjectivity which is not seen to be an im-provement.
- **All the synthetic indices** are aggregated by theme, by an average which is not weighted.

Finally 39 variables, distributed among 9 themes, produce synthetic competitiveness indices calculated for three years: 2010, 2011 and 2012 for the five main pork-producing countries of Europe: **Germany, Spain, France, The Netherlands and Denmark.**

Results

Competitiveness Index for 2012

In this part, the 39 indices used to calculate the synthetic competitiveness index are presented in detail. They are grouped according to the nine themes which they represent and their calculation method is indicated for 2012.
The nine thematic indices and the synthetic index are presented in the following part for the three years from 2010 to 2012.

Theme 1: The macroeconomic context

The dynamism of pork production

The evolution of production assesses the dynamism of the supply chain and provides elements of trends for the years to come. The variable is the variation in percentage of pork production between 2002 and 2012.

Evolution of pork production from 2002 to 2012 (in tonnes of carcass weight equivalent)

2012	%	Index
France	-5.4	0
Germany	+24.1	1
Denmark	+2.4	0.26
Netherlands	+7.8	0.45
Spain	+15.4	0.71

Germany had the strongest growth (+24% in 10 years), followed by Spain (+15%). France presents a fall of more than 5% between 2002 and 2012. The order of the countries is the same as in 2010.

The consumption of pork products

The average between two indices is calculated: per capita consumption and the total volume of meat consumed in tonnes of car-cass weight equivalent. This final index reveals the possibility of developing part of the products on the national market, reducing the costs of logistics or transport in relation to exports.

Indicateur de consommation de porc en 2012

	kg/per cap.	Total 1000 tcwe	Index
France	0	0.44	0.22
Germany	1	1	1
Denmark	0.98	0	0.49
Netherlands	0.36	0.09	0.23
Spain	0.98	0.53	0.75

Germany (53 kg/per cap.), Denmark and Spain benefit from the highest levels of per capita pork consumption in the group of five countries. Germany also has the largest population and thus the potential primary market.
Compared with the countries studied, the French consume less pork because of a more varied consumption of meats than their neighbours, in particular, more beef. The scores of the countries in 2012 are very similar to those of 2011.

The organisation of the supply chains
This index is worked out from three components
- the existence of vertically integrated companies
- the existence of an inter-branch organisation
- research and development actions financed by the profession.

Supply chain structuring index

	Vertical company	Inter-branch organisation	R&D pro	Index
France	1	1	0.53	0.84
Germany	0.3	0	0	0.10
Denmark	1	1	1	1
Netherlands	0	0.5	0.08	0.19
Spain	1	0	0	0.33

France has the advantage of an inter-branch organisation and production structured around producer groups.
In Germany, the chain is less well-organised, unlike Denmark which comes at the top of this index.

The environment and institutional support
This variable is worked out from Product Market Regulation indices published for the last time in 2008 by the OECD (WÖLFL et al., 2009). So the results are not specific to the pork sector.

Institutional framework index

	OECD value	Index
France	1.39	0
Germany	1.27	0.24
Denmark	0.99	0.82
Netherlands	0.90	1
Spain	0.96	0.88

According to the OECD index, the French market is subject to the most state regulations and controls. This observation is true for the pork chain which has little State support. In fact, the environmental and health regulations established at community level (size of pig farms, nitrate directive, hygiene and safety in the slaughtering plant…) is often applied more strictly in France than in the other count-ries studied.
In Germany, barriers to entrepreneurship have a significant impact on product market regulation (OECD, 2008).

In the pork chain, farms are subjected to increasingly severe environmental constraints (lengthening of the period when spreading is forbid-den, reduction of authorized input surpluses of nitrogen and phosphorus, obligatory presence of an air washer…), associated with the concentration of farms and increasing public opposition. But the supply chain has nevertheless been able to develop considerably since 2000 (Roguet, 2013).
According to RMP indices, companies have fewer regulatory and institutional constraints in the other three countries studied (OECD, 2008). In fact, the development of the Spanish pork chain is not held back by the public authorities. Moreover, the Ministry for Agriculture supported the creation of structures to help and guide companies in exporting, l'Oficina de Exportación de la Carne de España. In Denmark, strict environmental rules are observed. But, as in the Netherlands, in compliance with these rules, the development of the pork supply chain, which is important for the economy, is more encouraged by the public authorities.

The link between industrialists and distributors
Relations between stakeholders present differences between countries. The question of the transmission of price variations throughout the supply chain is fundamental for the balance of the chain.
This index is worked out from expert opinion, defining a score out of 100.

Link between industry and retail index

2012	Score (/100)	Index
France	20	0
Germany	80	1
Denmark	50	0.50
Netherlands	50	0.50
Spain	40	0.33

Germany benefits from partnerships concerning product ranges between the slaughterers and the distributors. In France, relations are complex between distributors and slaughtering-cutting industrialists for the fresh pork market, and with pork curers for pro-cessed products. Renegotiations of price are frequent.

Theme 2: The foreign trade of pork products

Foreign trade data shed light on the competitiveness of products on markets confronted with those from other origins. The capacity of a company or a country to maintain or increase its domestic or export market shares comes from their competitiveness (Courleux et al, 2012).

The self-supply rate
The self-supply rate is obtained by the relationship between the production and consumption of pork products.

It assesses the capacity of a chain to meet the needs of its national population.

Self-supply in pork index

2012	%	Index
France	107.7	0
Germany	116.2	0.02
Denmark	642.8	1
Netherlands	268.3	0.30
Spain	149.4	0.08

France is the country which has the lowest surplus, with a self-supply rate of 108%.
For Germany whose situation is close to that of France (116%), the index obtains the value of 0.02.
Denmark, with a self-supply rate of 643%, overwhelms the other indices.

The trade balance in value vis-à-vis the EU
The trade balance is given by the difference between a country's exports and imports. The imports are calculated as the sum of exports by European countries towards the country under consideration, because of the statistical under-estimate of the imports.
In 2012, Spain equals the performances of Denmark thanks to its intense export activity towards the EU and in particular towards France with products with high added value. Spain thus passes from a trade balance of 2,027 M€ in 2011 to 2,190 M€ in 2012.
Germany also improves its score (0.61 in 2010). The Netherlands keep their score relative to their competitors, but improve their balance in value from 1,416 M€ in 2011 to 1,534 M€ in 2012.
France, unlike its four competitors, has a considerable deficit with respect to the other EU countries, but is stabilized compared to the previous year (-571 M€ in 2011).

Trade balance with EU, all products included index

2012	Millions €	Index
France	-554	0
Germany	+1 249	0.66
Denmark	+2 189	1
Netherlands	+1 534	0.76
Spain	+2 190	1

The trade balance in value with third countries
The trade balance with respect to third countries in fact translates the export of pork products outside the EU, since imports from third countries remain completely absent.
The export performances of Denmark to third countries continue to improve in 2012 with a balance going from 1,184 M€ in 2010 to 1,380 in 2011 and to 1,445 in 2012. Denmark is still top in the classification.
Germany reduces its gap with Denmark since it obtains a score of 0.86 as against 0.73 in 2011. Spain also progresses with values of 324 M€ in 2010, 539 in 2011 and 688 in 2012.

Trade balance with third countries index

2012	Millions €	Index
France	+ 417	0.03
Germany	+ 1 297	0.86
Denmark	+ 1 445	1
Netherlands	+ 388	0
Spain	+ 688	0.28

The proportion of third countries in exports
In this index, the proportion of exports to third countries is compared to total exports in value, for all pork products.
The capacity of a country to export to third countries reveals a sales strategy that seeks value and the adaptation of products to demanding markets (Japan).

Development towards third countries index

2012	%	Index
France	28	0.45
Germany	21	0.16
Denmark	40	1
Netherlands	18	0
Spain	22	0.20

In 2012, all the countries studied, except France, increase the proportion of third countries in their total exports.
The relative posi-tion of the five countries remains the same as in 2010 and 2011, France remaining second behind Denmark.

The proportion of boned cuts in the exports of fresh, refrigerated and frozen (FRF) meat
The index is obtained from the relationship between the volume of exported boned cuts and the total fresh, refrigerated and frozen meat exported.
The capacity of a supply chain to export boned cuts reveals a certain level of competitiveness for the first development and in particular an advantage on labour costs.

Enhanced value of prepared cuts index

2012	% of the tonnage of FRF meat	Index
France	18.7	0.02
Germany	43.7	1
Denmark	32.4	0.56
Netherlands	18.3	0
Spain	39.8	0.85

Germany widens its gap compared to Spain by exporting nearly 44% of boned cuts in the total exports of pork, as against 40% in 2011 and 37% in 2010. Spain remains steady at nearly 40%.
France exports less added-value with 18.7% in 2012, as against 20.8% in 2011 and remains at a score close to the Netherlands, the country with the lowest performance on this index

The added value of offal for export

This variable is calculated by dividing the trade balance in value relative to offal (exports less total imports) by the total volume of pork production in tonnes carcass weight equivalent.

Index of added value for offal

2012	% of tonnage	Index
France	3.9	0
Germany	10.4	0.91
Denmark	11.0	1
Netherlands	8.6	0.66
Spain	4.9	0.15

Denmark adds the best enhanced value to its offal by exporting 11% of offal compared to pork production. Germany progresses, going from 8.3% of offal exported in relation to pork production in 2011 to 10.4 in 2012.

France and to a lesser extent Spain export less offal related to their production.

Theme 3: Performances in pig farms

The competitiveness of pig farms is assessed both by their profitability and by the cost price of the pigs produced. These cost prices are broken down into three items: feed, labour, various expenses and structural costs. The productivity of the sows is also taken into account, because of its significant impact on the gross product of the farms and on costs.

The productivity of the sows

This index takes account of reproduction performances and also of losses between weaning and sale.

Sow productivity Index

2012	Pigs produced/ sow in production/year	Index
France	25.1	0.45
Germany	25.1	0.45
Denmark	27.8	1
Netherlands	27.0	0.85
Spain	22.9	0

Denmark and the Netherlands obtain the best results, in front of France and Germany which come equal. Spain is quite clearly outdistanced.

Since the early 2000s, Denmark, the Netherlands and Germany have made good progress on this criterion, because of farm reor-ganizations and the greater specialization of breeders.

France's position has worsened: the index went from 0.68 in 2010 to 0.45 in 2012.

Feed costs

The cost of feed is assessed for all the phases of farrowing, post-weaning and fattening. It is standardized to enable comparisons to be made of animals of different weights at slaughter.

Feed costs on the farm index

2012	€/kg of live growth	Index
France	0.78	1
Germany	0.85	0.53
Denmark	0.81	0.79
Netherlands	0.81	0.80
Spain	0.94	0

The results of each country are influenced by the availabilities of raw materials for feed and the proportion of processing on the farm. France is the best-placed country on this criterion, because large quantities of cereals are available, and because of good feed efficiency in the pig farm. Denmark and Germany make a significant proportion of their feed on the farm (50 to 60%), unlike the Netherlands and Spain.

The Netherlands benefit greatly from co-products from the agrifood industry and the proximity of ports, while Spain has to import most of the raw materials used in animal feed.

The results have been quite stable since 2010, except for Germany which is penalized, in the supply of raw materials, by competi-tion from energy production.

The cost of work on the farm

This variable counts the expenditure on paid labour as well as the opportunity cost of work by the farmers.

Labour costs on the farm index

2012	€/kg carcass	Index
France	0.153	0
Germany	0.142	0.31
Denmark	0.149	0.11
Netherlands	0.142	0.31
Spain	0.118	1

The results are dependent both on work productivity in the farm and on the cost of labour. The results are quite close between countries, except for Spain where labour is less expensive (13.5 €/h). The cost of labour is higher in Denmark (22.2 €/h) and the Netherlands (21.6 €/h), but the work productivity is higher there (150 kg carcass produced per hour as against 115). This is due to the high specialization of the farms.

Spain extended its lead between 2010 and 2012, since Denmark, the Netherlands and Germany each lost 0.2 index points com-pared to Spain. The labour costs are indeed increasing less quickly in Spain, whereas its productivity is improving.

Various expenses and structural expenses

These are farm expenses other than feed and labour. They include various operational and structural costs (health,

energy, effluent management, accountancy, insurance…), financial depreciation and fees.

Index of miscellaneous and structural farm expenses

2012	€/kg carcasse	Indicateur
France	0.45	0.33
Allemagne	0.48	0.06
Danemark	0.46	0.23
Pays-Bas	0.49	0
Espagne	0.37	1

Germany, Denmark and the Netherlands have higher costs. This is partly related to recent investments made in these countries. The Netherlands, where production is very concentrated geographically, are penalized by effluent management costs that are two to three times higher than in the other countries. Finally Spain stands apart with its very simple and inexpensive structures, made possible by a more clement climate and lower labour costs. But on the other hand they obtain lower technical performances.
The results were quite stable between 2010 and 2012. However a slight increase is noted in the various costs in France compared to Spain (cost of energy and construction in particular).

The profitability of livestock farms

The profitability of farms is compared via the net income of farms specializing in pork production (European RICA data). It expresses the amount available to remunerate family work (before taxes) and the equity.
It is compared to the annual nonpaid work unit (UTANS), i.e. the full-time family workforce. The last five years' average is used (from 2007 to 2011 for the 2012 index), to correct the effect of the economic situation.

Farm profitability index

2012	Farm net income (€/UTANS 2012)	Index
France	14 673	0.80
Germany	18 831	0.84
Denmark	-78 841	0
Netherlands	-3 192	0.65
Spain	37 514	1

Great differences in profitability are observed between countries. France and Germany obtain similar, rather modest results.
Spain obtains good results.
On the other hand the Dutch and especially Danish farms obtained negative results. This is partly related to a particularly gloomy economic situation, but also to serious losses in capital in Denmark (drop in value of land and buildings dur-ing these crisis years).
A slight improvement in the results of France and Germany was noted between 2010 and 2012 and a slight degradation of the situation in the Netherlands.

Theme 4: The structures of pig farms

Three variables are used to characterize the degree of specialization and modernization of the farms, as well as their capacity to resist variations in the economic situation, via the link with the soil.

The economic dimension of farms

The size and specialization of farms are important factors that explain the differences in work productivity and technical perform-ances between farms. The "economic dimension of farms" is characterized by the size of small farms measured by the proportion of the livestock held by the farms not enabling a person to be employed full time. The threshold is fixed at 100 sows or 1,000 pigs.

Farm dimension index

2012	Proportion of the herd of small farms	Index
France	20%	0.35
Germany	29%	0
Denmark	3%	1
Netherlands	10%	0.74
Spain	14%	0.57

Denmark and the Netherlands are the two countries where livestock is the most concentrated in large specialized livestock farming structures. Such farms are also very common in Spain, but the contribution of small pig farms is greater.
Finally in France and Germany, a more significant proportion of the farms are not specialized.

Investments in pig farms

The investments made in farms are measured over the average of the five previous years (from 2007 to 2011 for the 2012 index). They are reduced to the LU to be compared according to the different farm orientations.

Farm investment index

2012	Gross investments (€/LU)	Index
France	74	0.19
Germany	145	0.55
Denmark	235	1
Netherlands	143	0.54
Spain	36	0

The results show that Germany, the Netherlands and especially Denmark made considerable investments in recent years. The effects on farm structures were checked. France invested less than these three countries, but twice as much as Spain.
Between 2010 and 2012, the relative position of Denmark weakened a little, because of a slowing-down of investments between 2008 and 2011.

The farms' link with the soil

The link with the soil is measured by the number of pig LU per hectare of AA. This variable takes account of the capacity of farms to resist the volatility of agricultural raw materials. It also takes into account the advantage of farms in terms of effluent manage-ment costs.

In Germany, Denmark and France, the link to the soil is the strongest. The surface areas per animal are lower in Spain. In the Netherlands, one can properly speak about off-soil farming, because animal density is so high.

Farm link to the soil index

2012	LU/ha of AA	Index
France	8.1	0.91
Germany	4.7	1
Denmark	6.9	0.94
Netherlands	41.6	0
Spain	14.0	0.75

Theme 5: The structures of pig slaughtering companies

Importance of the leader and slaughtering activity

This index is the average of 2 indices: one representing the share of the leader in national slaughterhouses, and the other the number of pigs it slaughters.

Index of the importance of the leader in national slaughterhouses

	Importance of leader %	Index 1	Pigs slaughtered (Millions)	Index 2	Index
FR	20.1	0.17	4.9	0.12	0.15
DE	27.5	0.27	16.1	1	0.64
DK	79.6	1	15.5	0.95	0.98
NL	49.3	0.58	7.0	0.29	0.43
ES	7.8	0	3.3	0	0

The distribution of the pig slaughtering business has not changed very much since 2010 in the five countries studied. Danish Crown, the leader in Denmark, with about 80% of national business, obtains the value of 1 for the first index. Spain obtains the lowest value because of a much more scattered supply chain, but this chain is gradually becoming more concentrated. France and Germany also have a chain that is not very concentrated, as their leaders carry out less than a quarter of the slaughters in their respective countries.

But, on the other hand, Tönnies, the German leader that slaughters nearly as many pigs in its country as Danish Crown in Denmark, makes it possible for Germany to take 2nd place for index 2

Establishment of companies abroad

This variable is the total number of countries in which each of the three largest pig-slaughtering and cutting groups of the five countries studied is established, directly or via its subsidiaries, to carry out industrial activities (slaughtering, cutting, process-ing…). The shipping companies and sales offices are not taken into account.

Companies established abroad index

2012	Number	Index
France	0	0
Germany	3	0.23
Denmark	13	1
Netherlands	13	1
Spain	0	0

Several years ago, Danish Crown chose to develop its cutting activities in Germany to benefit from a cheaper workforce. For this reason, it had also become established in Poland and in the United Kingdom, a country with a history of consuming its high added value products.

In 2012, Vion made 10% of its turnover in the Netherlands and 30% in Germany. Tönnies and Westfleisch do not carry out much business outside Germany, in spite of recent investments in Russia and China. At the end of 2012, Vion sold its business in the United Kingdom. The index is unchanged compared to 2011 but will evolve for the year 2013. In its annual report, the Vion group indicates that Vion activities in the United Kingdom account for 25% of the consolidated turnover for 2011 and 2012. On the other hand, this share falls to 8% in 2013.

The sales force abroad

This variable is the total number of sales offices which the three largest slaughtering and cutting groups of each country have abroad.

Number of sales offices index

2012	Number	Index
France	5	0.16
Germany	32	1
Denmark	27	0.84
Netherlands	23	0.72
Spain	0	0

The German slaughter-house companies Tönnies and Westfleisch have respectively installed 25 and 7 sales offices abroad. The Tönnies offices are situated in Europe, Asia and America whilst the Westfleisch offices, apart from one in China, are established in the countries of Eastern Europe.

Danish Crown in Denmark has 22 sales offices abroad as against 5 for TiCan. The Dutch group Vion has 21 sales offices abroad and Van Rooi, the second slaughterer in the country, has set up two offices abroad. These sales offices are in Europe, America and Asia.

The Cooperl is the only French slaughterer to have established sales offices abroad, all situated in Europe. No Spanish slaughterer has yet adopted this approach.

The proximity of the European consumption zone

This index assesses the distance in kilometres between the barycentre of the slaughter-houses, the geographical centre of the sites weighted by the activity of each industrial site, and the geographical centre of the EU.

The shortest distance reveals a comparative advantage related to lower delivery and logistical costs.

Proximity to the centre of Europe index

2012	Km	Index
France	993	0.47
Germany	292	1
Denmark	771	0.64
Netherlands	399	0.92
Spain	1 608	0

The German pig slaughtering-cutting area is the closest to the geographical centre of the EU of 27 which is also situated in Germany. The Dutch area comes second, followed by Denmark and France.

The Spanish pig slaughtering-cutting area is by far the most distant from the centre of the EU.

Export logistics

The evaluation is based on the « Logistics Performance Index » of the World Bank in 2012.

The index is worked out from two themes: the fields depending on political regulations, considered as inputs of the supply chain, and the performances of the supply chain (time, cost, reliability), resulting from its organization.

Logistics performance index

2012	WB Index	Index
France	3.85	0.45
Germany	4.03	1
Denmark	4.02	0.97
Netherlands	4.02	0.97
Spain	3.70	0

According to this index, Germany is the most competitive country, thanks to very good transport and telecommunication infra-structures - the best in the world - and very good respect for delivery times. On the other hand, the competence and quality of their logistical services are considered to be the least good among these five countries, contrary to the Dutch, who also have the best traceability system.

The Netherlands are thus ranked second, equal to Denmark. The Danes are the most qualified to organize international transport at a competitive price and have the most effective customs service.

The logistical performances of France are well behind these three countries, whilst Spain's performances are appreciably lower.

Theme 6: The industrial performances of pig slaughtering

The labour costs

The cost of labour was assessed by surveys in companies. It relates to the hourly rate of the slaughtering-cutting chains.

Labour cost index

2012	€/h	Index
France	17	0.68
Germany	10	1
Denmark	32	0
Netherlands	20	0.55
Spain	14	0.82

There is no variation in the hourly labour costs between 2011 and 2012. Changes in German regulations, with the introduction of a minimum wage at 8.50 € will only be effective in 2016.

The cap rate of this index is 32 €/h, the hourly labour rate in Denmark. The floor rate is 10 €/h, the hourly labour rate in Germany, on the slaughtering chain, integrating German workers and foreign workers on secondment.

The level of automation on the chains

This index is assessed from three components: the presence of a primary cutting robot, the presence of a secondary cutting robot and the presence of dynamic storage in the three largest slaughtering facilities in the country, according to surveys. The three main German and Danish slaughtering-cutting facilities are the most highly automated of the five countries studied. They all benefit from automated primary and secondary cutting equipment as well as an automatic storage vat system. The Dutch facilities come next, with primary cutting that is almost completely automated. The French and Spanish facilities are the least automated.

Cutting and storage automation index

	Cutting I	Cutting II	Storage	Index
FR	0	0	0.66	0.22
DE	1	1	1	1
DK	1	1	1	1
NL	0.75	0	0.66	0.47
ES	0	0	0	0

Cutting standardisation

This index is worked out from expert opinion, according to the standardisation of the supply.

Cutting standardisation index

2012	Score out of 100	Index
France	30	0
Germany	80	1
Denmark	80	1
Netherlands	70	0,80
Spain	65	0,70

The main German, Danish and Dutch industrialists prefer the preparation of standardised cuts in large quantities, even if some industrialists in these three countries are positioned on niche markets where demand is more diversified. The Spanish have less standardized cutting. However the score of Spanish facilities increased slightly (from 60 to 65) to take account of investments in sites in Catalonia, specialized in particular in the supply of ham muscle for French cured products. The French produce the least standardized products on the market.

The size of slaughtering sites

The size of industrial slaughtering facilities is assessed from the average number of pigs slaughtered in the three largest sites in the country, for better representativeness.

Size of industrial slaughtering facilities index

2012	1000 pigs /week	Index
France	38	0
Germany	100	1
Denmark	75	0.60
Netherlands	47	0.14
Spain	63	0.40

The three main German slaughtering facilities have the greatest volume of activity of these five countries, each with an average of 100,000 pork carcasses a week. These three units belong to Tönnies and all of them slaughter more than 3.5 million pigs a year. One of these sites, situated at Rheda, is the largest in Europe with an activity of 7.5 million pigs or 150,000 carcasses a week.

In second position, come the Danish facilities belonging to Danish Crown, with an average of 75,000 pork carcasses a week, in-cluding the abattoir at Horsens, the second largest in Europe, slaughtering 100,000 pigs a week or 5 million a year.

The Spanish facilities are ranked third with an average activity of 63,000 pigs a week, an increase compared to 2011. The largest of them has an activity of more than 3.5 million pork carcasses a year. Of the three main slaughtering sites in Spain, two are owned jointly by several cutting companies for which they operate as service provider.

The Dutch facilities slaughter on average 47,000 pigs a week. The largest site belongs to Vion and is located at Boxtel. It slaughters more than 3 million pigs a year.

Finally, the main French facilities are the smallest of these five countries. They have an average activity of 38,000 pigs a week. The Lamballe slaughter-house, belonging to Cooperl, is the largest, with an activity of 2.4 million pigs a year.

The optimisation of slaughtering sites

This variable is calculated from two components for the three largest facilities in each country:

- **Rate of use of the slaughtering capacity:** volume of activity in 2011 divided by the maximum capacity of the abattoir, according to the conditions of use during the year, in number of pigs slaughtered a year.
- **Daily operational time:** number of hours of activity a day.

Slaughtering site optimisation index

2012	Rate of use (%)	Hours / day	Index
France	82	13	0
Germany	100	17	1
Denmark	92	15	0.53
Netherlands	97	13	0.42
Spain	99	16	0.85

The three largest German slaughtering facilities are the best optimized, because they are used at 100% of their capacities and they operate an average of 17 hours a day.

The main Spanish and Danish facilities are used at 92% of their capacities and respectively operate 16 and 15 hours a day. They are thus ranked second and third for this variable. The largest Dutch facilities are better used, at 97% of their capacity, but they have a daily activity of only 13 hours, lower than the facilities of the three preceding countries.

The utilisation rate of the Spanish facilities progressed from 92 to 99% between 2011 and 2012, increasing the score of Spain on this criterion from 0.66 to 0.85. Finally, the French facilities are the least optimized, with a daily operating time of 13 hours and an utilisation rate of 82%.

Theme 7: The economic performances of pig slaughtering

The profitability of industrial activities

The profitability of industrial activities is given by the relationship between the operating income and the turnover for the first three slaughtering groups in each country.

The Danish and Spanish companies, whose operating margin rate is respectively 3.4% and 3.5%, are by far those whose industrial activities are the most profitable. The German, Dutch and French companies have profitability rates of less than 1%.

Profitability related to turnover index

2012	%	Index
France	0.7	0.16
Germany	0.2	0
Denmark	3.4	0.97
Netherlands	0.3	0.03
Spain	3.5	1

The proportion of work in the turnover

The ratio of the total cost of work for the company is assessed from the sum of the salaries and wages and social contributions related to the turnover.

Proportion of work in the turnover index

2012	%	Index
France	8.6	0.38
Germany	2.1	1
Denmark	12.1	0.04
Netherlands	12.5	0
Spain	4.2	0.80

Labour costs are the most advantageous for the German operators, since it accounts for 2.1% of their turnover, as against 4.2% for the Spanish, coming second for this variable.
The French are in an intermediate situation with labour costs equivalent to 8.6% of their turnover, while it is higher than 12% for the Danish and Dutch operators, a level corresponding to the index cap rate.

The proportion of investments in the turnover
The level of investments made by slaughtering companies is assessed by the ratio of allowances for depreciation to turnover.
Uncertainties exist for Germany because of the lack of data.

Proportion of investments in the turnover index

2012	%	Index
France	1.1	0.28
Germany	0.3	0
Denmark	2.2	0.66
Netherlands	2.0	0.59
Spain	3.2	1

The Spanish companies in the sample (Costa Brava and Vall Companies) have a high level of investment. The depreciation level for Danish companies corresponds to 2.2 % of their turnover.
The Dutch are close with a rate of 2%, while the French are behind with a rate of 1.1%.
The floor rate is fixed by the German in-dustrialists for whom depreciation accounts for only 0.3% of the turnover.

Theme 8: Cured meats

Commercial balance with the EU for preparations and salted, dried and smoked meats
The difference between exports and imports of processed products (salted, dried, smoked meats and preparations) is calculated in value with the EU.
This variable assesses the capacity of cured meat producers to add value to their processed products on Community markets.
Germany is at the top of the classification thanks to very good added value of its prepared meat products on the European market, in particular sausage products, in response to a wide demand.

Index of foreign trade of cured meat products

2012	M€	Index
France	-317.7	0
Germany	+306.3	1
Denmark	+246.0	0.90
Netherlands	+160.9	0.77
Spain	+236.0	0.89

Denmark and Spain, some of whose products have high added value, are similar with a score of 0.90. France is very far from the other countries and the only one in deficit. Between 2011 and 2012, the balance of France drops even further from -288 M€ to -318 M€.

Turnover per meat processing company
This index is obtained by the relationship between the total turnover of the meat processing sector and the number of companies, according to surveys of companies by Eurostat. It compares the size or level of concentration of the companies relative to the other countries. These data are from 2011, as 2012 are not available.

Cured meat company turnover index

2011	M€	Index
France	13.4	0.13
Germany	15.7	0.20
Denmark	44.3	1
Netherlands	14.2	0.16
Spain	8.6	0

Denmark occupies the first place as in 2011, far in front of the other four countries, revealing the concentration of the cured meat supply chain. Spain and to a lesser extent, France and Germany, are characterized by smaller-sized companies, small artisanal structures coexisting alongside large national groups with a strong brand name.

Gross operating profit per employee in cured meat companies
The relationship between the average gross operating profit of meat processing companies of a given country and the number of employees in the sector provides an assessment of the profitability of cured meat companies.

EBITDA/employee in cured meat companies index

2011	€	Index
France	6 000	0
Germany	19 000	0.87
Denmark	13 000	0.47
Netherlands	21 000	1
Spain	14 000	0.53

In France, the meat processing companies are the least profitable of the 5 countries. The Netherlands and Denmark are at the top, according to surveys of companies in the EU for the year 2011, the latest available from Eurostat when the article was written.

Theme 9: Distribution

The size of large-scale food retail outlets

The size of large-scale food supermarkets is measured by the turnover per large food retail outlet, thanks to Eurostat surveys with companies.

Index of turnover in large-scale food retail outlets

2011	M€	Index
France	6.78	0.62
Germany	7.06	0.66
Denmark	confidential	
Netherlands	9.72	1
Spain	1.99	0

The data are those of 2011, the latest available when the article was written.

The Netherlands are at the top of the classification, while Spain is characterized by smaller food outlets.

Gross operating profit (EBITDA) per employee in a large-scale food retail outlet

This ratio supplied by Eurostat gives an indication of the profitability of large-scale food retail outlets.

EBITDA/ supermarket employee index

2011	€	Index
France	7 400	0.59
Germany	3 900	0
Denmark	confidential	
Netherlands	7 400	0.59
Spain	9 800	1

Spain is in first place for this variable, a long way in front of the other four countries.

Turnover per butcher's shop with delicatessen

This variable assesses the structure of butcher's shops with delicatessen, another form of of meat product distribution. The data are those for 2011, as 2012 was not available at the time of the article.

Butcher's shop with delicatessen turnover index

2011	M €	Index
France	0.42	0.55
Germany	0.62	1
Denmark	0.54	0.82
Netherlands	confidential	
Spain	0.18	0

It is in Germany that the butcher's shops with delicatessen are the largest. The Spanish supply chain is more dispersed.

EBITDA per employee in a butcher's shops with delicatessen

The profitability of butcher's shops with delicatessen is assessed by the ratio of the gross operating profit per employee.

EBITDA/ employee in butcher's shop with delicatessen index

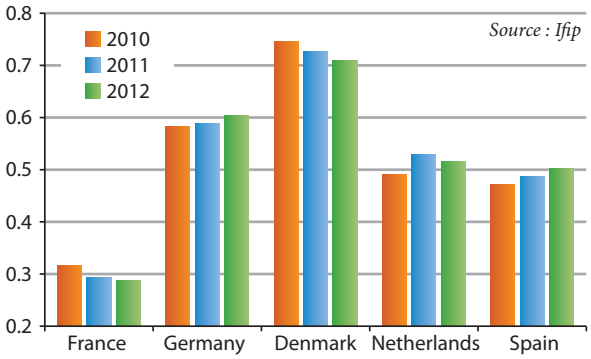
2011	€	Index
France	12 300	0.44
Germany	5 900	0
Denmark	11 100	0.36
Netherlands	confidential	
Spain	20 400	1

Spanish retailers have a good level of profitability, which distinguishes them from German structures. The data on the Netherlands are not communicated by Eurostat.

Discussion

France: the least competitive of the five main pork producer countries in Europe

France consistently obtains the lowest score, around 0.3, whereas Denmark remains the best placed, a little above 0.7. In second position, Germany approaches the level of 0.6 in front of the Netherlands and Spain, which obtain approximately 0.5. The calculation of the synthetic index for the years 2010 to 2012 does not call this hierarchy from one year to another into question, maintaining variations that are almost stable over this period among the five countries.



Evolution of the competitiveness index from 2010 to 2012

France obtains the worst score for 6 themes out of the nine that make up the index:

- **Industry and macroeconomic environment**
- **Foreign trade of pork products**
- **Performances of pig farms**
- **Structures of pig farms**
- **Structures of slaughtering-cutting companies**
- **Slaughtering-cutting industrial performances**
- **Slaughtering-cutting economic performances**
- **Cured meat products**
- **Retail.**

Among the remaining three, for "Performances" and "Farm structures" the scores are very close among countries, reflecting a diversity of situations on the different items. Its low production costs benefit from reduced investment expenses, which is a bad sign for the future. The "Structures" score is raised by the link to the soil within many farms.

As for the «Distribution» score, it judges the situation particular to this supply chain, without automatically prejudging a beneficial effect for the whole industry.
Between 2010 and 2012, the gap in competitiveness between France and most of its competitors grew wider, with its score going down from 0.32 to 0.29. Denmark also moved back (from 0.74 to 0.71), whereas the other three countries made some progress (+0.03 points for Spain, +0.02 for Germany and the Netherlands). The evolutions remain limited however and it is difficult to speak about a trend. Thus, for the Netherlands, 2011 is up, whereas 2012 loses part of the profit again.
The fall in France's competitiveness index reflects the decline in all performances and the macro-economic context in which its supply chain moves. The decline in the performances of French foreign trade, with a deficit in value which is deepening, continues a trend that has been observed for some time.
The results of the meat processing, slaughtering-cutting and cured meats companies dropped in 2011. The score of the farms also moved back between 2010 and 2012, with investments stagnating at a very low level

Germany continues to make progress

Germany increases its relative competitiveness in 2012 thanks to the improvement of its trading performances and industrial performances at a high level compared to the

Thematic and synthetic indices in 2010

	Macro economy	Trade	Pig farm		Slaughtering-cutting industry			Cured meats	Distribution	Synthetic index
			Performances	Structures	Structures	Performances				Average
						Indus.	écono.			
France	0.22	0.10	0.59	0.46	0.25	0.21	0.30	0.05	0.67	0.32
Germany	0.67	0.45	0.47	0.44	0.76	0.92	0.33	0.62	0.59	0.58
Denmark	0.67	0.93	0.48	0.98	0.79	0.65	0.52	0.91	0.78	0.74
Netherlands	0.41	0.24	0.61	0.36	0.79	0.53	0.33	0.66	0.50	0.49
Spain	0.59	0.34	0.60	0.44	0.00	0.50	0.97	0.48	0.33	0.47

Thematic and synthetic indices in 2011

	Macro economy	Trade	Pig farm		Slaughtering-cutting industry			Cured meats	Distribution	Synthetic index
			Performances	Structures	Structures	Performances				Average
						Indus.	écono.			
France	0.21	0.11	0.56	0.47	0.25	0.18	0.27	0.04	0.55	0.29
Germany	0.67	0.53	0.43	0.47	0.76	1	0.33	0.69	0.41	0.59
Denmark	0.64	0.92	0.48	0.98	0.89	0.63	0.60	0.81	0.59	0.73
Netherlands	0.47	0.30	0.61	0.39	0.81	0.51	0.23	0.65	0.80	0.53
Spain	0.57	0.40	0.60	0.44	0.00	0.52	0.88	0.48	0.50	0.49

IThematic and synthetic indices in 2012

	Macro economy	Trade	Pig farm		Slaughtering-cutting industry			Cured meats 2011*	Distribution 2011*	Synthetic index
			Performances	Structures	Structures	Performances				Average
						Indus.	écono.			
France	0.21	0.08	0.52	0.48	0.25	0.18	0.27	0.04	0.55	0.29
Germany	0.67	0.60	0.44	0.52	0.77	1	0.33	0.69	0.41	0.60
Denmark	0.61	0.93	0.43	0.98	0.89	0.62	0.55	0.79	0.59	0.71
Netherlands	0.47	0.29	0.52	0.43	0.81	0.47	0.21	0.64	0.80	0.51
Spain	0.60	0.43	0.60	0.44	0.00	0.55	0.93	0.47	0.50	0.50

** Lack of Eurostat data in 2012 at the time of writing*

Source : Ifip

other countries. It improves its trade balance with the EU and its share of boned cuts in total meat exports.
The economic performances of the slaughtering companies however are not very well taken into account because of the lack of available data. Germany remains slightly behind on farm performances, but between 2010 and 2012, the gaps compared to France, Denmark and the Netherlands appreciably decreased.

Denmark, the most competitive

Denmark has the advantage of very efficient farm structures and slaughtering-cutting companies.
From its presence abroad, a trade surplus and a capacity to develop its products for export, the country consolidates its score for foreign trade.
The slight fall in its total competitiveness index, over the period, is especially due to the decline in the economic performances of its companies, in a difficult European economic context.
The farms, although modern and very technically efficient, have a profitability heavily affected by investment costs.

Netherlands: drop in companies economic performances

The drop in the operating profits of slaughtering-cutting companies (from 2% in 2010 to 0.8% in 2011 to 0.3% in 2012), affects the competitiveness of the supply chain and is due to the start of the Vion group's economic difficulties.
The drop in farm performances also penalizes the overall competitiveness of the country.
Investments in farms nevertheless remain relatively strong.

Spain: better trading performances

Spain continues its export growth thanks to a supply chain organized to export competitive products, towards the EU, and in par-ticular to France. The improvement in the economic performances of its main companies and in distribution supports the Spanish pork chain as a whole, in spite of slaughtering-cutting companies that are smaller than in the other countries.
Although farm structures remain heterogeneous and investments very low, the level of performances and profitability is good and continues to improve.
The following tables provide the detail of the thematic and synthetic indices of competitiveness for the years 2010, 2011, 2012 for the five countries studied

Follow-up and geographical expansion

The work has to be continued, with an annual calculation of the competitiveness index, to have a dynamic tool and to reveal real trends in the improvement or decline of the relative competitiveness of pork-producing countries, over several years.
The work must continue to provide permanent improvement of the representativeness and objectivity of the different variables.
Further studies can be carried out to give a more detailed description of the cured meat link in the five countries studied.
Finally, widening the geographical field, by introducing new countries, would make it possible to compare the competitiveness of France with that of other candidates, in the European Union or at world level.

Conclusion

In 2012, the Ifip Economy cluster constructed a specific index of competitiveness of the pork chains. The first calculation of this index, for the year 2010 reflected the difficulties of France, associated with a macroeconomic context less favourable than its competitors, poorer trade performances and a meat industry with low profitability making very few investments.
The synthetic competitiveness index was recalculated for the year 2011, and within the framework of this article, for the year 2012.
Without really being able to speak about a trend when comparing the results of the years 2010 and 2012, it is clear that France is still the least competitive country of the five main pork-producing countries in the EU. Over the same period, the competitiveness of France's main competitors, measured by the synthetic index, is stable or is making progress, but in small proportions. In 2012, in a difficult economic context in the European Union, only Germany and Spain can see any progress in their competitiveness, measured by this synthetic index. This trend reflects the dynamism presently at work in these two countries.
Work now has to go on, to have a dynamic tool and demonstrate real trends for longer-term change in the relative competitiveness of pork-producing countries. More thorough research could also be carried out to characterize some links more finely or to add some countries to the sample.
For the professionals of the French pork chain, this index is a decision-making tool to identify the weaknesses in the various links and, if necessary, the ways of improving overall competitiveness and ensuring the return to dynamism.

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