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*in*

De Pedro E.J. (ed.), Cabezas A.B. (ed.).  
7th International Symposium on the Mediterranean Pig

Zaragoza : CIHEAM

Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 101

2012

pages 649-653

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=00006761>

To cite this article / Pour citer cet article

Cabezas A.B., Romero L., Lara P., De Pedro E.J. **Iberian pig price cycle: Extremadura market.** In : De Pedro E.J. (ed.), Cabezas A.B. (ed.). *7th International Symposium on the Mediterranean Pig*. Zaragoza : CIHEAM, 2012. p. 649-653 (Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 101)



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# Iberian pig price cycle: Extremadura market

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**Abstract.** This work analyses the pattern of Iberian pig prices at the Extremadura market, in order to find out about the cyclical fluctuations of Iberian pig prices, both for piglets and fattening animals in their different commercial categories: “Bellota”, “Recebo” and “Cebo”. The study looked at prices between 1989 and 2009, using the monthly average prices for those categories at the Extremadura market, and deflating them by the Producer Price Index. These deflated values enabled us to set 12-month Centered Moving Averages to offset the product’s seasonal nature. The prices went through three cycles during the research period. The cycle for the piglet category was seen to fluctuate between 41 and 86 months, with an average of 74.8, and the average duration of the cycle for fattening pigs of the “Cebo” category was found to be similar (between 43 and 87 months, with an average of 74.4 months). A seasonal pattern was observed in the prices for the piglet category, with minimum prices in summer and maximum prices in winter, whereas the fattening animals reached their minimum prices in autumn and maximum prices in winter.

**Keywords.** Iberian pig – Prices – Cycles.

## **Cycle de prix du porc Ibérique : Marché de l'Estrémadure**

**Résumé.** Cet article analyse l'évolution des cours du porc Ibérique dans les halles d'Extremadura, tant pour les porcelets que pour les porcs engraisés, correspondant respectivement aux différentes qualités commerciales de “Bellota”, “Recebo” et “Cebo”, afin de suivre les variations cycliques des cours. La période d'étude porte sur les années 1989 à 2009. Les cours mensuels moyens par catégorie aux halles d'Extremadura, corrigés en fonction de l'indice de prix industriels, ont été utilisés. Ces cours mensuels moyens corrigés ont été utilisés pour déterminer les moyennes mobiles centrées de 12 mois, afin d'éviter les variations saisonnières. Dans la période d'étude il y a trois cycles pour ces cours. Le cycle de la catégorie porcelets oscille entre 41 et 86 mois, avec une moyenne de 74,8. De même la longueur moyenne du cycle des porcs engraisés est de 43 à 87 mois, avec une moyenne de 74,4 mois. Une certaine saisonnalité des cours est observée pour les porcelets, avec des prix minimaux l'été et maximaux l'hiver; et pour les animaux engraisés, avec des valeurs minimales l'automne et maximales l'hiver.

**Mots-clés.** Porc Ibérique – Prix – Cycles.

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## **I – Introduction**

Pig production in Spain is mainly based on the intensive production of improved white-coat pigs. However, there is also an extensive production based on the Iberian pig, both pure and cross-bred with Duroc Jersey.

In recent decades, this indigenous race has undergone a period of decline, particularly between the 1960s and the 1980s. This has been caused by a number of factors, including zootechnical (lower prolificacy and growth rates than other improved races), social (diminishing agricultural population, leading to a crisis in traditional production methods), dietary (Spanish society has rejected meat that is high in fat), pathological (the Iberian pig was hit hard by African Swine Fever) and economic (other meat products, such as chicken or white pork, offered more competitive prices).

However, it has clearly been making a comeback in recent years. The decline that came about around 1993, as a result of lowering animal prices, was followed by a period of spectacular growth. Furthermore, the demand of Iberian pork products in the Spanish market was on the

rise, with ever increasing appreciation of their quality. Consumers were willing to pay for that quality, as they now had greater spending power.

The marketing of the Iberian pig is characteristically varied and complex. This is due to the range of categories throughout the production cycle, to the races used (pure or cross-bred) and to the different types of feeding used in the final fattening stage: “Bellota” or Montanera (mainly acorns), “Recebo” (mixture of acorns and fodder) and “Cebo” (animals are exclusively fed compound feed, either as part of an intensive or extensive system).

The marketing of the Iberian pig has also been influenced by factors such as the modernisation of farms, which are today managed more rationally and competitively than before; the extended slaughter season, due to improvements in ways of preparing and preserving pork products; and the rise in the standard of living.

Situations in which there is a surplus or deficit in animal production, a shortage or abundance of acorns and pasture, demand for cured products, etc. mean that prices rise and fall on a fairly regular basis, much as they do for other products, and more specifically, in the case of the white-coat pig that is intensively farmed.

The pattern of prices and production of the white pig has been studied on a number of occasions (Zorrilla, 1969; Weinberg and Sobrino, 1958; Caldentey, 1967, 1980; De Pedro *et al.*, 1984; Caldentey and de Haro, 1985; Riopérez and Paz, 1986; Agote, 1991; Muñoz, 1998 and Berrocal, 1999; Dawson P.J., 2009) to discover how it adapts to different production forecasts over relatively wide periods of time.

In the case of the Iberian pig, however, its seasonal production and the irregularity of information about its prices have made it difficult to carry out a market analysis of this type of livestock (Berrocal, 1999, Muñoz, 1998), as well as the fact that only relatively recently has a record been kept of the weekly or monthly prices of the different types of animals sold in farming markets, which makes it difficult to have a clear view of price behaviour.

These circumstances, and the importance of Iberian pig production in south-west Spain, have created an interest in finding out more about the evolution of Iberian pig prices in the main area of pasture production.

The objective of this paper is to analyse the cycle of Iberian pig at the Extremadura market, which will enable us to find out about its pattern and so have an idea about price behaviour.

## II – Material and methods

For this work we have used the average monthly prices for piglets and “Cebo” pigs at the Extremadura market, as these are the only categories of pig that have recorded prices all year round. The average prices were deflated with the Producer Price Index (PPI), with base year 2005, obtained from the [Spanish] National Statistics Institute, in order to counteract the effect of inflation in the period under analysis.

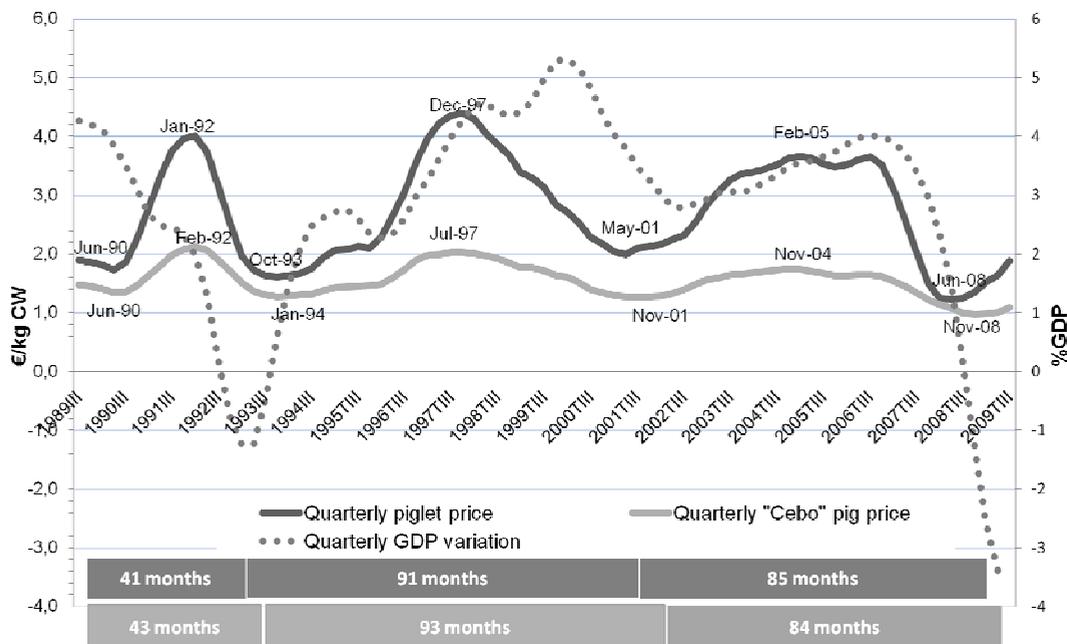
The prices’ seasonality was offset by means of the Centered Moving Averages of the monthly prices that was put forward by Caldentey (1980), applying the following formula:

$$X_t^* = 1/24 * (X_{t-6} + 2X_{t-5} + \dots + 2X_{t-1} + 2X_t + 2X_{t+1} + \dots + 2X_{t+5} + X_{t+6})$$

Where t represents the months considered.

### III – Results

Figure 1 shows the values of the centered moving averages for the piglet and “Cebo” pig prices at the Extremadura market, together with the pattern of the quarterly variations in GDP between 1989 and 2009. In this graph it can also be observed how both series of data behave in a similar way. With regard to the average duration of the two categories’ cycles, there are hardly any differences; in the case of piglets, this duration is 74.8 months, and in the case of “Cebo” pigs it is 74.4 months. In general, however, we observe no coincidence in the maximum and minimum prices for both series, and they also come about with no fixed pattern of differences. Espárrago *et al.* (1999), in a shorter period of time than in our study, also pointed out that the average duration of piglets and “Cebo” pigs was very similar, with an average cycle duration that was just 6 months shorter.



**Fig. 1. Chart showing the centered moving averages for the quarterly deflated prices of piglets and Cebo pigs and the GDP variation between 1989 and 2009.**

In Fig. 1 it is worth pointing out the size of the wave drawn by each cycle. We can clearly see here how, in the case of the piglets, these fluctuations are much more pronounced than in the case of the “Cebo” pigs, where the curve drawn by this series of data is much gentler, which could be due to the rigidity of the short-term supply of piglets, as described by De Pedro *et al.* (1984).

We can see how, for piglets, the price drops are very abrupt, whereas their price recoveries are much slower; however, if we look at the data for “Cebo” pigs, we observe that it is completely the opposite; this could be due to the different production process involved in each category. The need to sell piglets at a given weight would prevent them from being sold at a later point in time, whereas in the case of the “Cebo” pigs, the time at which they are slaughtered may be sooner or later, according to market prospects.

Furthermore, we would like to highlight the rapid fall in prices, both for piglets and “Cebo” pigs, in the period of time between January 1992 and October 1993, compared with the evolution that had come about in subsequent periods of time. We do not have enough information to know what cycles were like prior to June 1990, but in 1991, with the purpose of eradicating African Swine Fever (ASF) in Spain, ASF-“free”, “monitored” and “affected” zones were established ([Official State Gazette] BOE-A-1988-29631, 1988; BOE-A-1991-7267, 1991; BOE-A-1992-26539, 1992). Extremadura was in the affected zone, and was not declared a monitored zone until November 1993. It was not until a year later that it was finally declared an ASF-free zone. These limitations in the animal trade could be one of the causes of that heavy fall in prices in both markets, and the classification as a monitored zone in November 1993 could have been the reason behind the price recovery.

The standstill in 1995, when there were no longer any limitations on the trade of animals and Iberian pork products, coincided with periods of heavy drought and a halt in the GDP growth in Spain. Once this period had passed, the sector once again picked up the growth it had been undergoing in the previous cycle, even reaching higher values than before.

In the second and third cycles (January 1994-November 2001 and November 2001-November 2008, respectively) we can see that the price extension for “Cebo” pigs coincided with a period of high growth in the Spanish economy, which leads us to suppose that the extension of the second cycle was produced as a result of the high demand for animals by industrialists who were motivated by the good economic expectations of the time. This situation meant that the surplus supply that was produced in 1997 was not absorbed in full, as would be expected from looking at the cyclical behaviour of prices in preceding years. Instead, the surplus supply meant that, between December 2002 and October 2006, prices did not reach the maximum values observed in previous cycles, despite the fact that the positive economic situation in the country kept the “Cebo” pig prices high during that period.

## IV – Conclusions

The evolution of Iberian pig prices is conditioned by internal factors (census, production costs, acorn harvest, etc.) and external factors (the country’s economic situation). In the period of time analysed here (1989-2009), both in the category of piglets and in the category of intensive “Cebo” pigs, 3 price cycles were produced with similar durations; the duration of the first cycle is approximately half of the other two, largely as a result of the programme to eradicate African Swine Fever, and of the country’s economic situation.

It is important for price predictions in the Iberian pig market to know the evolution of the country’s GDP, as well as other aspects such as the census and the situations in the farming year.

## Acknowledgements

This work has been financed by the [Spanish] Ministry of the Environment & Rural and Marine Affairs, and the Interprofessional Iberian Pig Association (*Asociación Interprofesional del Cerdo Ibérico*). The authors would like to thank the Extremadura Market for their collaboration in completing this work.

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