The Clustering of Cork Firms in Santa Maria da Feira: Why History Matters

João Carlos Lopes[1] and Amélia Branco[2]

[1]ISEG - School of Economics and Management, Technical University of Lisbon, and UECE - Research Unit on Complexity and Economics, Lisbon, Portugal
jcflopes@iseg.utl.pt

[2]ISEG - School of Economics and Management, Technical University of Lisbon, and GHES – Research Centre of Economic and Social History, Lisbon, Portugal
ameliab@iseg.utl.pt

Abstract - **This paper studies the reasons why most Portuguese cork manufacturing firms are concentrated in Santa Maria da Feira, a small municipality in the north of the country, whereas the bulk of the cork is produced in the south (Alentejo and Ribatejo*).* It starts with a brief introductory discussion of the advantages and limitations of clusters and industrial districts, together with an illustration of the recent theoretical findings of evolutionary economic geography. Next, a comparative analysis is made of the economic performance over the last decade of firms located in Santa Maria da Feira and other regions, leading to a powerful conclusion that points to the absence of any clear advantages for clustered firms. Finally, an attempt is made to discover the historical and socio-political reasons why so many cork firms are concentrated in Santa Maria da Feira. These are shown to be indispensable for understanding and substantiating the business location decisions of most Portuguese cork entrepreneurs.**

Keywords: *Cork industry; clusters; Portugal*

1. Introduction

The cork industry is an important economic activity in Portugal, a country which is by far the world's largest producer and exporter of manufactured cork products: it is responsible for 62% of the €804.7 million in value of the cork products exported worldwide. Cork stoppers for wine bottles are the leading product, representing about 70% of total exports (€563 million, of which €352 million represents exports of natural corks). Cork products contribute to more than 2% of total Portuguese exports and to around 30% of the exports of forestry products. The main export destinations are wine-producing countries, most notably France, Italy and the USA. (APCOR 2011).

The nearly 600 companies belonging to this sector employ more than 8,000 workers and produce about 40 million corks per day, of which 35 million are produced in Santa Maria da Feira, a small municipality in the North of the country, belonging to the district of Aveiro. The main purpose of this paper is to study the reasons why most Portuguese cork manufacturing firms are concentrated in this northern district, whereas the bulk of the raw material (natural cork) is produced in the southern regions of the Alentejo and the Ribatejo.

It starts with a brief analysis of the advantages and limitations of clusters and industrial districts, while also examining the recent theoretical findings of evolutionary economic geography, as well as the older perspectives of Porter and Becattini, largely based on Marshall (section 2).

In section 3, a quantitative assessment is made of the comparative economic performances of the firms clustered in Santa Maria da Feira and the firms scattered around other regions of the country, using the most recent data available from the Portuguese statistical office (INE) about this industry: production, employees, hours worked, labour productivity and international trade. This analysis covers the period from 2004 to 2010, and appears to show that there are no clear advantages for clustered firms.

With this result in mind, the main part of the paper (section 4) is dedicated to a careful search for the fundamental explanation as to why cork firms are clustered in the municipality of *Santa Maria da* Feira, together with a description of the historical and socio-political reasons shown to be indispensable for

understanding and substantiating the business location decisions of most Portuguese cork entrepreneurs.

Finally, section 5 ends the paper with the main concluding remarks and makes suggestions for future lines of research. The aim is to achieve a better understanding of this sector and to propose improvements for its better functioning. The sector is seen as vital for the Portuguese re-industrialising efforts currently in progress, a move believed to be essential for overcoming the serious macroeconomic and financial crises facing this country.

2. The importance of clusters and industrial districts

In the 1990s, Alfred Marshall's approach to external economies in his book *Principles of Economics* (1890) was updated by Michael Porter (Porter 1990, 1998) with the revival and popularization of the "cluster" concept. This concept is mainly based on Marshall's geographical agglomerations, and it shares many of the features present in the notion of Industrial Districts of Giacomo Becattini (Becattini, 1990). Clusters can be understood as geographical concentrations of interconnected companies, specialised suppliers, service providers and institutions, competing and cooperating in the same space, at a national or a regional level (for a detailed analysis of this concept, see Martin and Sunley, 2003). The clustered companies are connected to other companies and institutions also existing inside the cluster, through exchange relations and mutual interdependencies.

Clusters are important for economic development since the companies inside the cluster experience a stronger rate of growth, resulting from the competitive advantages created by the interaction of the four points of the "competitive diamond" (Porter 1991): factor (input) conditions; firm strategy, structure and rivalry; demand conditions; and related and supporting industries; all of them influenced by other factors (for instance, chance or Government policy). The geographical agglomeration of firms increases the potentialities of the diamond, reinforced by local economic and social history, which strengthens the links between companies and institutions located in that area.

The research carried out into clusters has mainly been marked by an analysis of its functioning, with less attention being paid to its origin, development or even decline. A more profound analysis of these aspects of the cluster may help us to understand the factors that underpinned its emergence.

Evolutionary economic geography has developed a new approach to clusters, paying attention to their "life cycle" (Boschma and Frenken 2006; Martin and Sunley 2011) and studying the evolution of clusters both from their origin and throughout the phase of their development and maturity, or even decline. In this context, the historical approach is very useful, since past (or historical) choices made in relation to productive specialisation, technologies, labour skills, the network of suppliers, etc., can create a path dependence and ultimately lead to "lock-in" situations. According to Martin and Sunley (2006), the possible sources of regional path dependence are: natural resources; sunk costs of local assets and infrastructures (facilities, machinery, etc.); local external economies of industrial specialisation; regional technological lock-in; economies of agglomeration; local institutions and socio-cultural features; dependencies on other regions or political decisions in other regions. The regional dependence explains the path dependence: the same factors that are responsible for the development of a firm or a small group of firms may lead to the creation of other firms in the same region. Moreover, some random and historical "accidents" or events may divert the cluster from the "first path dependence", leading it to adopt a self-reinforcing mechanism that could be either positive or negative.

But the results are still not predictable. The cluster presents endogenous and exogenous factors that shape the local productive system and it can learn certain lessons during its evolutionary process, under pressure from the competition or from exogenous (international or national) factors. As Belussi and Sedita (2009: 508) state, the cluster is an evolving complex system that exhibits some learning capacity.

According to the "life cycle" approach, the cluster initially experiences a rapid expansion and accumulation of capital resources in terms of expertise, knowledge and support institutions. In a second phase, it tends to stabilise in terms of its structure and shape. The degree of interconnection is high and this can make the cluster less resilient. However, the cluster may become mature, depending on its flexibility and the type of external shocks to

which it is exposed. Faced with a competitive shock, the cluster may disappear or diminish in size.

However, the transition to a phase of disappearance is not so linear. Resilience can be understood as the adaptation capability of a system. In the case of clusters, two trends are in conflict: on the one hand, clusters increase their internal interconnections; on the other hand, the growing interconnections reduce the system's capacity to adapt to external shocks. This means that there is a trade-off between resilience and interconnections: the more closely interconnected the parts of the system are, the more rigid it will be in structural and functional terms. The "adaptive life cycle model" seeks to reconcile these two trends, albeit with unpredictable results in terms of success and survival.

Martin and Sunley (2006) consider six factors relating to the evolution of a mature cluster: 1) the emergence of a new cluster that leverages the resources and capabilities inherent in the former; 2) the constant mutation of the cluster (and, in this case, it is constantly evolving) both for new sectors and for new activities (a high degree of resilience); 3) the stabilisation of the cluster over a long period, for example, by taking advantage of market niches, but always remaining under threat of disappearance (a modest degree of resilience); 4) the reorientation of the cluster, corresponding to the emergence of a new cluster; 5) the emerging failure of the cluster because it has not achieved the critical mass needed to exploit external economies; 6) the disappearance of the cluster, according to classical life cycle theory.

Also, according to Martin and Sunley (2006), these triggering factors could permit the end of the lock-in situation, i.e. the rigidity and inflexibility of the cluster when confronted with external challenges. Likewise, Belussi and Sedita (2009) highlight the qualitative aspects of the cluster in the several phases of its life cycle. Local endowments (input conditions: for instance, qualified or specialised workers; natural resources, etc.), institutions and anchor firms are some of the endogenous factors explaining the genesis of the cluster. In the development and maturity phases, several other endogenous factors may be important: technological innovation; universities, research centres and business networks; and aggressive strategies, such as a diversification of products and markets. Among the exogenous factors, the growth of demand and internationalisation and globalisation processes (for instance, when a local company becomes a multinational company) are determinant, simultaneously representing a challenge and a threat to the cluster. These factors bring the cluster into contact with outside customers, suppliers and institutions, competitors that may transform the cluster into an open and global system.

Menzel and Fornahl (2009) conclude that the cluster can also be distinguished by a quantitative dimension, which includes the number of firms and employees. Initially, the number of firms is small but growing, consisting mainly of small firms. In the development phase, the number of employees grows significantly, compared to the situation nationally. In the mature phase, the cluster is able to sustain its level of employment. The declining phase is marked by a fall in the number of firms and employees.

Identifying and explaining the factors that lie at the origin of the cluster's path dependence and its hypothetical lock-in certainly represents a considerable contribution towards finding possible solutions for bringing an end to the "lock-in" situation.

By adopting a historical approach, we seek to identify the factors that led to the formation of the Santa Maria da Feira cluster and to discover whether it has developed a "delocking mechanism" during its life cycle. We begin our empirical analysis by painting the picture over the last decade of the cluster of firms located in this and other regions, which we hope will show the importance of an empirical analysis based on a historical knowledge of the Santa Maria da Feira cluster.

3. Comparing the economic performance of firms from the Santa Maria da Feira cluster with that of other firms

According to the theory about clusters and industrial districts that has been briefly described above, one might expect that firms belonging to a strong and resistant cluster would show economic and financial advantages over the firms from the same sector located in other regions of the country.

It is an interesting exercise to compare the performance of these two groups of firms and see if the above expectation is confirmed. In order to do so, a diversified range of indicators is used, based on data provided by the Portuguese statistical office (INE) for the period from 2004 to 2010. This was a difficult time for the Portuguese economy as a whole,

and for the manufacturing sectors in particular, marked by two deep recessions in 2003 and 2009.

Of course, the cork sector in Portugal was able to avoid these global difficulties, as can be seen in Table 1, which shows the main indicators at the beginning and end of the period, namely the absolute and relative numbers, as well as the rate of change, of firms, employees, production, value added and investment, in the area of Santa Maria da Feira (around 80 per cent of the sector's firms) and in other regions of Portugal (mostly Setúbal and the Algarve).

Table 1. Main indicators of the Cork Industry in Portugal, 2004 – 2010

Year	**Firms**							
	S. M. Feira			**Other regions**			**Portugal**	
	Number	% of Total	R. Ch. (%)	Number	% of Total	R. Ch. (%)	Number	R. Ch. (%)
2004	1,062	79.9	-	267	20.1	-	1,329	-
2010	779	80.2	-26.6	192	19.8	-28.1	971	-26.9
Year	**Employees**							
	S. M. Feira			**Other regions**			**Portugal**	
	Number	% of Total	R. Ch. (%)	Number	% of Total	R. Ch. (%)	Number	R. Ch. (%)
2004	9,304	72.7	-	3,493	27.3	-	12,797	-
2010	6,169	67.5	-33.7	2,973	32.5	-14.9	9,142	-28.6
Year	**Production**							
	S. M. Feira			**Other regions**			**Portugal**	
	Million €	% of Tot.	R. Ch. (%)	Million €	% of Tot.	R. Ch. (%)	Million €	R. Ch. (%)
2004	1,163.8	75.8	-	330.5	24.2	-	1,494.4	-
2010	762.5	84.9	-34.5	353.2	15.1	6.9	1,115.7	-25.3
Year	**Value Added**							
	S. M. Feira			**Other regions**			**Portugal**	
	Million €	% of Tot.	R. Ch. (%)	Million €	% of Tot.	R. Ch. (%)	Million €	R. Ch. (%)
2004	265.4	83.8	-	51.4	16.2	-	316.8	-
2010	234.9	83.6	-11.5	45.9	16.4	-10.7	280.8	-11.4
Year	**Investment (Gross Fixed Capital)**							
	S. M. Feira			**Other regions**			**Portugal**	
	Million €	% of Tot.	R. Ch. (%)	Million €	% of Tot.	R. Ch. (%)	Million €	R. Ch. (%)
2004	25.6	66.3	-	13.0	33.7	-	38.7	-
2010	9.0	37.6	-64.9	14.9	62.4	14.6	23.9	-38.1

Source: INE and the authors' calculations

As we can see, the main trend between 2004 and 2010 was towards a significant decline in the Portuguese cork sector, with an almost 30% fall in the number of firms and employees, a 25% drop in production, an 11.4% drop in value added and an astonishing fall of 38% in investment.

However, some regional nuances are worth mentioning, namely that although there was a gentler fall in the number of firms in the Santa Maria da Feira region, the decline in employment was more than twice that of other regions, so that, by 2010, the 80% of firms remaining in activity corresponded to only 67.5% of the level of employment in 2004. And contrary to the expectations resulting from the analysis of evolutionary economic geography about the advantages of clusters and industrial districts, the production of firms in the Santa Maria da Feira region fell by 34.5% in this period, compared with a surprising growth of 7% in production outside this region. This situation is mirrored by what happened in the case of a crucial variable for the competitiveness and sustained growth of any industry, namely investment in gross fixed capital. In this case, we saw a worrying fall of 64% in gross fixed capital investment in the Santa Maria da Feira region and an appreciable growth of 15% in this variable at other firms. Even taking into account only the firms with the best performance in the Santa Maria da Feira region, it is still puzzling to note the huge and persistent importance of value added. The share of the value added generated at the firms in the Santa Maria da Feira region was more than 83%.

Thus, in order to better assess the relative performance of clustered firms (in the Santa Maria da Feira region) and non-clustered firms (scattered around the other regions of Portugal), it is necessary to look at other indicators, namely the evolution of productivity and exports in the period under analysis.

The best indicator of labour productivity is the value added generated by each hour worked, but, as the INE series does not include the number of hours worked in the cork industry by region, we will use instead value added by worker (Table 2).

Table 2. Productivity in the Cork Industry, 2004-2010

	S.M. Feira		Other Regions		Portugal	
Year	Prod	R.Ch. (%)	Prod	R.Ch. (%)	Prod	R.Ch. (%)
2004	28,521.6	n.a.	14,717.9	n.a.	24,753.9	n.a.
2005	30,378.2	6.51	13,889.3	-5.63	25,856.4	4.45
2006	29,844.9	-1.76	17,346.2	24.89	26,539.1	2.64
2007	31,174.8	4.46	23,462.3	35.26	29,159.8	9.87
2008	26,049.1	-16.44	19,607.8	-16.43	24,878.5	-14.68
2009	26,241.4	0.74	11,925.1	-39.18	21,640.2	-13.02
2010	38,070.0	45.08	15,441.3	29.49	30,711.1	41.92
2004-2010	-	4.93	-	0.80	-	3.66

Source: INE and the authors' calculations

Labour productivity tends to be a strongly pro-cyclical indicator, with an appreciable short-run variability. In fact, looking at the sector in Portugal, some years show a large increase, namely 2010, while others show a significant decrease, for instance 2008 and 2009. But it is also interesting to observe the large regional differences in this indicator. The firms lying outside the region of Santa Maria da Feira recorded an impressive increase in productivity in 2006 and 2007, but the recession of 2009 affected them tremendously, leading to a fall in productivity of almost 40%. Although the annual average rate of growth in this period was clearly greater for the firms in the Santa Maria da Feira region, this was mainly because they had shown particular resilience to this serious macroeconomic crisis and its aftermath.

Another important indicator of the strength, competitiveness and sustainability of an industry is the evolution of its exports. Fortunately, the INE has published detailed export data by region, already covering the year of 2011, both in quantitative terms (Kg of cork - Table 3) and in terms of their overall value (millions of € - Table 4).

Table 3. Cork Exports, quantities - 2004-2011

	S.M. Feira		Other Regions		Portugal	
Year	Kg	R.Ch. (%)	Kg	R.Ch. (%)	Kg	R.Ch. (%)
2004	134,921,579	n.a.	26,668,466	n.a.	161,590,045	n.a.
2005	120,450,643	-10.73	29,003,388	8.76	149,454,031	-7.51
2006	135,447,353	12.45	37,895,356	30.66	173,342,709	15.98
2007	133,896,916	-1.14	37,148,532	-1.97	171,045,448	-1.33
2008	131,713,506	-1.63	27,322,045	-26.45	159,035,551	-7.02
2009	118,661,613	-9.91	23,769,672	-13.00	142,431,285	-10.44
2010	131,013,062	10.41	23,620,193	-0.63	154,633,255	8.57
2011	134,678,911	2.80	30,144,848	27.62	164,823,759	6.59
2004-2011	-	-0.03	-	1.77	-	0.28

Source: INE and the authors' calculations

The exports of manufactured cork products in terms of quantity remained remarkably constant between 2004 and 2011, although there were some large changes in intermediate years. However, the firms outside the Santa Maria da Feira region behaved better, recording a slight increase of almost 2% in this period.

Table 4. Cork Exports, values - 2004-2011

	S.M. Feira		Other Regions		Portugal	
Year	€	R.Ch. (%)	€	R.Ch. (%)	€	R.Ch. (%)
2004	759,244,039	n.a.	99,138,104	n.a.	858,382,143	n.a.
2005	604,712,785	-20.35	95,074,739	-4.10	699,787,524	-18.48
2006	687,816,755	13.74	106,500,329	12.02	794,317,084	13.51
2007	707,779,078	2.90	110,511,072	3.77	818,290,150	3.02
2008	682,061,140	-3.63	90,404,401	-18.19	772,465,541	-5.60
2009	573,787,169	-15.87	73,549,222	-18.64	647,336,391	-16.20
2010	636,290,505	10.89	77,709,977	5.66	714,000,482	10.30
2011	677,184,734	6.43	94,365,659	21.43	771,550,393	8.06
2004-2011	-	-1.62	-	-0.70	-	-1.51

Source: INE and the authors' calculations

The trends in the values exported were similar, but with a slight fall in all the regions, with firms in the Santa Maria da Feira region once again having the worst performances. It is important to note that these are nominal values, and so the performance is much more worrying as far as the actual decline that took place is concerned. It was indeed a difficult period for Portuguese cork firms, and, all things considered, it would seem that the clustering of manufacturing activity in just one region does not bring any clear economic advantages, so that the explanation for why cork firms are clustered together in the Santa Maria da Feira region must be sought for in other (non-economic) domains.

4. The historical reasons for the clustering of cork production in the Santa Maria da Feira region

The Iberian Peninsula has both the quality of soil and climatic conditions that give Portugal and Spain an absolute competitive advantage in the production of cork. The western Mediterranean region enjoys excellent natural conditions for the growth of cork oak trees, and the south-western part of the Iberian Peninsula, in particular, is the most important region when measured in terms of the area that has been occupied by this tree for almost two centuries (Aronson, Pereira and Pausas 2009: 13), with Portugal being the world leader in the production of cork (APCOR 2011).

The Portuguese cork sector presents two historical features: firstly, cork production has been an export business since the very beginning; and secondly, the cork industry has always presented a high level of geographical concentration.

The export vocation of the sector signifies that globalisation and its different rhythms have always affected the cork business, making this an external factor that constantly challenges the survival of firms, which have become accustomed to playing the internationalisation game. Furthermore, cork is a natural renewable resource used for the production of cork stoppers for wine bottles, so that external demand is essentially limited to wine-producing countries.

The manufacture of cork – at least until the invention of agglomerated cork in the nineteenth century – was a labour-intensive process, making it easier for later industrialised countries to develop the cork industry. Since they operated in a low-tech sector dependent on a natural renewable resource, the firms in the cork industry were subject to two limitations in terms of their location: proximity to natural raw material and cheap labour. Nevertheless, the motivations underpinning the strategic options for the location of cork firms were also constrained by the type of cork production (Zapata 1996): cork planks, cork stoppers or agglomerated cork.

In the nineteenth century, Portugal exported cork planks, a semi-manufactured product, and the first firms were established in the south of the country, close to the raw material. This made the transport of raw cork much more expensive in comparison with labour costs (Mendes 2009).

The development of the manufacture of cork stoppers and agglomerated cork, coupled with the growth in cork exports (Mendes 2009) brought other constraints, namely, the need for proximity to sea ports and for a more specialised labour force, which changed the geography of the "new" cork companies. Throughout this process, the centre of Portugal was a growth pole of the cork industry for a long time, especially in the area around Setúbal, attracting international firms, like Mundet (1905), which became one of the largest cork companies in the world (Carrasco *et al.* 2010). Its proximity to the port of Lisbon and the region's industrial labour force made Setúbal an advantageous location for firms that produced manufactured cork (stoppers and agglomerates). Nevertheless, the presence of industries that produced agglomerated cork made Setúbal more vulnerable to international competition and, subsequently, to the technological innovation that was beginning to emerge, namely the production of plastics.

However, according to the *Boletim do Trabalho Industrial* (DGT, 1917), in 1917 the cork stopper industry in the district of Aveiro had 43 factories (41 in Santa Maria da Feira) and 880 workers (368 in Santa Maria da Feira), so that this was already one of the most important districts in terms of cork production. This means that the origin of the cluster can be traced back to the beginning of the twentieth century.

However, until the 1930s, the leading country in terms of manufactured cork exports was Spain, a position made possible by the Catalonian cork industry. Nonetheless, the cork business was still dominated by developed countries such as England, Germany and the United States, which, despite not having the raw material, benefited from a highly specialised labour force, technology, capital and international trading power.

The Spanish Civil War (1936-1939) was a turning point in the Iberian cork business, paving the way for the Portuguese domination of the cork trade. Together, the Great Depression, the Spanish Civil War and the entrenchment of the regime led by General Franco led to a decline in the Spanish control over the worldwide cork trade (Branco and Parejo 2008). The opportunity wasn't missed by either the Portuguese government or Portuguese entrepreneurs, although there was no immediate change in the specialisation adopted in terms of production and trade: semi-manufactured cork continued to be the most relevant cork export until the 1950s.

During the 1960s, the Portuguese cork business again benefited from a second important exogenous factor, which gave the final impetus to what was to become the Santa Maria da Feira cork cluster: the synthetic materials that replaced natural cork. Three main consequences resulted from this technological innovation. Firstly, the more developed countries abandoned the cork industry that had been concentrated in the Iberian Peninsula. Secondly, Spain and Portugal became specialists in the production of cork stoppers, changing the market for cork products, which was now totally dominated by wine producers. Thirdly, resulting from the previous two consequences, the cork business was "Iberianised", i.e. production, industry and trade became concentrated in the Iberian Peninsula (Zapata 2002; Zapata *et al.* 2009).

As far as the "Iberianisation" of the cork business was concerned, Portugal and Spain had the advantage because of their abundance of raw material. But now the roles of Portugal and Spain in the cork business were reversed: Portugal displaced Spain from its hegemonic position and became the world leader in the cork business, this time with a new specialisation: manufactured cork (Parejo 2010).

During this period, the geographical pattern of this industry changed and the north of Portugal, namely the municipality of Santa Maria da Feira, became the "cork stopper capital". Several authors classified Santa Maria da Feira as an industrial district or a cluster and we can point to the 1960s as the period when the cluster really began to develop (Mira 1994; Ruivo 1992, 1995, 1996; Branco and Parejo 2011). The *Boletim da Junta Nacional da Cortiça* (1970), one of the most important publications in the cork sector, confirms the rise of Aveiro, classifying this district as the most important in terms of manufactured cork.

Following Porter (1991) and the determinants of competitiveness presented in his "diamond model", we can find two key factors in the origin and development of the Santa Maria da Feira cluster, both of which were determined by local and historical conditions: the presence of craft workshops with a skilled and cheap workforce and the presence of an anchor firm. The combination of these two factors would never have produced such results if it hadn't been for the existence of another random exogenous

factor: the Spanish Civil War, which weakened the position of Portugal's most important competitor in the cork business, Spain.

According to Belussi and Sedita (2009), the existence of influential factors and the anchor firm (or firms) are always linked to the previous industrial history of a cluster. In the case of Santa Maria da Feira, the two exogenous factors were transformed into an opportunity for the cork industry located there, boosted by an institutional framework that favoured some of the region's most important endogenous factors.

The wealth of natural resources available was not an endogenous factor triggering the emergence of the cluster, since most cork production is concentrated in the south of Portugal, with the Alentejo region being the leader. However, Santa Maria da Feira already had an industrial tradition based on craft workshops producing cork stoppers. According to Mendes (2009), the firms located in the Santa Maria da Feira region had been small family businesses since the end of the nineteenth century. This feature was reinforced by the industrial policy of the Estado Novo or, at least, was not contradicted by one of the most significant measures of this regime's industrial policy, namely "Industrial Conditioning" (*Condicionamento Industrial*), which granted licences for a growing number of craft workshops in the Aveiro district (Branco and Parejo 2011).

Another important endogenous factor, which was again linked to institutional aspects, was the low wages paid in the north of Portugal, including the Aveiro district. Cork workers in Santa Maria da Feira were the worst paid in the country, a situation that was reinforced by several laws regulating wages in the cork industry (Branco and Parejo 2011) and brought another competitive advantage for Portugal, besides the abundance of raw material. Sampaio (1982) shows that cheap labour is a relevant factor in terms of competitiveness and the lower costs made all the difference when competing with other Portuguese regions, namely Setúbal, since the re-introduction of the democratic process in Portugal was marked by an upward trend in wages.

Finally, we can add the existence of a successful anchor firm. Since its formation, the Santa Maria da Feira cluster has been an open local/global system, although without any multinational company, unlike the clustering of firms in Setúbal. But Santa Maria da Feira had a local anchor firm – *Amorim & Irmãos*[1] – whose history is bound up with the cluster history. By acting as an anchor firm and adopting a "putting-out" strategy, *Amorim & Irmãos* stimulated spin-offs and the start-ups of new firms (Branco and Parejo 2011).

Amorim & Irmãos had financially encouraged its workers to open small workshops and developed strong ties with them. The close relationship with small stopper producers allowed the company to respond to fluctuations in the world demand for cork products without increasing the scale of production. In his study about the cork cluster (Monitor Company 1994: 74, 135), Michael Porter claimed that the success of the cluster was explained by the access that small firms enjoyed to certain phases of the production process, provided to them by the larger company, *Corticeira Amorim*.

Finally, the vertical integration and diversification of markets and production strategies implemented by this company explain the success of the *Grupo Amorim* (Branco and Parejo 2011), as well as the quasi monopoly position in the cork business acquired by the group: a 26% share of the worldwide cork market, a 65% share in the cork stoppers market, a 55% share in composite agglomerates and an 80% share in expanded agglomerates (Amorim 2011).

The internationalisation strategies of *Amorim & Irmãos, Lda* gave Portugal a favourable position in the cork trade in 1986, the year when Portugal and Spain joined the European Union (EU). During the 1980s, two trends were reinforced: the *Europeanisation* of demand – the important role of countries belonging to the EU that are wine producers, namely France and Italy – and the growing importance of trade between Portugal and Spain, with the latter country exporting mainly semi-manufactured cork to Portugal (Zapata *et al.* 2009).

These last features may pose a threat to the success of the Santa Maria da Feira cluster because they open the doors to a lock-in situation, not only in terms of a mono-specialisation in cork stoppers, but also in terms of trade partners, giving these a greater negotiating power, which could flatten export prices. Furthermore, the strategies that large-sized firms adopt to face this threat could lead to a demand for new suppliers outside the cluster, in order to react to

[1] The first firm in the *Grupo Amorim* was founded in 1922, namely *Amorim & Irmãos, Lda.*, which was to be the origin of *Corticeira Amorim*, founded in 1963.

the pressure of lower prices, since wages are increasing in the Santa Maria da Feira cluster.

5. Concluding Remarks

This paper studied the relative performance of clustered and non-clustered firms in the Portuguese cork industry, and the historical and socio-political roots of the Santa Maria da Feira cluster of cork firms, also known in the literature as the Aveiro cork industrial district.

The Portuguese cork industry provides an interesting case study on several levels. First of all, it must be stressed that Portugal is the world's leading country in this economic activity, not only in terms of production, value added and employment, but also in terms of international trade (representing more than 60% of the world's cork exports).

Moreover, there is a considerable geographical concentration of production in the municipality of Santa Maria da Feira, in what could be considered an industrial district, suitable for analysing and testing the Marshallian agglomeration economies and the competitive advantages of a cluster, as evidenced by Becattini and Porter, among many others.

However, from the analysis, at the regional level, of several mesoeconomic indicators quantified in this paper, the main conclusion is that there is no empirical evidence that unequivocally supports the economic advantages to be derived from the geographical concentration of cork production.

In fact, the economic performance of the firms clustered in Santa Maria da Feira is not significantly better than the performance of the cork manufacturing firms scattered around other regions of the country, and this applies both to relative labour productivity and to export growth.

This important result suggests that the reasons for the effective concentration of manufacturing cork activities in Portugal, over the last five or six decades, must be sought for not only in predominantly economic dimensions, but also in other dimensions of a historical, political and socio-institutional nature.

As is explained in the main section of this paper, the Santa Maria da Feira cork cluster is a mature one, formed at the beginning of the twentieth century and developing over the second half of this century, being associated with the installation in this geographical area of a key anchor firm, *Corticeira Amorim*. It is a mono-cluster, operating in a sector in which Portugal has absolute advantages based on the abundant availability of its main raw material (natural cork) and the comparatively low wages of an abundant and skilled labour force.

The relations between the companies forming this cluster are also based on the historical, cultural and social traditions of this region of Portugal, which are not so strong in other regions, namely the Alentejo and the Algarve. This last advantage can be subsumed into a comprehensive conception of the notion of social capital, which, for obvious reasons, is very difficult to assess quantitatively, and it is certainly an advantage that has justified the continuation and strengthening of this cluster in the past, and can continue to provide its resilience in the future.

Two main research questions need to be further addressed in the future. The first task is to make a comparative analysis of the economic performance of clustered and non-clustered firms over a much broader time horizon, linking it to the different phases of the cork industry's life cycle, as well as those of the Santa Maria da Feira cluster. The second task is to undertake a qualitative analysis of the knowledge and research networks, social capital, skill improvements, technological innovations, etc., that may prove to be crucial for sustaining the relative strength and world dominance of the cluster, and to avoid the eventual, and always possible situations of lock-in and decline. The economic and social importance of this industry, as well as its crucial role in guaranteeing environmental sustainability and biodiversity, certainly merit this research effort.

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References

[1] Amorim A. (2011), "Cortiça. Uma história com mais de 140 anos", Amorim Holding II, SGPS SA, Portugal.

[2] Aronso, J., Pereira, J. S. and Pausas, J. G. (2009), "The tree" in Aronso, J.; Pereira, J. S.; Pausa, J.

G. (eds.), *Cork Oak Woodlands on the Edge*, Island Press, Washington, USA, pp. 11- 23.

[3] Associação Portuguesa da Cortiça (APCOR) (2011), "Cortiça. Estudo de Caracterização Sectorial", APCOR, Portugal.

[4] Becattini, G. (1990), The Marshallian industrial district as a socio-economic notion, in Pyke, F., Becattini, G. and Sengenberger, W. (eds.), *Industrial Districts and Inter-firm Co-operation in Italy*, Geneva: IILS,ILO, pp. 37-51.

[5] Belussi, F. and Sedita, S. R. (2009), "Life Cycle vs. Multiple Path Dependency in Industrial Districts", *European Planning Studies, 17:4*, pp. 505-528.

[6] Boschma, R. A. and Frenken, K. (2006), "Why is economic geography not an evolutionary science?", *Journal of Economic Geography*, 6, pp. 273-302.

[7] Branco, A. and Parejo, F. M. (2011), "Distrito industrial y competitividad en el mercado internacional: la industria corchera de Feira em Portugal" in Catalan, J., Miranda, J. A. and Ramon-Muñoz, R. (eds.) (2011), *Distritos e Clusters en la Europa del Sur*, LID Editora Empresarial, Madrid, Spain, pp. 123-142.

[8] Branco, A. and Parejo, F. M. (2008), "Incentives or obstacles? The institutional aspects of the cork business in the Iberian Peninsula (1930-1975)", *Revista de Historia Económica – Journal of Iberian and Latin American Economic History*, *1*, pp. 17-44.

[9] Carrasco, C. *et al*. (2010), "A Mundet e os modelos de formação de «centros corticeiros» no século XX. Da Catalunha ao Seixal (Portugal): o período de instalação e consolidação" in Filipe, G.; Afonso, F. (eds.), *Quem diz Cortiça, diz Mundet*, Ecomuseu Municipal do Seixal, Câmara Municipal do Seixal, Seixal, pp. 17-55.

[10] Direcção Geral do Trabalho (1917), "Estatística Industrial", *Boletim do Trabalho Industrial, 116*, Direcção Geral do Trabalho, Ministério do Trabalho.

[11] Elola, A. *et al*. (2012), "Cluster Life Cycles, Path Dependency and Regional Economic Development: Insights from a Meta-Study on Basque Clusters", *European Planning Studies, 20:2*, pp. 257-279.

[12] Junta Nacional da Cortiça (1970), Balanço do Ano, Boletim da Junta Nacional da Cortiça, 379, Maio.

[13] Martin, R. L. and Sunley, P. J. (2011), "Conceptualizing Cluster Evolution: Beyond the Life Cycle Model?", *Regional Studies*, Vol. 45, 10, pp. 1299-1318.

[14] Martin, R. L. and Sunley, P. J. (2006), "Path dependence and regional economic evolution", *Journal of Economic Geography*, 6, pp. 395-437.

[15] Martin, R. L. and Sunley, P. J. (2003), "Deconstructing Clusters: Chaotic Concept or Policy Panacea", *Journal of Economic Geography*, 3, pp. 5-35.

[16] Mendes, A. (2009), "Cork production and manufacturing in Portugal from the mid 19th century to the end of the 20th century" *in* Zapata, S. (ed.), *Cork Oak Woodlands and Cork Industry: present, past and future*, Museu del Suro de Palafrugell, Palafrugell, pp. 808-839.

[17] Menzel, M-P. and Fornahl, D. (2009), "Cluster life cycles – dimensions and rationales of cluster evolution", *Industrial and Corporate Change*, 19:1, pp. 205-238.

[18] Mira, N. (1994), "Uma estratégia de localização industrial para o sector corticeiro", *Economia e Sociologia*, 58, pp. 165-177.

[19] Monitor Company (1994), *Construir as vantagens competitivas de Portugal*, Fórum para a Competitividade, Lisbon .

[20] Parejo, F. (2010), "El negocio del Corcho en España durante el siglo XX", *Estudios de Historia Económica*, 57, Banco de España, Madrid.

[21] Porter, M. (1998), *On Competition*, Harvard Business School Press, Boston, MA.

[22] Porter, M. (1990), *The Competitive Advantage of Nations*, Macmillan, London.

[23] Ruivo, M. (1996), "O impacto do espaço familiar na diferenciação regional da indústria

da cortiça em Portugal", *Sociedade e Território*, 23 (Outubro), pp. 95-105.

[24] Ruivo, M. (1995), "A indústria da cortiça na Feira – um distrito industrial?" *in VVVAA* (eds.), *Por onde vai a economia portuguesa?,* Actas da Conferência realizada por ocasião do jubileu académico de Francisco Pereira de Moura, ISEG, Lisbon.

[25] Ruivo, M. (1992), *Logiques familiales, flexibilite productive et main-d'oeuvre secondarire. Le cas du district industriel du liège à Feira (Portugal),* Thèse pour le doctorat en sciences économiques, Université de Paris I – Panthéon – Sorbonne, Paris.

[26] Sampaio, Jaime Salazar (1982), "Notas sobre a evolução do Emprego na Indústria Corticeira", *Boletim do Instituto dos Produtos Florestais*, 519, pp. 13-16.

[27] Zapata, S., Parejo, F. P., Branco, A., Gutierrez, M., Blanco, J., Renaud, P. and Voth, A. (2009), "Manufacture and Trade of Cork Products: An International Perspective" in Aronso, J., Pereira, J. S. and Pausa, J. G. (eds.), *Cork Oak Woodlands on the Edge*, Island Press, Washington, USA, pp. 189-200.

[28] Zapata, S. (2002), "Del suro a la cortiça. El ascendo de Portugal a la primera potencia corchera del mundo", *Revista de Historia Industrial*, 22, pp. 109-137.

[29] Zapata, S. (1996), "Corcho extremeño y andaluz, tapones gerundenses", *Revista de Historia Industrial, 10,* pp. 37-68.