Clusters or the Early Internationalisation of Entrepreneurial Behaviour as Explanations for the Exceptional Success of the Danish Furniture Industry?

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Abstract

This article contrasts two explanations of the economic success of the Danish furniture industry. The first is that success derives from learning processes within firm clusters and the second is a path dependent 'regional learning' theory, that early, post World War 2 overseas demand created an industry dependent on export markets and whose entrepreneurs became necessarily highly-responsive to shifts in international markets – local spatial organisation in this second theory is a result of entrepreneurial adaptation to international markets and not a cause. We find in favour of the second theory for two principal reasons; today there has been a sharp decline in the economic significance of the firms in the West Jutland industrial districts while ten large internationalised firms scattered and not clustered within Denmark account for half of industry turnover. This suggests the primacy of an ability to learn how to exploit international market opportunities in this industry and a fundamental limit to the economic value of social processes such as learning within clusters.

Key words: furniture, cluster, internationalisation, entrepreneurship, regional,

1 Cluster Policies, Theories of Internal Cluster Learning and the Danish Furniture Industry

Michael Porter can be credited with having made the public policy of promoting 'clusters' of firms a major fashion (Porter 1990, ; Porter 1998, ; Porter 1998, ; Porter 1998, ; Martin and Sunley 2003). Yet their value as a device for public policy is contested and Martin and Sunley's review and 'deconstruction' of the current use of the term 'cluster' concludes that '…especially within a policy context: the cluster concept should carry a public policy health warning' (Martin and Sunley 2003, p5). It has been pointed out that a widespread assumption amongst those promoting clusters is that clusters will in turn promote various social 'goods' such as trust, cooperation and knowledge transfer, that are expected in their turn to contribute to economic efficiency (Gordon and McCann 2000, ; Martin and Sunley 2003). So the relation between such internal, social attributes of clusters and the economic value of the cluster is at issue. This paper assesses it in the case of the Danish furniture industry.

The Danish furniture industry export intensity (exports by value as a % of production by value) has been above 80% for the last five years (2002 - 2007) (Danish Furniture 2007). Maskell noted that in 1992 Denmark was the world's third largest exporter of wooden furniture and that Denmark accounted for as much as 20% of wooden furniture export from the EU – giving it at that time the highest export ratio per capita in Europe (Maskell 1998, p105). So the export intensity of the Danish furniture industry is exceptional by comparison to other nations' furniture industries and at over 80% today, it is necessarily the case that production is typically for export (see table 1). We wish to provide a credible explanation for this feature of the Danish industry.

Porter's work was based on research reports on ten countries, one of which was Denmark. A twist to the current work is that the research on Denmark which used Porter's 'diamond' diagram (Møller and Pade 1988, ; Pade 1991) analysed fifteen industrial sectors from which five clusters 'with a high competitive ability' were identified (Drejer, Kristensen et al. 1999, p181). Although the furniture industry was included as one of the fifteen sectors, the use of the diamond did not identify it as having a 'high competitive ability', despite its 70% of turnover at that time deriving from exports.

Nevertheless, this research stimulated a debate internal to Denmark over whether public money should be spent on the promotion of clusters. The Danish industry minister was opposed to it, until in a conference held by the Danish Engineering Society in 1991, 'Porter participated on a video screen and convinced the minister that cluster policies were not about picking winners'; as a direct result the minister changed her mind and backed the cluster support policy ((Kluth and Andersen 1995) cited in (Drejer, Kristensen et al. 1999, p181)). This evolved into a pan-sectoral 'Resource Area' support programme directed at clusters. Neergaard and Ulhøi report on the outcome of a related publicly-funded cluster support programme, the 'Danish Network Programme' begun in 1989 and intended to stimulate cooperation between small clusters of existing companies through the appointment of a government-funded 'network broker' (Neergaard and Ulhøi 2006). According to Neergaard and Ulhøi the furniture industry was a major recipient of subsidies, but when the subsidies ended 'hardly any of the established networks survived' and 'the program was deemed a failure in policy terms' (Neergaard and Ulhøi 2006, p523). The irony of all this is that the furniture industry had grown into an outstanding exporting industry cluster without government help, that it received help anyway and that help could not be associated with any improved economic outcome.

In this same period of the early 1990s we have several Danish authors' detailed analyses of the Danish furniture industry, in particular Maskell and Kristensen (Kristensen 1992, ; Kristensen 1994, ; Kristensen 1995, ; Maskell 1998).

We read Kristensen's and Illeris' (Illeris 1992) work on the West Jutland furniture and textile industries as rich descriptions of the internal dynamics of these IDs as they had developed by the late 1980s. These are primarily descriptive pieces, motivated by the recognition that the textile and furniture industries had a relatively more significant role in Denmark than in other OECD countries and that this needed explanation. Kristensen does place explanatory emphasis on what he sees as the critical internal elements of these IDs – the extensive craft training system and the small family firm as vigorous source of entrepreneurs (Kristensen 1992, p170). Yet these can be read as part of the internal functioning of the ID irrespective of aggregate size and he also emphasises that these IDs 'have developed, largely by chance as we have seen, institutions and practices which carry out functions very similar to those of the Third Italy, albeit in a Danish way' (Kristensen 1992, p170). It is Maskell (Maskell 1998) who has theorised most clearly about the origin of the export intensity of the furniture industry in terms of internal cluster properties.

Before addressing these theories it is pertinent that Martin and Sunley note that there is today an 'increasing tendency to explain cluster formation and development in terms of local knowledge and 'collective' learning' (Martin and Sunley 2003, p17). They class Maskell's 2001 work as within this tendency (Maskell 2001) and it is a theme with this author; it has been suggested that the pervasiveness of clusters is a result of firm attempts to restrict access to product knowledge (Maskell, Bathelt et al. 2006); that clusters have intrinsic knowledge exchange processes (local 'buzz' and 'pipelines' to outside groups) that give members economic advantages over outsiders (Bathelt, Malmberg et al. 2004); that there is a need to place a theory of 'learning' centre stage in theories of clusters (Malmberg and Maskell 2002, p429); most pertinently for our paper, that the internal cluster learning process can provide economic advantages for developed-country clusters operating in internationally open markets, specifically help to 'create, acquire accumulate and utilize codifiable knowledge a little faster than their cost-wise competitors' (Maskell and Malmberg 1999, p9). It should be said that these articles are primarily theoretical contributions and Malmberg and Maskell point out that while there is an 'abundance' of theoretical articles suggesting such mechanisms, there is also a 'general lack of work aimed at validating these mechanisms empirically' (Malmberg and Maskell 2002, p429). We agree and find it especially significant that it is in Maskell's empirical work on the Danish furniture industry that one finds similar ideas; Maskell compiled data on the geographical location of Danish furniture firms and documented the tendency between 1972 and 1992 for firms to agglomerate in western and central Jutland (Maskell 1998). He observes that this happened as international competition in the furniture industry intensified and therefore explains the export intensity of the Danish furniture industry as the result of some 'fundamental extra-firm, but intra-industry capability'(Maskell 1998, p110) that he suggests are 'technological spillovers' and the 'atmosphere for information interchange about products, processes, markets and regulation effects' (Maskell 1998, p110). This is no longer the description of internal processes, but their use as causal explanation of aggregate economic success of the ID.

The alternative view is that trust, cooperation and social networks are, as Martin and Sunley write, 'no more than part of the external economies of an agglomeration of firms' (Martin and Sunley 2003, p16) in which case, when clusters are economic the various 'social goods' will appear and when clusters are not economic they will disappear; the direct promotion of clusters by public authorities where they do not exist risks the promotion of uneconomic activity that will waste public money.

2 Evidence of a widespread ID restructuring post-2000

The work on the Danish West Jutland IDs cited above is over a decade old and it will prove useful to comment on whether recent empirical work on IDs has significance for the interpretation of the Danish furniture industry today. Zeitlin's overview finds a widespread restructuring of IDs consequent on the accession and growth in importance of low cost countries (LCCs) in Eastern Europe and Asia (Zeitlin 2007). The so-called Third Italy has attracted particular attention because of its prominence and the positive associations attributed to its fashion and textile IDs since Piore and Sable contrasted it with the 'inflexible' mass production 'model' of Piedmont (Piore and Sable 1984). The very identification of the region of the Third Italy with IDs has been queried (Agnew, Shin et al. 2005) on the basis of empirical export data that shows that in this region in the last two decades many IDs declined and others rose to prominence, while Piedmont had thriving IDs of its own at the time it was supposed to epitomise the decline of the large firm model.

In his revisionist review of the academic use of the Third Italy IDs, Hadjimichalis presents a critical account of what he calls the 'ill-grounded theorisations of the myth-makers' (Hadjimichalis 2006). For our purposes, his critique of Anglophone work can be summarised as its over-emphasis on the positive features of the internal social dynamics of IDs as explanatory features of their success and a relative neglect of the national and international political economic context within with IDs must work. These include the less-familiar (to Anglophones) 'negatively perceived' social structures typical of the southern European informal economy; sweatshops, unpaid home working and long hours (Hadjimichalis 2006, p101). Perhaps most significant of his 'neglected factors' is the role of the Italian state. So at their 1980s apogee the Italian textile districts enjoyed the benefit of tariff protection from the 1974 Multi-fibre Agreement (MFA), a competitive currency because of the Italian state's policy of frequent devaluations of the lira and the 1970 Labour Charter which regulated labour in large firms, but exempted small firms under 15 workers from industrial bargaining arrangements '…and from tax, working and safety conditions and welfare responsibilities' (Hadjimichalis 1970, p87).

Hadjimichalis directly attributes the Italian IDs 'golden age' to these national state policies (Hadjimichalis 2006, p87) and the loss of these supportive national policies has accentuated the post-2000 decline of the Italian IDs; accession to cheaper overseas manufacturing locations occurred as Italy joined the euro and the MFA expired. In some trades such as footwear a decline between 1995 and 2005 of two thirds of firms is expected (Hadjimichalis 2006, p90).

Hadjimichalis is careful not to argue for a 'generalized crisis in all Italian IDs' (Hadjimichalis 2006, p101). It has been the labour-intensive IDs most exposed to LCC activity that have suffered most. And we draw from this tale the conclusion that just as it is alleged that there was a tendency on the part of Anglophone observers to see internal properties of IDs rather than political economic context as 'responsible' for the golden age of the Italian textile and footwear industries, the recent drastic decline is credibly also better understood as a result of the end of previously supportive political economic factors rather than decisive evidence of the failure of the internal properties of the IDs to support economic performance.

Whereas in the Italian IDs adaptation to LCCs post-2000 has taken place against a background of rapid decline in exports, such a decline is not evident in the macro-statistics for export value in the Danish industry. Kristensen points out in his 1992 comparison of West Jutland with the Italian IDs that the Danish furniture industry had no comparable national labour law advantage in the 1980s and we find that this is so today – the evolution of the Danish furniture industry has been against a relatively stable *national* political economic background, neither clearly advantageous nor disadvantageous.

Yet there is evidence that under the surface of the statistics some form of restructuring is occurring; Hadjimichalis and Zeitlin identify several features of the post-2000 restructuring of IDs which are very visible within the Danish furniture industry. These are, first and unsurprising, an increase in out-sourcing of production to cheaper overseas locations, second, increased merger and acquisition activity and the reappearance of large vertically-integrated firms in some specialised market niches. The available published evidence leaves as open questions whether and how the Danish furniture districts have 'learnt' to adapt and thrive in the new international trading conditions, perhaps in the manner suggested by Maskell and Malmberg above (Maskell and Malmberg 1999, p9).

3 Narrowing the Range of Possible Explanations for the Danish Furniture Industry's Export Intensity

If one begins to list candidate explanations for the relative success of the Danish furniture industry one soon notices that many obvious candidates are not credible.

1 As noted above there has been no industry-specific and advantageous national political economy on the scale of the Italian example. Nor has furniture as an industry ever been subject to a special tariff programme such as the MFA for the textile industry. Nor have the subsidy programmes we have identified had any discernible empirical effect on the economic state of the industry (see above).

2 The furniture industry has historically proved one of those resistant to the introduction of economies of scale through capital-intensity raising technology (see for example (Hounshell 1984)) and historically has remained a relatively low capital-intensity industry of small firms.

3 The Danish furniture industry has not historically been characterised by a single firm or group of firms that coordinate activity (as Schmitz describes the activity of Bosch and Mercedes-Benz in the Stuttgart machine-tool cluster (Schmitz 1992)).

Maskell helps to clear the ground here;

4 Danish unit-labour costs relative to other OECD countries were not a source of cost advantage being on the high end of the range and tending to rise relative to other OECD countries from the 1970s (Maskell 1998, p101).
5 There is an absence of indigenous Danish tangible advantage; in the early 1990s 85% of softwood was imported and more than 90% of wood-working machinery was imported (Maskell 1998, p108).

4 What is the relation of the geographical clustering of firms to the exceptional Export-Intensity of the Danish furniture industry?

A problem with any theory of social 'learning' is distinguishing its alleged benefits from learning that is occurring in other social locations or primarily at an individual level. This has been recognised for decades as a problem within the topic of 'organisational learning' (for example, see (Hedberg 1981)). This suggests to us that the empirical research should be organised around contrasting explanations: what is the better explanation of economic success; learning in clusters or learning about international markets? We find the lack of consensus on how to define a 'cluster' supports this approach; Martin and Sunley call for careful evaluative research into clusters, but note that 'Ultimately it seems that it is impossible to support or reject clusters definitively with empirical evidence, as there are so many ambiguities, identification problems, exceptions and extraneous factors' (Martin and Sunley 2003, p23). We take this assessment seriously - it would not be clear what the significance would be of research which focused solely upon cluster internal properties.

At this point we have a narrative problem; we find that the evidence we have collected supports a 'non-cluster' explanation of Danish furniture industry success – clusters are evident throughout the story but in different locations and with varying internal properties and the concept does not have any clear correspondence with industry aggregate economic outcomes over time. To enable the reader to assess our evidence it is convenient to state our alternative explanation before we present the evidence:

The early internationalisation of Danish furniture industry entrepreneurial behaviour enabled the effective exploitation of successive international market opportunities which sustained and grew the aggregate activity of the industry.

We will argue that the high export intensity of the Danish furniture industry can best be understood as the historical path-dependent product of unusually early, post-world war II internationalisation of entrepreneurial behaviour.

This view is sustained by detailed data on the timing of the evolution of furniture export markets. We hasten to add that we do not privilege exports over production for home consumption - it is simply the case that to understand the growth in activity of the Danish furniture industry one is forced to study export markets as production for export early became greater than home demand for home production.

There are five empirical sections that follow:

1 The greatest leap in exports occurred in a few years in the 1950s and was a result not of internal properties of clusters but of a step-jump in US and West German demand for Danish furniture.

2 We identify and examine three disjunctions in markets between the 1950s and mid-1990s; in two of these there is a significant decline in an important market and a near-simultaneous growth in a compensating *export* market. In the third disjunction, growth in a specific export market helps explain the rise of the West Jutland manufacturing IDs. Through all three events the industry becomes more export-dependent

3 The post-2000 period is distinct from previous step-changes in export markets. We present data on the decline of the primarily crafted-wood manufacturing firms located in the West Jutland clusters of firms.

4 We list the top ten furniture firms by turnover and plot their geographical location within Denmark and outline their international specialisation.

5 We plot the location of the ten firms closest to Aarhus city centre and in close geographical proximity to one another and list their number of employees as a proxy for economic significance.

4.1 Clusters and the Unique 1950s Step-Jump in US then West German Demand Explains the Origin of the Export-Orientation of Danish furniture production

A problem with the assumption that the internal properties of clusters are a cause of economic success is that the furniture industry has always exhibited clustering of its small and medium sized enterprises and has historically proven resistant to attempts to introduce 'mass production' techniques – as Hounshell describes it in his history of mass production (Hounshell 1984). So the historian of the Danish furniture industry, Andresen, describes the clustering of Danish furniture firms around the large Danish cities in the inter-war years, a period when there were no exports. By the mid-1930s the cluster around Århus had declined relative to Odense, which then stood out as a centre of production, although 'the development is particularly hard to explain' (Andresen 1996, p66).

Andresen places the rise in export intensity to the rise in the US as an export market in the 1953-1956 period (Andresen 1996, p107, p111). If this is correct, the rise in export intensity precedes and is separated in time by between 10 and 15 years from the mid-Jutland clustering process and rather than clustering processes it is a unique historical 'demand event' that explains much of the early Danish furniture industry export intensity. However, Andresen does not present a time series of figures for export intensity, only a few nominal figures for value and weight of production for export. We therefore recompiled a time series for Danish furniture industry production, exports and imports from Danmark Statistik data using the furniture NACE categories and calculated from it values for the evolution of export intensity over time (table 2).

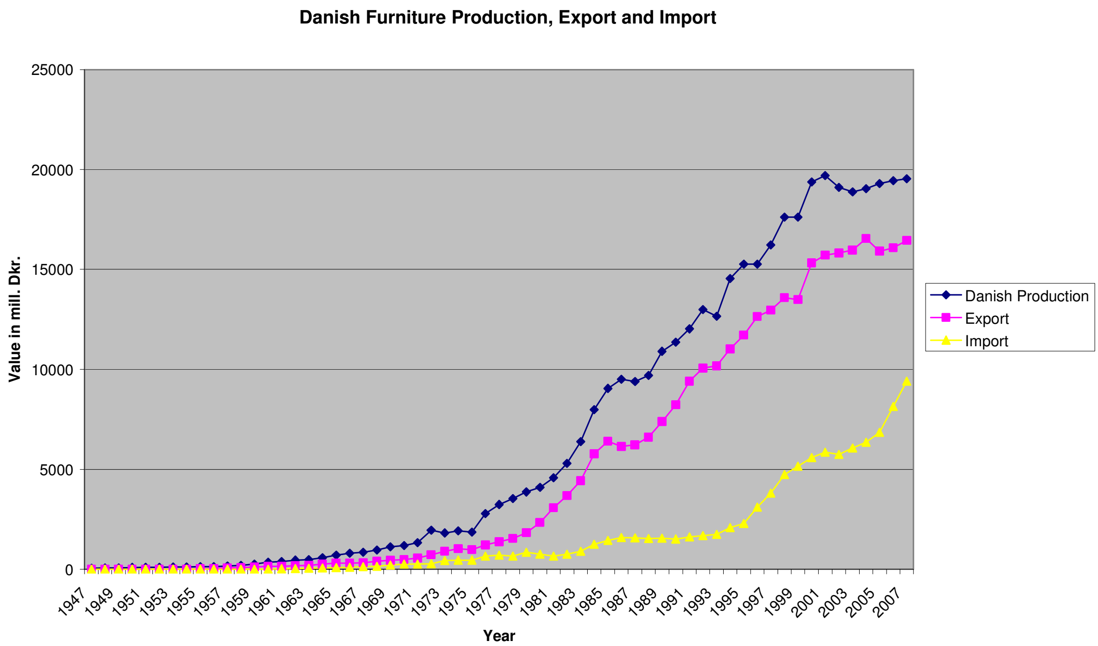

Table 1. Graph of evolution of Danish furniture production, exports and imports in current values (i.e. actual value in year data recorded) for the years 1947-2007. Sources: Statistical yearbooks published by Danmarks Statistik.

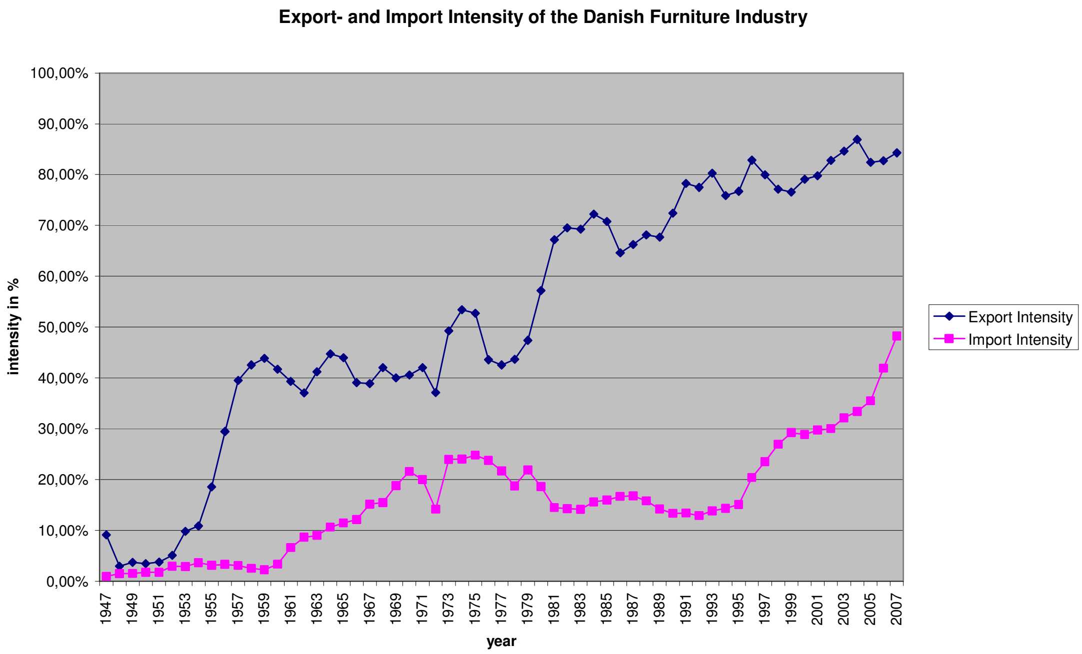

Table 2. The evolution of export intensity (exports/total production) 1947-2007 and import intensity (imports/total production). See discussion for ambiguous role of (especially Chinese) imports in years after 2002.

In table 2 it is evident that export intensity grows in a discontinuous manner and that the single greatest jump is the rise from 10% in 1954 to 40% in 1957 and this confirms Andresen's claim of a step-jump in US demand. Import penetration in 1954 – 1957 did not rise proportionately, but by only a few percent (table 2), which emphasises that this was an asymmetric event consisting of a sudden rise in foreign, but especially US demand for Danish furniture and not a general rise of international trade between many national furniture markets.

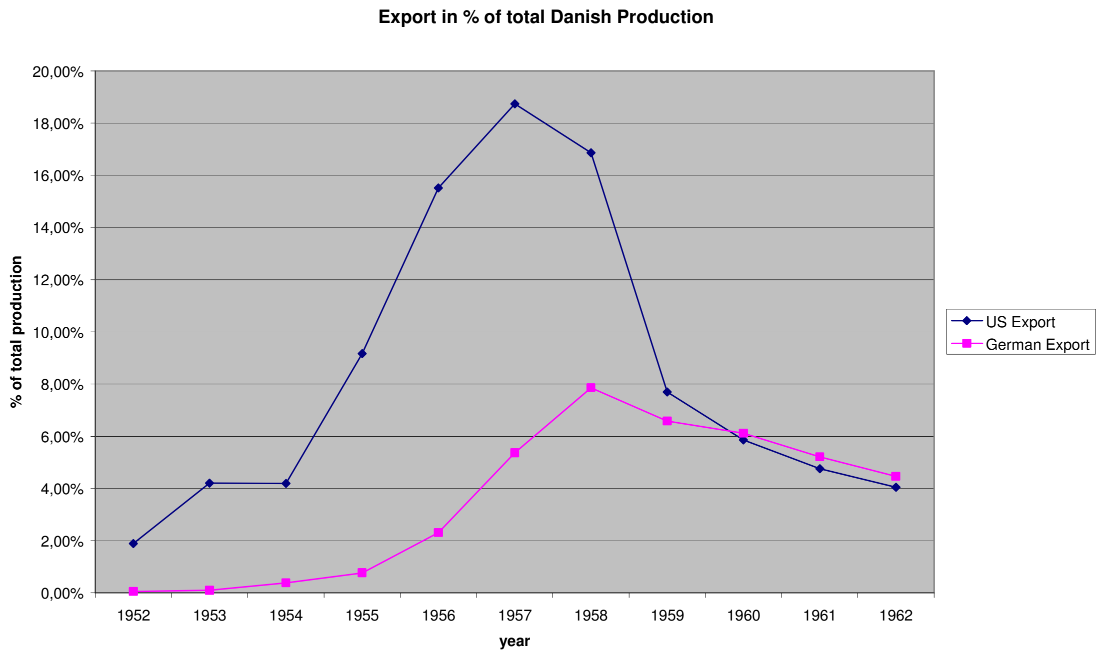

Table 3. A plot of the evolution in Danish furniture export intensity to the US and to West German markets

Andresen's history gives the sudden US demand a transformative role for the industry and we see no reason to doubt Andresen's three proffered explanations for this significant event. Andresen suggests that only 3-4 US furniture producers were interested in meeting the design and production demands of post-war modern US architects (Andresen 1996, p108). These US architects began to use Danish suppliers. This was the period in which 'Danish design' in furniture and specific Danish furniture designers such as Hans Wegner, Finn Juhl, Arne Jacobsen and Børge Mogensen became known outside Scandinavia and particularly in the US. However it is clear in Andresen's account that the rise of these designers in Denmark was in tandem with US demand for their designs. The legacy of this period is the company operating today, Fritz Hansen, which specialises in these same registered design-protected classic designs.

In table 3 we explore the significance of the US export market by a plot of the evolution in Danish furniture export intensity to the US and to West Germany. Table three allows us to modify and extend Andresen's account in two ways: at its peak in 1957 the US market accounted for just under half of total exports; by 1959 the US accounted for only a quarter of total exports and this would remain a stable share for many years.

Besides this special explanation of the nature of US demand for Danish furniture, Andresen gives as more general reason's for the 1954 – 1957 jump in export intensity; the general scarcity in furniture supply compared to demand in Europe as the formerly warring nations sought to build production in other sectors than furniture; the Danish industry, somewhat run-down but unaffected by wartime destruction, was able to step into the 'vacuum' of supply (Andresen 1996, p108). The last reason given by Andresen was that from the mid-1940s the Danish industry had been making efforts to improve its quality in order to penetrate export markets, having recognised that home demand had become saturated; post-war conditions enabled this effort to achieve success (Andresen 1996, p109). In table 3 we show the evolution of export intensity to West Germany and it is clear that West Germany in the period of its rapid post-war reconstruction from 1955 is the second most important export market accounting for approximately 18% of total exports in 1958.

We have here a 'step-jump in demand' explanation for the rise to importance of export activity in the Danish furniture industry. Theories of internal cluster 'learning' would appear to be unimportant compared to overseas demand.

4.2 1950s-1990s - Rising export intensity through a series of adaptations to disjunctions in export markets

Figure three also shows that while the jump in demand in the 1950s was steep and was primarily from the US and secondarily from West Germany, immediately after the peak in % of exports to these two countries in 1957 there was a drop in the relative importance in these two markets; for the US market, from 18% of total production in 1957 to 8% in 1959 (figure 3). The data for exports shows that the US market shrank in value by 38% in these two years, while total exports rose by 70% in current price value between 1957-1959.

There is a pattern here that we believe repeats in three other 'disjunctions' in markets between the late 1950s and 1995. Significant declines in existing markets occur with the simultaneous exploitation of new export markets. The pattern is that the industry tends in each episode to become more dependent on exports. Our argument is, then, that the extraordinary export intensity of over 80% post-2000 is the result of a historical series of export market exploitations. For the last of these we are able to link the rise of a specific export market with the rise of the West Jutland cluster and so propose an alternative explanation to the internal cluster property theory for its rise

a) A step jump in export intensity occurs from 47.4% in 1978 to 69.5% in 1982.

When raw data is adjusted for the high inflation of these years, this change is revealed to be primarily the result of a steep contraction in domestic consumption of furniture.

Exports grew in real terms while production decreased; in inflation adjusted values[1] and using 1978 as the base year, in this period total production value decreased by 16%; exports rose in value by 34% in value; the value of production sold in the domestic market decreased by 52%.

[1] We use Danish inflation rates provided by Danmark Statistik.

b) A 45% decline in the US market is fully compensated for by a 110% increase in the West German export market

Between 1985 and 1988 the US export market for Danish furniture declined from 2 050 million DKr to 1 124 million DKr. This decline is associated with a 50% decline in the US dollar[2] but does not show in the aggregate production or export intensity data because a nearly exactly compensating growth in the West German export market occurred; from 874 million DKr in 1985 to 1 840 million DKr in 1989.

c) A jump in export intensity occurs, from 67.7% in 1989 to 78.3% in 1991.

This jump is clearly associated with a rise in exports to Germany; from 15.5% of Danish production to 28% of production in 1992. However, examination of the export data to individual markets shows that the German market grew strongly for an extended period, from 1989 to a peak in 1995; from 2 343 million Kr to 6 356 million Kr; from 32% of all exports to 54% of all exports. The second to fifth next largest export markets in Norway, Sweden, UK and USA show no such pattern, but rather static markets varying 10-20% each year but not consistently rising or falling. The export intensity is relatively stable 1991 to 1995 because domestic demand recovers strongly, from 2 614 mn DKr to 3 553 mnDKr or a rise of 36%.

Discussion

It is not possible in the first jump described above to know whether established firms were redirecting production from domestic to export markets or new entrepreneurs were starting new export-orientated firms. This event seems significant only as one of the discrete steps by which the Danish furniture industry became more export-orientated.

The second period is not visible in aggregate data, but individual export market data show growth in the West German market apparently compensating for a decline in the US export market. The explanation derived from interviewees confirms this interpretation – as the US market declined firms actively developed the West German market.

The third step is more important for our understanding of the role of clusters in this industry. Our interviewees suggested that the ‘German market’ in this period was a market for especially pine furniture in the former East Germany. We have here a dramatic (in Danish production terms) rise in demand; the shift in production activity of the industry in this period to West Jutland that Maskell and Kristensen rightly noted can plausibly be understood to be a specific demand-driven event rather than something involving the properties of clusters.

4.3 Production from the mid-Jutland ‘cluster’ of firms has been in steep decline since the mid-1990s

The regional business organisation Skive Egnens Erhvervscenter covers an area that is a significant part of the mid-Jutland furniture industry cluster. This organisation collected data for the number of firms and employees in its region and hence in this segment of the

[2] Interview with Keld Korsager, Danish furniture association, ”Dansk Møbel Industri”.

mid-Jutland cluster.[3] This area specialised in crafted wood and especially pine furniture production. The data on employment, compiled in table 4, tells us that the cluster has declined in activity since the late 1990s and especially from 2001, with 682, just under half of the employees, being lost between 2001 and 2006.

Our interviews[4] in the neighbouring area of Herning-Ikast, the contiguous part of the mid-Jutland cluster identified by Maskell, confirmed that a similar decline had occurred here. We found one published source of employment data for the Herning region (Illeris 2007) that confirms that furniture industry employment has declined in the Herning region (table 5).

Unfortunately, turnover value data is not available for this period for this region. Interview evidence supports our inference from the decline in employment that skill-intensive furniture production has declined much more quickly in this area at a time when industry turnover by value for the whole of Denmark has declined by an inflation-adjusted 13% 2000-2007 (see table 7). For comparison, the total number of employees in the Danish furniture industry fell from 22140 in 2000 to 16476 in 2007. We made an independent check on the West and mid-Jutland's employment significance by adding the number of employees in all the Danish furniture association 'Dansk Møbel Industri' (DMI) members in this region, but excluding any of the top ten by turnover that happened to be located here (Tvilum Scanbirk, Bo Concept and Actona).[5] The number of employees was 1555, somewhat less than 10% of total Danish furniture industry employment in 2007 (table 7). We excluded the top ten because these firms have extensive international operations and their Danish employment figures do not have any necessary relation to their economic turnover (see the discussion on Scancom, section 5a and Danish employment in these firms, table 8).

træindustri Industry branch	**No. firms**		**Employment**					24	72	84		
TOTAL	**42**	**43**	**1420**	**1829**	**1556**	**1382**	**1416**	**1242**	**1172**	**1 008**	**734**	**738**
	May 1994	Nov 1995	Aug 1993	May 1994	Nov. 1995	Sep 2000	Oct 2001	Sep 2002	Sep 2003	S e p 2004	2006	2007
Pine furniture	19	18	636	952	740	663	642	704	669	603		
Hardwood	6	5	206	189	168	155	139	143	130	104		
Upholstery	6	6	98	105	131	78	61	63	44	30		
Other	1	2	17	27	46	94	100	77	70	72		
Pine, part manufacturer	2	3	37	60	48	392	440	231	187	115		

[3] We give thanks to Keld Korsager, DMI for alerting us to this and to Morten Østergaard of Skive Egnens Erhvervscenter who was kind enough to pass his data to us and give permission to publish them.

4 Managing Director, Betina Simonsen and Project Manager, Ove Andersen; Udviklingscenter for Møbler og Træ

[5] All firms (55 from the total DMI membership in 2008 of) in postal codes for West Jutland including the western part of East Jutland; 6823-7900; 8600-7120; 8600-8653; 8830-8882; excluding Vejle codes 7000-7120.

Table 4 Employment and number of furniture firms in the Salling business organisation district for selected years, 1994-2004. Source; internal report on furniture industry in Skive business region. Note: total for years 2006 and 2007 obtained by personal communication with Skive Egnens Erhvervsenter.

Year	**1960**	**1970**	**1982**	**1993**	**2005**
Herning furniture industry employment	315	394	857	1190	712

Table 5 Furniture industry employment in in Herning municipality (covering postal codes; 7400 Herning, 7451 Sunds and 7330 Fasterholt), contiguous with the Skive area to the west (Illeris 2007, p142).

Interviewee evidence supported the idea that the decline followed a decline in overseas demand for this area's speciality within furniture: craft-skill intensive pine (and wood) manufactured goods (see product breakdown table 4).

The Salling-Herning industrial cluster decline is additional evidence that undermines the idea that the internal properties of this industrial district could 'explain' the Danish furniture industry's export intensity. The firms clustered here expanded with the demand for their wood-crafted furniture products in the 1980s - mid 1990s and then declined as those markets declined. Interview evidence is that changes in the sourcing practices of IKEA have been an important part of this process. In the heyday of the West Jutland IDs as much as 45% of Danish production was sourced by IKEA to 125 Danish subcontractors, but today (2007) it is less than 7%, distributed between 5 suppliers.[6]

5 The Declining Indicative Value of National Statistics post-2000

We encountered evidence that it was no longer possible to trust the national aggregate statistics as continuous indicators of the aggregate economic activity of Danish furniture firms in the post-2000 period.

DMI announced in its 2008 press release accompanying its own published industry statistics that by 2007 more than half of imports to Denmark were used by Danish producers as part of their production process (Dansk Møbel Industri 2008). On inquiry this figure, which amounts to 5bn DKr in current prices,[7] is derived from detailed private data held by the DMI on plant owned abroad by Danish firms and the value of imports from this plant into Denmark. The DMI holds this data because it provides the insurance for Danish furniture firms investing in foreign plant and a condition of the insurance is the provision of the data.

For such an export-intensive industry so little-dependent on the home market (see figure 8 for source of imports) it is reasonable to infer that much of the Danish-controlled furniture import is being re-exported, perhaps, but not necessarily, after some value-adding activity. It is certainly no longer reasonable to assume, as one might have done 20 years ago, that imports are being sold into the Danish home market for furniture. Nor can one reliably estimate the size of the domestic market for furniture from the calculation

[6] DMI interview - IKEA's communications department refused to discuss where and how they sourced.
[7] Interview with Keld Kordager, DMI, 2008.

'Danish production minus exports plus imports' when more than half of imports by value are being used in production.[8]

The DMI's private insurance data also reveals that a growing number of Danish firms are exporting direct from their overseas plants to other overseas markets without the goods passing through Denmark – we do not have an estimate of the activity, but such activity renders precise deductions about the total economic value of the Danish industry's exports and imports based only on the national statistics unreliable.

For our purpose of explaining the sustained economic activity registered within Denmark, an important example is the apparent trend in the national statistics describing industry turnover from 2000 to 2007. At current prices this is stable, at 19, 380 mDkr in 2000 and 19, 533 mDkr in 2007. Adjustment for Danish inflation in the period gives a drop in real value in constant 2000 prices of 13% by 2007. Yet it is reasonable to doubt that this indicates a decline in economic activity for reasons involving; volume of traded goods, dependent employment and uncounted foreign subsidiaries.

If outsourcing is increasing rapidly in the period – and one of the top ten firms by turnover today, Scancom International was only founded in 1995 (see table 9 below) – the monetary value of traded goods may decrease while the volume is increasing. Scancom International on its website claims to employ 5000 direct employees and in its contract manufacturer-suppliers another 30 000 employees.[9] Yet the full time employees for the furniture industry collected by Danmark Statistik are only counted if they are employed within Denmark[10] and only a fraction (27) of Scancom International's 5000 employees contribute to the current figure of 16 476 Danish-located furniture industry employees.[11] The trend evident in national statistics where the number of full time employees in Denmark decreases from 22 140 in 2000 to 16 476 today does not represent economic decline of Danish owned furniture activity or even a decline in full time employment in Danish-owned furniture companies. Finally, the economic turnover and employees of foreign-registered subsidiary companies are not counted by Danmarks Statistik, yet Scancom International and Flexa have many such companies as part of their international structure.

To summarise our position on the data at this point; the DMI private data confirms that the Danish furniture industry is undergoing another phase of creative restructuring, as it has done several times before. However, whereas previous restructurings have occurred through the creative analysis and exploitation of export markets, the current restructuring includes the creative exploitation of overseas production to facilitate exploitation of international trading possibilities, both via initial imports to Denmark then to export markets and directly between overseas production sites and overseas markets. As some companies have become international operators their activity is escaping the national statistical agency's collection procedures. The economic turnover of the industry may even be rising rather than falling and the number of people employed by it and

[8] The DMI used their private data to calculate that the domestic market *has* grown at an historically unprecedented rate in this period; by 14% alone in 2007 and between 8-14% in the years from 2002 to 2007.

[9] www.scancom.net

[10] Conversation with Mikael Skovbo, Danmark Statistik, specialkonsulent

[11] The figure of 16 476 is an estimate of full time employees in the industry in Denmark by the labour organisation BAT Kartellet using Danmark Statistik data (Buch, Vakgaard et al. 2008, p6).

dependent upon it is credibly rising rather than falling – even as the number of full time employees in Denmark falls.[12]

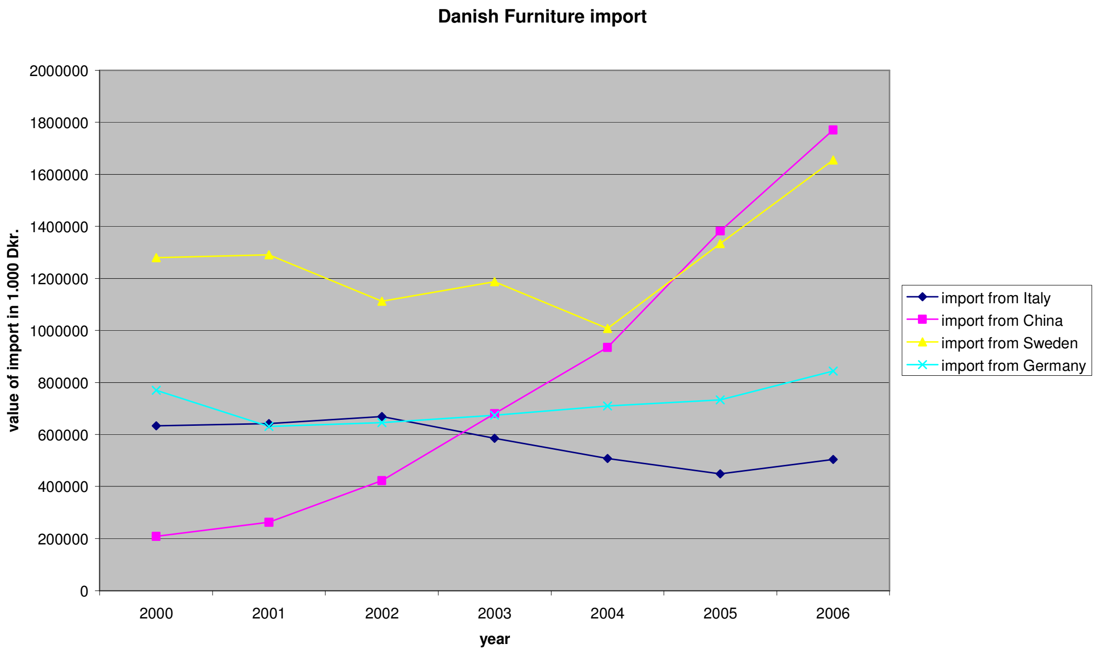

Figure 8. Evolution in current prices of furniture imports from the four principal foreign sources; Italy, China, Sweden and Germany 2000 – 2006.

mDKr	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Danish Production	19.380	19.699	19.144	18.878	19.037	19.301	19.437	19.533
Danish exports	15.322	15.717	15.823	15.970	16.545	15.910	16.084	16.458
DK producti for domes market	4.058	3.982	3.291	2.908	2.492	3.391	3.353	3.075
Imports	5.590	5.854	5.739	6.068	6.355	6.852	8.141	9.422
Imports + D production f domestic mark	9.648	9.836	9.030	8.976	8.847	10.243	11.494	12.497
Chinese import	208	263	423	680	935	1.382	1.770	2.142
Chinese impo	3,7	4,5	7.4	11.2	14.7	20.2	21.7	22.7

[12] The uncertainty is not currently resolvable except by each private firm disclosing the relevant data, but we understand that Danmarks Statistik is working on a future database that should capture the employment and turnover of Danish company subsidiaries within Europe.

as % imports								
Employment Denmark	22.140	21.325	19.534	18.450	17.691	16.872	16.687	16.476

Table 7 Danish furniture production, exports, imports and rising importance of Chinese imports in current prices. Source: Danmark Statistik and DMI (Dansk Møbel Industri 2008) and BAT Kartellet (Buch, Vakgaard et al. 2008, p7).

6 The period 2000 - 2007 – Firms Cluster around Principal Cities but the Industry becomes highly Concentrated by Firm and Geographically Scattered

If West Jutland furniture manufacture is in decline, then given the sustained export and production value in Danish furniture post-1990s (see table 1 and previous section for discussion), we may infer that 'compensating' export-orientated entrepreneurial activity is occurring somewhere in Denmark.

Figure 6 New Furniture Plant location in Denmark 1973-1992 (Maskell 1998, p111)

Figure 7 Furniture firm locations in Denmark 2008[13]

As a first step in the investigation of this activity we plotted the location of Danish furniture firms in 2008[14] (figure 7). When compared to Maskell's plot of location of new start firms in the period 1972-1992 (figure 6) this shows that *firms* are now clustered around the principal Danish cities of Århus and Copenhagen (Copenhagen is particularly dramatic because, from Maskell's data, only 2 new firm foundations occurred in 1972-1992). It would be unsafe to infer also that the industry activity has relocated with the firms, because such an inference would depend on the continuity of our earlier, reasonable assumption that furniture activity is a small firm craft industry. Instead, we find that outsourcing and large firm restructuring and growth have altered the locus of turnover compared to the locus of firms.

We made two investigations of the role of clustering and firm-firm proximity in the post-2000 Danish furniture industry. First we examined the location (figure 9) and activity (table 10) of the top ten furniture firms by turnover (table 8). Second, we examined the employment data for the ten firms most closely located around Århus city centre (Table 11).

6.1 *The location and proximity of the top ten Danish Furniture Firms by turnover*

Table 8 data shows that the industry today has a structure radically different from the small producer structure of 20 years ago. The top ten firms by turnover account for 51% of turnover by value. Further, the location of these ten firms in figure 9 shows no visual

[13] Derived from DMI member list.
[14] This is a plot of DMI member firms by the Danish postcode of their principal address. According to Keld Korsager, members of the Dansk Møbel Industri account for 96% of Danish furniture production.

evidence of clustering, but what appears to be random scattering. A brief review of their principal activities (table 10) encourages us in our conclusion that inter-firm relations have little or nothing to do with their success. Our sources are company reports, Web-direct company data and DMI interviews.

Company Name	**Turnover (1000/DKr)**	**Turnover as % of total DK turnover**	**Accumulated turnover as % of total DK turnover**	**Denmark-located employees**
Tvilum-Scanirk ApS	2.612.918	13,4%	13,4%	1505
HTH Køkkener A/S	1.603.989	8,2%	21,6%	988
Actona Company A/S	968.078	5,0%	26,5%	220
BoConcept A/S	964.378	4,9%	31,5%	395
Kvik A/S	857.649	4,4%	35,9%	145
Flexa Møbler Holding A/S	762.000	3,9%	39,8%	863
Fritz Hansen A/S	657.223	3,4%	43,1%	271
Scancom International A/S	638.309	3,3%	46,4%	27
Interstil A/S	568.397	2,9%	49,3%	120
Kvadrat A/S	371.851	1,9%	51,2%	139

Table 8 Top ten Danish furniture producers by turnover 2007 (1000DKr).

Figure 9. Map of the location by postcode of the top ten Danish furniture firms by turnover

1 Tvilum Scanbirk

- Whereas 50% of the retail price in average designer furniture goes on salaries, for Tvilum Scanbirk salaries only constitute 4% of the retail price. The company is an example of flexible automation in its global market niche of self-assembly flat pack furniture kits. It appears relatively immune to the influence of low labour cost country competition - production continues at six factories in Denmark and 90% of production is exported.[15] It is a major supplier to IKEA.[16]

2 HTH

- Is a chain of shops covering 13 countries and specialising in kitchen design and installation. Sales are arranged in the shops; design, orders and installation are organised by HTH; manufacture is sourced in a joint venture with Europe's largest kitchen manufacturer, the Swedish firm Nobia.[17]

3 Actona

- Is a leading furniture trader using outsourced production.[18] It designs and sells across a range of basic furniture products to furniture retailers with sales teams covering all global regions.

4 Bo Concept

- Describes itself as Denmark's most global retail furniture chain with more than 220 BoConcept Brand Stores and 120 Studios in 45 countries. Stores are run on a franchise system. Store staff offer customised advice on the design of home interiors.

5 Kvik Køkkener[19]

- Sells kitchen, bathroom and wardrobe interiors through 109 franchised stores in ten countries. Owned by the Swedish Ballingslöv group. Designs controlled by Kvik and credited for the company's success in the kitchen-fitting market.

6 Flexa Møbler

- Denmark's leading specialist provider of 'modularised' children's furniture through over 100 retail shops in 40 countries[20]. Manufactures in Estonia, Denmark, USA and China and has 900 employees of which 150 in Denmark (Buch, Vakgaard et al. 2008, p39).

7 Fritz Hansen

- The major holder of registered design rights in the classic Danish designs pre-1950s; Arne Jacobsen, Wegner etc: the products in its catalogue are organised

[15] http://www.tvilum-scanbirk.com/UK/About-us/Key-Figures.aspx
[16] Keld Korsager, DMI
[17] http://www.hth.dk/
[18] http://www.actonacompany.com
[19] http://www.kvik.com
[20] http://www.flexa.dk

under the names of the designers. [21] We believe it is the only firm in this list for which classic product 'design' is central to its business and it is the only one which signals its willingness to litigate to enforce its design rights on its webpages.

8 Scancom International

- Specialist provider of garden and outdoor furniture. 27 employees in Denmark, but 5000 direct employees worldwide, with a further 30 000 contract manufacturer employees.[22] Uses Brazilian tropical woods and Vietnamese and Indonesian manufacturers and sells mainly through European DIY retailers such as Metro and Bauhaus.

9 Interstil[23]

- Provides a range of designs to furniture retailers. Claims to have been one of the earliest to begin manufacture in Asia and Eastern Europe

10 Kvadrat[24]

- Specialises in the design of high quality textiles and 'textile-related products' for both 'architects to specify in public spaces' and for furniture upholstery.

Table 10 Description of the top ten Danish Furniture Firms by Turnover

The markets these firms serve are so distinct that we see no reason to continue to think of proximity-derived connections between the firms as important. In the case of the largest, Tvilum Scanbirk, located in the mid-Jutland region and specialising in automated manufacture of flat pack self-assembly furniture kits, a company manager is on record in 2006 as saying that the firm did not consider itself part of the local cluster and that local knowledge synergies between manufacturers were of no importance to the firm (Andersen, Bøllingtoft et al. 2006, p113). Of the two other top ten companies located in this region; Actona is a non-manufacturing trader and Bo Concept one of the customised interior design retail chains.

Local networks between manufacturers in proximity can not be relevant to these firms' international success. The reason these firms are large is evident on most of their websites - while they are highly specialised they are large because they have exploited global markets, albeit in different ways. Manufacture in LCCs is common and some of the figures for employment, for example for Scancom International, reveal that the employment registered in Denmark depends on much larger operations overseas. (Scancom International has only 27 employees located in a Danish headquarters office, but 5000 direct employees and 30 000 in dependent overseas contract manufacturers). It also helps explain the predominance of sales, marketing and design departments in the Danish divisions of the firms and evident in their website self-descriptions (whereas manufacturing is rarely mentioned).

[21] http://www.fritzhansen.com
[22] http://www.scancom.net
[23] http://www.interstil.dk
[24] http://www.kvadrat.dk

6.2 What is the nature of the Århus furniture firm cluster?

We compiled table ten from the ten furniture firms closest to Arhus city centre. However, the number of employees reveals these firms to be so small that we do not believe the economic significance of these firms or this cluster to be significant or interesting compared to the top ten firms by turnover.

Company Name	Location	Employees
Taiofo Buying Agencies	DK-8000 Aarhus C	1
Globe Furniture	DK-8000 Aarhus C	2-4
Tignum	DK-8000 Aarhus C	N/A
8000C	DK-8000 Aarhus C	1
Møbelsnedkeri Kjeldtoft	DK-8220 Brabrand	2-4
Kofoed Danmark	DK-8240 Risskov	2
Wendelbo Møbel design	DK-8250 Egaa	8
Østberg Design	DK-8250 Egaa	1
Brdr. Petersens Polstermøbelfabrik	DK-8260 Viby J	2-4
Form 75 Design	DK-8260 Viby J	1
Ferchland	DK8260 Viby J	N/A

Table 10 Ten Furniture firms closest to Århus centre

7 Conclusions – Economic success is derived from the entrepreneurial ability to exploit international market opportunities and not the internal properties of clusters

Our major conclusion is that the economic success of the Danish furniture industry over the last 60 years results from the successful entrepreneurial exploitation of international markets and is not derived from the internal knowledge properties of clusters. When the series of significant changes in export markets is considered, the clustering of firms cannot explain the changes in economic fortune over time; rather the location and economic strength of particular clusters appears to result from the degree of success in particular overseas markets. In this analysis there is no justification for a public policy goal of supporting ‘clusters’ of firms as a means of encouraging economic activity.

We also argued that the evidence supports the idea that the high degree of internationalisation of Danish furniture entrepreneurial activity was a path-dependent phenomenon where the 1950s boost to exports provided by US demand permanently shifted furniture entrepreneurship towards international markets. Through subsequent exploitation of market changes the industry economic turnover became progressively more dependent on international markets. Such an analysis is obviously more likely to apply to a small country such as Denmark, a culturally distinct economic region and small nation.[25]

[25] It should not be surprising that parallels could be drawn between the furniture industry and other Danish business sectors, such as the textile industry, where growth in outsourcing occurred a decade earlier than in furniture (Illeris 2000).

Today the statistical continuity in indicators of the Danish furniture industry's economic activity masks a radical restructuring of the industry. The West Jutland manufacturers' decline is alone evidence of the limited value of 'learning' within clusters. The compensating economic activity comes from the rise of large internationalised firms that are not geographically clustered and without any apparent important relation between them.

It follows from our path dependency argument that we suspect these companies are successful because they are first movers into their international markets. These markets may be no more than niche markets that are now occupied,[26] in which case the robust economic performance of the Danish furniture industry post-2000 offers no easy lessons for other countries and may represent a limited small country advantage. However we believe empirical comparative work is justified to explore this issue further.

[26] On a priori grounds such as that there is a limit to the number of international retail chains of kitchen customisation shops that the developed world can support.

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