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Do Small Firms Breathe Heavily Down The Necks of Their Larger Brethren?

An Empirical Examination of the Theory of Strategic Niches

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Abstract

Empirical studies in Industrial Economics have shown that most industries are characterized by the co-existence of a small number of large firms and a large number of small firms. According to a recent line of thought, the theory of strategic niches, small firms do not directly compete with large firms but prefer to occupy fringe markets, where they can achieve high profits. In this paper we test this hypothesis by comparing the relative specialization of small and large firms (measured by a novel variation of the well-known Balassa index) in Greek manufacturing. The results suggest that, contrary to the above-mentioned theory, on average it is large firms that choose to produce in product niches, and this is especially noticeable in industries with low concentration.

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1. Introduction

Orthodox theorizing and empirical testing in the Industrial Economics literature have established that small firms tend to cater predominantly for markets where the presence of their larger counterparts is limited. So, the argument goes, small firms eschew competition with their larger brethren and thus survive (and on occasion, thrive) by specializing in products with shorter production runs and often by cus-

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tomizing their products according to the whims of particular market niches. As is well known, the theory of strategic niches was introduced by Caves and Porter (1977), Newman (1978) and Porter (1979). (For a brief synopsis of this seminal work see Audretsch et al., 1999, pp.201-203).

In a general way, it has been claimed that niche formation can be ascribed mainly to the following three factors: a. to changes in lifestyle and associated consumer preferences, b. to new technological options, and c. to modifications in governmental policies and regulations (Swaminathan, 1995, p. 662; Freeman and Hannan, 1983, p.1144).

Additional insights could be drawn by referring to sociological research on the relationship between specialisation and firm size. As in the Industrial Economics literature, sociological theorising has conjectured that specialist organisations are more often than not smaller than generalists. However, this positive relationship between niche width (or degree of generalism) and size may not exist if a certain environmental dimension is favorable to a specialist (e.g. the importance of a specific ethnic group in an area might cause a larger size for a specialist newspaper than for a generalist one) (Carroll, 1985, pp. 1266-7)[1].

The purpose of this paper is to examine the relative specialization of firms in Greek manufacturing for the years 1989 and 1992. The full data set covers all firms employing 20 or more persons and a sample of firms employing between 10 and 19 persons[2]. Each firm's sales are broken down into 5-digit product groups which are then aggregated to obtain the sales of each 4-digit industry.

In order to examine the nature and degree of relative specialization we excluded from the data those 4-digit industries which comprised only one 5-digit product, and then, from the remaining 4-digit industries, we excluded those for which fewer than 10 observations were available. We are thus left with 102 industries (3865 firms) for 1989 and 67 industries (3053 firms) for 1992. For each firm in these industries we calculate the Balassa index as follows:

$$B = \frac{Sijp / Sij}{Sjp / Sj}$$

Where

Sijp = firm's i sales of the 4-digit industry's j 5-digit primary product,
Sij = firm's i sales in 4-digit industry j
Sjp = total sales of the 4-digit industry's j 5-digit primary product
Sj = total sales of the 4-digit industry j

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1. On the meaning of the term "niche width" see Freeman and Hannan, 1983, p. 1118.
2. For a description of the data set see Droucopoulos and Papadogonas (1999, 2000).

The Balassa index has been extensively used in the International Trade literature for cross-country comparisons, giving an indication whether a country's exports are more specialised in some category of goods than the world as a whole. In this paper we use the Balassa index to show the relative specialisation of firms belonging to the same 4-digit industry. A Balassa index greater than 1 indicates that the particular firm is relatively more specialized in the production of the 5-digit primary product of the 4-digit industry. If the Balassa index for small firms is lower than the Balassa index for large firms, we have a clear indication that small firms prefer to produce in market niches, thus avoiding direct competition with large firms.

As a first step we calculated the mean Balassa indices for the top-4 firms in each industry (large firms' Balassa index, LB) and the corresponding indices for the remaining firms (small firms' Balassa index, SB)[3]. Table 1 shows the comparison of these two indices:

Table 1. Relative specialization of large and small firms

	Number of industries (1989)	%	Number of industries (1992)	%
$L_B < S_B$*	56	54.9	20	29.9
$L_B > S_B$*	20	19.6	12	17.9
Insignificant difference*	26	25.5	35	52.2
Total	102	100.0	67	100.0

* level of significance: 95%

3. The choice of the top-4 firms as a cut-off point is based on our attempt to take account of the relative position of firms in each separate industry. Had we used a uniform criterion for the classification of firms according to size (e.g. a firm would qualify as a large one if it employed more than 100 persons) it would mean that in some industries all firms would be characterised as being large while in other industries all firms would be characterised as being small. However, a referee considered as arbitrary the criterion of considering the top-4 firms as the large ones in all industries. To meet this criticism we also experimented with a different criterion: in all industries the top-2 firms were considered as large ones and furthermore we added the next firm(s) to the group of large firms as long as it (they) had a smaller market share difference than that between the previous two firms. The results of Table 1 do not change significantly, the only difference being that in 1989 we end up with a larger number of insignificant differences (the results are available from the authors on request).

The results of this simple first test are not consistent with the provisions of the strategic-niche theory. It is clear that, for the majority of industries, the large firms' Balassa Index is lower than the small firms' Balassa index, which indicates that it is large rather than small firms which choose to produce relatively more in some market niches. This result holds for both 1989 and 1992, although it seems to have weakened in the latter year under examination.

Acs and Audretsch (1990) argue that the tendency of small firms to be more innovative is especially marked in highly concentrated industries. This remark leads us to a related hypothesis, namely whether smaller firms are more or less niche-producing in above- or below-average concentrated industries (as measured by the Herfindahl index). The results (Tables 2 and 3) clearly indicate that, in below-average concentrated industries, large firms are more niche-producing while in above-average concentrated industries the results are mixed[4]. A possible explanation of these findings could be that in low-concentrated industries larger firm size does not confer any significant advantage in terms of market power, thus forcing larger firms to carve out narrow segments of the market in an attempt to earn higher profits. Or alternatively, smaller firms may be markedly prevented by the existence of mobility barriers from following the same strategy. This is reminiscent of the apt remark by Porter (1979, pp.226-7): "Why would the less efficient firms not seek to replicate the strategies of more efficient firms - presumably the unfortunate firms would want to be efficient and more profitable too, and something must be preventing them from copying the successful actions of the 'efficient' firms." On the contrary, larger firms feeling comfortably at peace with themselves in their above-average concentrated sector are less enthusiastic than their smaller rivals about establishing differentiated product niches.

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4. In order to discriminate between concentrated and unconcentrated industries we have also used, instead of the inter-industry average of the Herfindahl index, the rule of thumb set by the Bureau of Commerce in order for a merger to raise concerns about competition (Herfindahl index = .18), as a referee suggested. Similar results to those presented in Tables 2 and 3 were obtained.
Additionally, the tests in Tables 2 and 3 were repeated by making use of the criterion of classifying firms by size, described in footnote 3. The results (available from the authors on request) indicate that even in the above-average concentrated industries (Table 2), large firms seem to be more niche-producing than smaller firms although to a much lesser extent than in the below-average concentrated industries (Table 3).

Table 2. Relative specialization of large and small firms, industries with above-average Herfindahl index

	Number of industries (1989)	%	Number of industries (1992)	%
$L_B < S_B$*	14	36.8	4	15.4
$L_B > S_B$*	11	28.9	10	38.5
Insignificant difference*	13	34.2	12	46.2
Total	38	100.0	26	100.0

* level of significance: 95%

Table 3. Relative specialization of large and small firms, industries with below-average Herfindahl index

	Number of industries (1989)	%	Number of industries (1992)	%
$L_B < S_B$*	42	65.6	16	39.0
$L_B > S_B$*	9	14.1	3	7.3
Insignificant difference*	13	20.3	22	53.7
Total	64	100.0	41	100.0

* level of significance: 95%

Another way of investigating the relationship between firm size and relative specialization is by testing regressions of the Balassa index on firm size. This test was conducted for each industry for which more than 29 observations were available. There were 47 (1989) and 40 (1992) such industries.
The results are given in Table 4:

Table 4. Firm size and relative specialization, regression results. Dependent variable: Balassa index. Independent variable: firm size (measured by sales)

	Positive sign*	Negative sign*	Insignificant*
1989	3	24	20
1992	4	16	20

* level of significance: 95%. All standard errors are White heteroskedasticity consistent.

These results are consistent with the comparison of the relative specialization of large and small firms (Table 1). In most industries where the relationship between firm size and the Balassa index is significant the sign is negative, both for 1989 and 1992, indicating that larger firms are more niche-producing than smaller ones[5].

Once again the results depend on the degree of industry concentration. In all 24 industries (1989) and in all but one of 16 industries (1992), where firm size has been found to be negatively correlated to the Balassa index, the Herfindahl index is low (i.e. below-average).

A last test was obtained by regressing the difference of the Balassa index between 1989-1992 on initial firm size and firm growth. This test enables us to draw some conclusions on the relative specialization of firms over time. The test was conducted for those industries for which there were available more than 29 common (for both years) observations (36 industries).

Table 5. Firm size, firm growth and change in relative specialization, regression results. Dependent variable: ΔBalassa = 1992 Balassa index - 1989 Balassa index

	Positive sign*	Negative sign*	Insignificant*
Firm size (1989)	14	1	21
Firm growth (1989-92)	2	3	31

* level of significance: 95%. All standard errors are White heteroskedasticity consistent.

5. Firms created after 1989 do not seem to follow a different pattern.

Firm growth is statistically insignificant in almost all industries tested. Initial firm size, where significant, is found positively related to ΔBalassa, implying that, although large firms are more niche producing, they tend to concentrate their production over time on the primary product of the industry they belong to.

Audretsch *et al.* (1999) have argued that small firms pursue niching strategies and this is so, they contend, because price-cost margins of small firms do not tend to follow those of large firms. In this paper we proposed a measurable definition of what a market niche is, and a direct methodology for testing whether small firms are more niche producing than large firms. In the light of the preceding paragraphs we could argue that the received knowledge on strategic niche-producing by small firms is not corroborated in the case of Greece. Niche-producing appears to be primarily the preserve of market leaders and especially so in the case of low-concentrated industries. However we might speculate - and this calls for a fresh look - that the period under examination was one of disequilibrium, owing to the fact that the impact of Greece's accession to the European Economic Community was still being felt on the Greek manufacturing sector's structure and conduct.

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