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# JOURNAL OF REGIONAL SOCIO-ECONOMIC ISSUES (JRSEI)

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## Concentration in the Greek Hotel Industry: A Regional Analysis

### **Abstract:**

This paper applies the  $n$ -firm concentration ratio and the Herfindahl-Hirschman index to the hotel markets of the thirteen Greek regions. The results indicate that, in general, the concentration in the industry is quite low, not only for the total market, but also for the separate markets of the different hotel categories based on the “star” system. Moreover, it has been found that the regions that display notably high tourism activity are characterized by relatively low concentration in their hotel market, whilst the regions that display notably low tourism activity are characterized by relatively high concentration. Finally, it has been detected that there is a significant difference between the results obtained for the highest categories and those for the lowest categories, the latter displaying much lower concentration.

**Keywords:** Economic Policy Implications, Greek Hotels, Herfindahl-Hirschman Index, Market concentration,  $n$ -firm concentration ratio, Regional analysis

JEL Classification: D40, L11, L83, R12, R58 Z31, Z38

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## 1. Introduction

It is often argued that the existence of high concentration in an industry reflects entry barriers and high profits for the existing firms.<sup>4</sup> Moreover, it is widely believed that a concentrated market may result in collusive behavior amongst the firms operating in the respective market. Therefore, it is not surprising that the study of market concentration in various industries is of significant importance, not only for economic theory, but also for the authorities of economic policy regarding the implementation of anti-monopoly laws.<sup>5</sup> Since the degree of concentration in an industry reflects the market structure of this industry, the measurement of concentration has specific economic policy implications and can prove to be a very useful tool for the respective authorities in many cases (e.g., in determining whether they should allow a merger, whether legislative restrictions should be lifted, etc.).

On the other hand, some scholars have provided evidence that the degree of concentration is not positively related with entry barriers and higher profits (see, e.g., Willis and Rogers, 1998; Davies, 1999). Moreover, it has been pointed out that the larger profits in an industry could be explained on the basis of the higher efficiency of larger firms and not on their dominant role in the market (see Damsetz, 1973). Thus, it seems that there is not an unambiguous relationship between concentration and entry barriers and, therefore, the results of the relative measurements should be considered with caution and the economic policy authorities should also take into account other factors that may define the market structure, such as the special characteristics of the industry and the special interests of the majority of people involved in the economic process.

This paper attempts an estimation of the degree of concentration in the hotel markets of the thirteen Greek regions. The measurement of concentration is based on the commonly used measures of concentration, such as the  $n$ -firm concentration ratio and Herfindahl-Hirschman index, and the data provided by the database of the Hellenic Chamber of Hotels (HCH). An issue that often arises in such studies is that because of lack of data or censored information, it is necessary to use a sample of the market rather than the whole industry (see, e.g., Nauenberg *et al.* (2004)). However, in this paper, thanks to the data provided by the HCH, it is possible to provide estimations based on the total hotel market. Moreover, we also estimate the concentration for the separate markets of the different categories of hotels based on the “star” system.

The remainder is structured as follows: section 2 presents the methodology of our analysis. Section 3 presents the data used in our estimations. Section 4 presents the empirical results of our analysis. Section 5 concludes the paper.

## 2. Methodology

The degree of concentration in an industry could be estimated by the so-called “ $n$ -firm concentration ratio”, i.e. the share of the  $n$  largest firms in the industry. We denote these shares by  $CR_n$ , where  $CR_n$  constitutes an index that gives a concentration ratio based on the

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<sup>4</sup> See, e.g., Bain (1951), Rhoades (1970), Amel and Liang (1997), Pan (2005), and Folta *et al.* (2006), Niu *et al.* (2012).

<sup>5</sup> See, e.g., Ijiri and Simon (1971), Bikker (2004), and Nauenberg *et al.* (2004).

share of the  $n$  largest (based on their output shares) firms in the industry.<sup>6</sup> On the other hand, the so-called Herfindahl-Hirschman Index (HHI hereafter)<sup>7</sup> is considered a more suitable index for such an estimation.<sup>8</sup> The HHI is defined as:

$$HHI = \sum_{i=1}^N (s_i)^2$$

where  $s_i = (q_i / Q)100$ ,<sup>9</sup>  $q_i$  the output of the  $i$ th firm,  $Q = \sum_{i=1}^N q_i$  the total output in the industry and  $N$  the total number of the firms in the industry. In the case where only one firm derives the total output in the industry or, equivalently, in the case of monopoly, then it holds  $HHI = HHI_{MAX} = 10000$ , which is the theoretical maximum value of HHI. On the other hand, in the case where all the firms in the industry have equal shares of output,  $s_1 = s_2 = \dots = s_N = s$ , then  $HHI = \sum_{i=1}^N (s_i)^2 = Ns^2$  will hold. But, since  $\sum_{i=1}^N (s_i) = 100$ , it will hold

$Ns = 100 \Rightarrow s = 100 / N$ . Then, it follows that  $HHI = N(1/N)^2 = 1/N$ , which is the minimum value of HHI. In the theoretical case where  $N \rightarrow \infty$ , then it holds  $s_1 = s_2 = \dots = s_N = 0$  and, therefore,  $HHI = HHI_{MIN} = 0$ , which is the theoretical minimum value of HHI. Thus, the HHI takes into account all the shares of output in the industry and each firm's share is weighted by the share of this firm. The larger (smaller) the share of a firm in the output, the larger (smaller) its contribution to the determination of HHI.<sup>10</sup> In this paper, we estimate the degree of concentration in the Greek hotel industry by using the  $CR_n$  indices and the HHI. We express the  $CR_n$  indices as a percentage (%) of the total output of the  $n$  "larger" firms of the industry. Furthermore, we normalize the HHI as follows  $H = HHI / HHI_{MAX}$ , where  $H$  the normalized Herfindahl-Hirschman Index, and also express  $H$  as a percentage. It then follows that  $H$  takes values from 0% to 100%, where 0% corresponds to the case of a perfectly competitive market and 100% corresponds to the case of monopoly.<sup>11</sup>

<sup>6</sup> For applications of the  $n$ -firm concentration ratio, see, e.g., Akehurst (1984), Ratnayake (1999), and Bikker and Haaf (2002).

<sup>7</sup> This index was introduced by Hirschman (1945). A few years later, it was also proposed by Herfindahl (1950), who was unaware of Hirschman's contribution. See, also, Hirschman (1964).

<sup>8</sup> For the theoretical relationships between the various measures of concentration, see Hall and Tideman (1967), Naldi (2003), Hennessy and Lapan (2007), Alegria and Schaeck (2008), and Geronikolaou (2015).

<sup>9</sup> Obviously, it holds  $\sum_{i=1}^N (s_i) = 100$ .

<sup>10</sup> For empirical applications of HHI, see, e.g., Bikker and Haaf (2002), Beck et al. (2006), Pan (2005), and Bai et al. (2014).

<sup>11</sup> It is interesting to note that according to the U.S. Department of Justice and the Federal Trade Commission (2010), the values of HHI can be interpreted as follows:

$H < 1\% \rightarrow$  highly competitive index  
 $1\% < H < 15\% \rightarrow$  unconcentrated index  
 $15\% < H < 25\% \rightarrow$  moderate concentration  
 $H > 25\% \rightarrow$  high concentration

### 3. Data

The data used in this paper are derived from the database of the Hellenic Chamber of Hotels and refer to the year 2013. In the middle of this year 9,674 hotel units with 400,578 rooms and 771,896 beds operated in Greece. Table 1 below shows how these units, rooms and beds are distributed in the thirteen regions of Greece according to the category to which they belong. So, we notice that, in Attica, 29 units belong to the 5-star category (5\* hereafter), 97 units belong to the 4-star category (4\* hereafter), 138 units belong to the 3-star category (3\* hereafter), 272 units belong to the 2-star category (2\* hereafter), 115 units belong to the 1-star category (1\* hereafter) etc. The last three rows of the table report the total data for the country. Thus, we notice that, in total, 357 units belong to the 5-star category, 1,262 units belong to the 4-star category, 2,340 units belong to the 3-star category, 4,230 units belong to the 2-star category, 1,485 units belong to the 1-star category, etc.

Since we are interested in investigating concentration and its implications for the competitiveness of the hotel industry in Greece, it is necessary to identify which of the hotel units belong to the same firm. With the help of HCH's database, we were able to identify 9,513 different owners in the country. Therefore, we shall base our analysis on these firms. In Table 2 below we present the number of different owners of hotels in each region of Greece according to the category to which they belong. A common issue that arises in relevant studies is that market share information for all the firms of an industry are rarely available and, therefore, it is often necessary to construct the necessary data through statistical methods (see, e.g., Nauenberg *et al.* (2004)). In this paper, we are able to use information for the total hotel industry, thanks to the data provided by the database of HCH. For this purpose, we use the number of rooms and the number of beds as variables to measure the market shares of each firm that operated in the year 2013. Although these variables measure the output potential rather than the actual output of the hotels, they allow us to investigate the market structure of the hotel industry, which, due to lack of relevant data, would not be possible if we had chosen to use for example, the sales of each firm, as a variable.

**Table 1:** The Greek Hotel Industry, 2013.

Region	Total	5*	4*	3*	2*	1*
<b>Attica</b>						
<i>Units</i>	651	29	97	138	272	115
<i>Rooms</i>	31645	6192	7819	7084	8362	2188
<i>Beds</i>	58837	11663	14641	12992	15382	4159
<b>Central Greece</b>						
<i>Units</i>	546	10	37	117	301	81
<i>Rooms</i>	15667	666	2615	3890	7133	1363
<i>Beds</i>	29888	1472	5031	7378	13441	2566
<b>Central Macedonia</b>						
<i>Units</i>	1188	39	89	255	383	422

<i>Rooms</i>	44078	6525	7981	10459	10402	8711
<i>Beds</i>	86193	13250	15523	20626	20053	16741
<b>Crete</b>						
<i>Units</i>	1538	85	234	333	675	211
<i>Rooms</i>	87566	17523	24411	15735	24233	5664
<i>Beds</i>	166382	35419	47204	29646	43672	10441
<b>Eastern Macedonia &amp; Thrace</b>						
<i>Units</i>	383	10	27	90	181	75
<i>Rooms</i>	10886	954	1846	2921	4010	1155
<i>Beds</i>	21488	1926	3843	5671	7800	2248
<b>Epirus</b>						
<i>Units</i>	373	8	59	138	139	29
<i>Rooms</i>	7629	662	949	2885	2646	487
<i>Beds</i>	15005	1397	1974	5663	5022	949
<b>Ionian Islands</b>						
<i>Units</i>	915	24	95	208	511	77
<i>Rooms</i>	46770	3928	9701	14162	17415	1564
<i>Beds</i>	89810	7744	18513	27240	33282	3031
<b>North Aegean</b>						
<i>Units</i>	400	6	33	128	183	50
<i>Rooms</i>	11828	784	1616	4420	4296	712
<i>Beds</i>	22389	1595	2968	8351	8092	1383
<b>Peloponnese</b>						
<i>Units</i>	640	16	93	198	256	77
<i>Rooms</i>	19141	2573	3487	5888	6230	963
<i>Beds</i>	37488	5441	6914	11480	11806	1847
<b>South Aegean</b>						
<i>Units</i>	2069	95	342	456	943	233
<i>Rooms</i>	98390	14449	34600	19515	26192	3634
<i>Beds</i>	191606	30115	67073	37675	49656	7087
<b>Thessaly</b>						
<i>Units</i>	577	28	106	125	236	82
<i>Rooms</i>	14624	1282	2702	3673	5431	1536
<i>Beds</i>	28490	2600	5371	7170	10354	2995
<b>Western Greece</b>						
<i>Units</i>	270	4	35	88	114	29
<i>Rooms</i>	9503	1444	1940	2889	2853	377
<i>Beds</i>	18526	3106	3721	5467	5433	799
<b>Western Macedonia</b>						
<i>Units</i>	124	3	15	66	36	4
<i>Rooms</i>	2851	62	364	1683	685	57

<i>Beds</i>	5794	137	764	3445	1336	112
<b>Total</b>						
<i>Units</i>	9674	357	1262	2340	4230	1485
<i>Rooms</i>	400578	57044	100031	95204	119888	28411
<i>Beds</i>	771896	115865	193540	182804	225329	54358

Source: Hellenic Chamber of Hotels

**Table 2:** Number of Unit Owners in the Greek Hotel Industry, 2013.

<b>Region</b>	<b>Total</b>	<b>4*-5*</b>	<b>3*</b>	<b>1*-2*</b>
<b>Attica</b>	636	115	136	387
<b>Central Greece</b>	546	47	117	382
<b>Central Macedonia</b>	1184	125	255	805
<b>Crete</b>	1496	284	331	884
<b>Eastern Macedonia and Thrace</b>	382	36	90	256
<b>Epirus</b>	373	67	138	168
<b>Ionian Islands</b>	902	109	207	588
<b>North Aegean</b>	400	39	128	233
<b>Peloponnese</b>	637	106	198	333
<b>South Aegean</b>	2035	411	454	1175
<b>Thessaly</b>	576	133	125	318
<b>Western Greece</b>	268	37	88	143
<b>Western Macedonia</b>	124	18	66	40
<b>Total</b>	9513	1489	2331	5714

In the next section we present the results of our analysis regarding concentration in the Greek hotel industry. More specifically, we apply the CR4, CR8, CR16 and HHI indices not only to the total hotels in each region of Greece but also to the markets of 5\* - 4\*, 3\*, and 2\*-1\* hotels separately.

#### 4. Results

The application of the previous analysis gives the results presented in Table 3 below. The first row of the table reports CR4, CR8, CR16 and HHI for the region of Attica. We notice that the four largest hotels own 8.48% of total rooms, the eight largest hotels own 13.91% of total rooms, the sixteen largest hotels own 22.57% of total rooms, whilst the HHI for the total hotel market of Attica is 0.56%. In the same way we can read the next rows that refer to the different categories as well as the results that were based on beds. In the last rows of the table we present the results that refer to the total hotel market of Greece.

Table 3: Concentration in the Greek Hotel Industry, 2013.

Region	Size Variable	Hotel Market	CR4	CR8	CR16	HHI
Attica	Rooms	Total	8.48%	13.91%	22.57%	0.56%
		4*-5*	19.16%	31.41%	50.98%	2.35%
		3*	9.29%	16.93%	29.15%	1.14%
		1*-2*	4.12%	7.26%	12.64%	0.37%
	Beds	Total	8.51%	13.94%	22.86%	0.56%
		4*-5*	19.04%	31.17%	51.13%	2.33%
		3*	9.64%	17.16%	29.83%	1.16%
		1*-2*	4.19%	7.21%	12.43%	0.36%
Central Greece	Rooms	Total	8.23%	12.96%	19.45%	0.48%
		4*-5*	34.56%	50.99%	72.54%	5.09%
		3*	23.06%	34.86%	47.30%	2.37%
		1*-2*	4.65%	7.53%	12.43%	0.36%
	Beds	Total	8.44%	13.41%	20.31%	0.49%
		4*-5*	34.41%	52.16%	72.83%	4.97%
		3*	23.50%	35.81%	48.27%	2.45%
		1*-2*	4.60%	7.54%	12.50%	0.36%
Central Macedonia	Rooms	Total	6.82%	10.04%	14.67%	0.33%
		4*-5*	19.71%	29.49%	42.88%	2.21%
		3*	8.25%	13.66%	22.14%	0.71%
		1*-2*	2.52%	4.26%	7.19%	0.17%
	Beds	Total	7.53%	10.66%	15.29%	0.36%
		4*-5*	21.52%	30.74%	43.94%	2.35%
		3*	8.14%	13.59%	21.87%	0.70%
		1*-2*	2.58%	4.25%	7.06%	0.17%
Crete	Rooms	Total	6.33%	11.13%	16.51%	0.31%
		4*-5*	12.81%	22.52%	32.93%	0.45%
		3*	5.67%	10.29%	18.04%	0.54%
		1*-2*	2.25%	3.80%	6.53%	0.17%
	Beds	Total	6.72%	11.68%	17.26%	0.33%
		4*-5*	13.19%	22.85%	33.40%	1.15%
		3*	5.98%	10.65%	18.37%	0.55%
		1*-2*	2.20%	3.71%	6.50%	0.16%
Eastern Macedonia and Thrace	Rooms	Total	7.47%	12.83%	20.48%	0.53%
		4*-5*	28.36%	48.07%	73.93%	4.27%
		3*	15.37%	25.03%	39.75%	1.75%
		1*-2*	5.34%	9.39%	16.21%	0.52%

	<b>Beds</b>	<i>Total</i>	8.02%	13.27%	20.88%	0.55%
		4*-5*	29.54%	48.22%	73.53%	4.38%
		3*	15.02%	24.48%	38.69%	1.70%
		1*-2*	5.27%	9.27%	16.09%	0.53%
<b>Epirus</b>	<b>Rooms</b>	<i>Total</i>	10.49%	16.69%	24.81%	0.71%
		4*-5*	38.67%	54.87%	68.72%	5.15%
		3*	21.94%	31.85%	44.54%	2.19%
		1*-2*	10.09%	16.73%	27.93%	0.98%
	<b>Beds</b>	<i>Total</i>	10.94%	16.85%	24.88%	0.71%
		4*-5*	39.54%	54.76%	67.49%	5.19%
		3*	20.96%	30.58%	43.19%	2.07%
		1*-2*	9.75%	16.43%	27.25%	0.96%
<b>Ionian Islands</b>	<b>Rooms</b>	<i>Total</i>	8.97%	12.71%	17.76%	0.41%
		4*-5*	24.79%	36.31%	51.32%	2.67%
		3*	12.82%	18.63%	28.09%	1.12%
		1*-2*	2.59%	4.71%	8.55%	0.23%
	<b>Beds</b>	<i>Total</i>	8.97%	12.59%	17.66%	0.41%
		4*-5*	24.37%	35.27%	50.46%	2.61%
		3*	12.98%	18.85%	28.47%	1.13%
		1*-2*	2.56%	4.73%	8.57%	0.23%
<b>North Aegean</b>	<b>Rooms</b>	<i>Total</i>	6.37%	10.64%	17.84%	0.50%
		4*-5*	31.38%	51.25%	80.08%	5.14%
		3*	9.73%	17.04%	30.07%	1.22%
		1*-2*	6.57%	11.38%	19.97%	0.63%
	<b>Beds</b>	<i>Total</i>	6.85%	11.12%	18.13%	0.51%
		4*-5*	33.60%	53.85%	81.13%	5.52%
		3*	8.92%	16.36%	29.67%	1.21%
		1*-2*	6.36%	11.20%	19.69%	0.63%
<b>Peloponnese</b>	<b>Rooms</b>	<i>Total</i>	9.77%	15.88%	23.41%	0.62%
		4*-5*	30.87%	47.39%	67.03%	4.16%
		3*	16.00%	24.56%	36.53%	1.39%
		1*-2*	6.26%	10.19%	16.74%	0.48%
	<b>Beds</b>	<i>Total</i>	10.70%	16.81%	24.43%	0.70%
		4*-5*	32.46%	47.77%	66.62%	4.60%
		3*	17.24%	25.93%	37.44%	1.48%
		1*-2*	6.31%	10.26%	16.90%	0.48%
<b>South Aegean</b>	<b>Rooms</b>	<i>Total</i>	6.88%	10.29%	14.21%	0.28%
		4*-5*	12.60%	19.44%	26.79%	0.91%
		3*	3.83%	7.34%	13.34%	0.39%
		1*-2*	2.30%	3.83%	6.42%	0.13%
	<b>Beds</b>	<i>Total</i>	6.87%	10.27%	14.39%	0.28%

		4*-5*	12.35%	19.06%	26.48%	0.89%
		3*	3.90%	7.51%	13.75%	0.39%
		1*-2*	2.35%	3.85%	6.44%	0.13%
Thessaly	Rooms	Total	5.82%	9.26%	14.51%	0.36%
		4*-5*	21.36%	33.73%	50.20%	2.30%
		3*	10.84%	19.79%	34.66%	1.35%
		1*-2*	4.78%	8.40%	14.91%	0.44%
	Beds	Total	5.74%	9.16%	14.42%	0.35%
		4*-5*	20.51%	32.72%	48.75%	2.17%
3*		10.70%	19.80%	34.32%	1.32%	
		1*-2*	4.71%	8.43%	14.93%	0.44%
Western Greece	Rooms	Total	20.29%	26.92%	34.74%	1.62%
		4*-5*	56.97%	74.56%	89.63%	10.48%
		3*	14.57%	26.20%	41.74%	1.76%
		1*-2*	10.15%	17.34%	29.10%	1.09%
	Beds	Total	21.78%	28.16%	35.62%	1.82%
		4*-5*	59.10%	75.60%	89.63%	11.37%
3*		14.34%	25.77%	41.47%	1.74%	
		1*-2*	9.92%	16.86%	29.17%	1.08%
Western Macedonia	Rooms	Total	10.42%	18.10%	31.43%	1.23%
		4*-5*	44.60%	72.54%	96.48%	7.86%
		3*	17.65%	30.30%	50.21%	2.34%
		1*-2*	23.45%	40.97%	64.82%	3.50%
	Beds	Total	10.36%	18.24%	31.86%	1.23%
		4*-5*	47.50%	72.81%	97.11%	8.22%
3*		17.10%	29.61%	50.13%	2.29%	
		1*-2*	22.86%	40.40%	63.95%	3.45%
Total	Rooms	Total	3.66%	5.37%	7.88%	0.08%
		4*-5*	9.20%	13.20%	19.39%	0.44%
		3*	2.09%	3.34%	5.33%	0.09%
		1*-2*	0.54%	0.92%	1.59%	0.03%
	Beds	Total	3.75%	5.50%	8.04%	0.08%
		4*-5*	9.23%	13.23%	19.42%	0.45%
3*		2.08%	3.34%	5.33%	0.09%	
		1*-2*	0.57%	0.95%	1.62%	0.03%

In general, we notice that there is no significant difference between the results based on rooms and those based on beds. The lowest HHI is 0.13% and is reported in the 1\*-2\* category of the South Aegean region, whilst the highest index is 11.37% and is reported in the 4\*-5\* category of the region of Western Greece. Thus, the HHI's indicate that, in general, there is no significant concentration in the Greek hotel industry. The examination of the results of the different star categories reveals that there is a significant difference in the

concentration between the hotels in the lower categories and those in the higher categories, the latter displaying much higher concentration ratios and HHI's. This rule applies to all the regions of Greece, with the exception of the region of Western Macedonia, where the concentration in the 1\*-2\* star category is higher than in the 3\* category. Table 4 below reports the ranking of the regions according to the HHI (in ascending order). The ranking is given on the basis of rooms, whilst, in the case of differentiated results in the case of beds, the respective ranking is reported in parenthesis.

**Table 4.** Ranking of Regions According to the Herfindahl-Hirschmann Index (in ascending order).

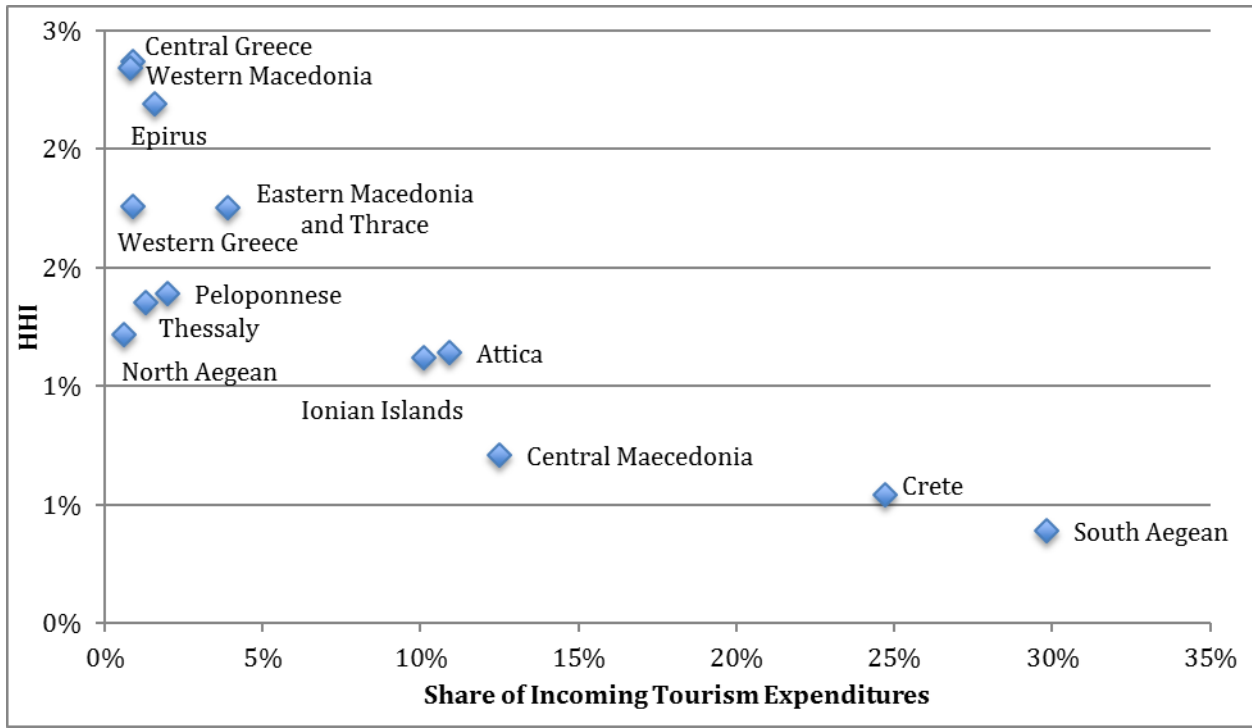
Region	Total	4*-5*	3*	1*-2*
Attica	9	5 (4)	5	6 (5)
Central Greece	6	9	13	5 (6)
Central Macedonia	3 (4)	3 (5)	3	3
Crete	2	1 (2)	2	2
Eastern Macedonia and Thrace	8	8 (7)	9	9
Epirus	11	11 (10)	11	11
Ionian Islands	5	6	4	4
North Aegean	7	10 (11)	6	10
Peloponnese	10	7 (8)	8	8
South Aegean	1	2 (1)	1	1
Thessaly	4 (3)	4 (3)	7	7
Western Greece	13	13	10	12
Western Macedonia	12	12	12	13

Thus, we notice that, according to HHI, the lowest concentration is detected in the regions of South Aegean, Crete and Central Macedonia, whilst the highest concentration is detected in the regions of Western Greece, Western Macedonia and Epirus. It is interesting to note that these three regions with the lowest concentration are also the regions with the highest arrivals, nights and expenditures of the incoming tourism of Greece.<sup>12</sup> More specifically, according to the regional tourism statistics for the incoming tourism of Greece, available from the Bank of Greece, in 2013 the regions of South Aegean, Crete and Central Macedonia accounted for 61.4% of total arrivals, 65.0% of total nights, and 67.0% of total expenditures. On the other hand, the three regions with the highest concentration, i.e. Western Greece, Western Macedonia and Epirus, accounted for only 5.1% of total arrivals, 3.9% of total nights, and the 3.4% of total expenditures. Therefore, it seems that the regions that display notably high (low) tourism activity are characterized by relatively low (high) concentration in their hotel market. For example, Figure 1 below displays in a scatter diagram the relationship between the HHI's that were estimated for the 3\* category markets in the

<sup>12</sup> It is worth noting that the incoming tourism of Greece represents about 90% of total tourism receipts in the country.

different regions of Greece and the share of incoming tourism expenditures of each region in the year 2013.

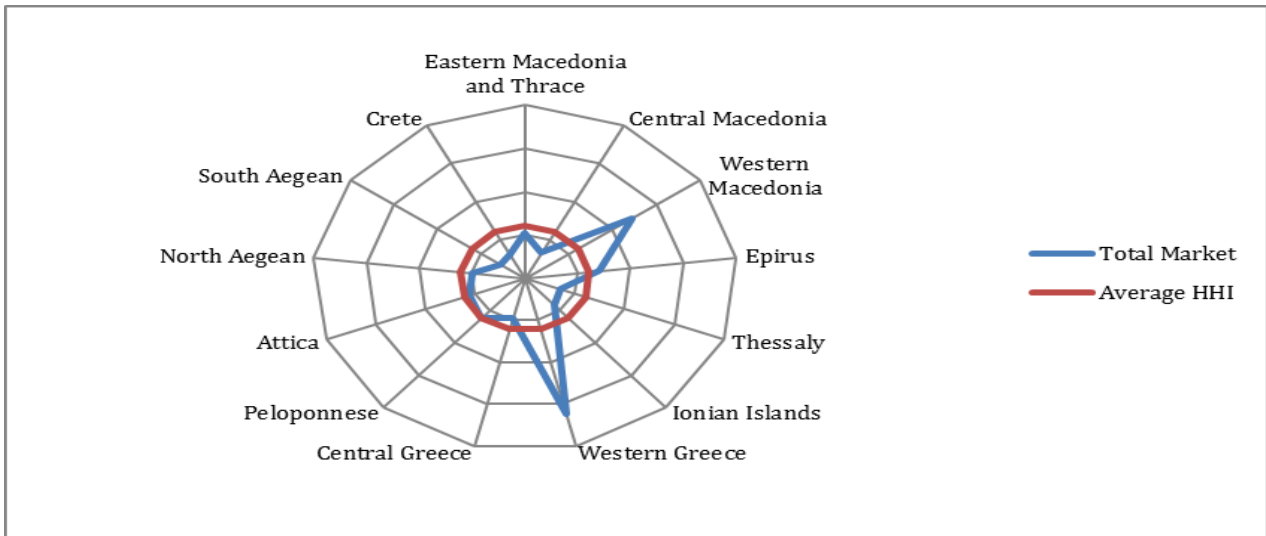
**Figure 1:** The Relationship between Concentration and Tourism Activity in the 3\* Category Market



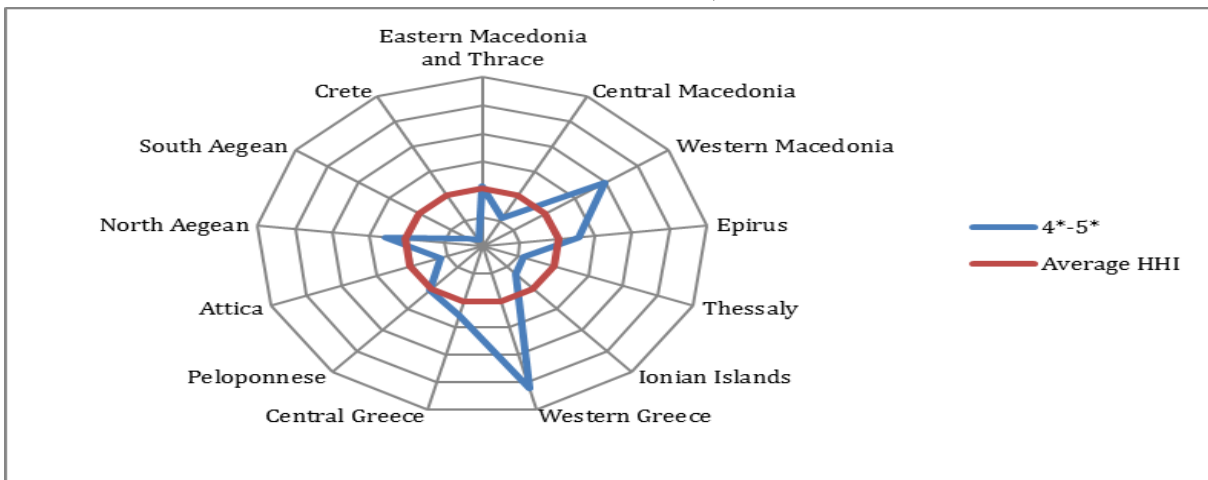
Thus, it seems that there is a negative relationship between concentration and tourism activity in the Greek hotel market. Finally, in order to get a picture of the relative differences in the HHI's between regions, in Figures 2-5 we display the indices (on the basis of rooms)<sup>13</sup> for the total market, the 4\*-5\* category market, the 3\* category market, and the 1\*-2\* category market in radar charts, respectively. The blue lines represent the values of HHI for each region, whilst the red line represents the average value of HHI in the respective market. Thus, in the case where the blue line is in the inner (outer) side of the red circle, then the HHI for the respective region is lower (higher) than the average value in the market.

<sup>13</sup> Essentially the same picture would be derived if we had focused on beds instead of rooms.

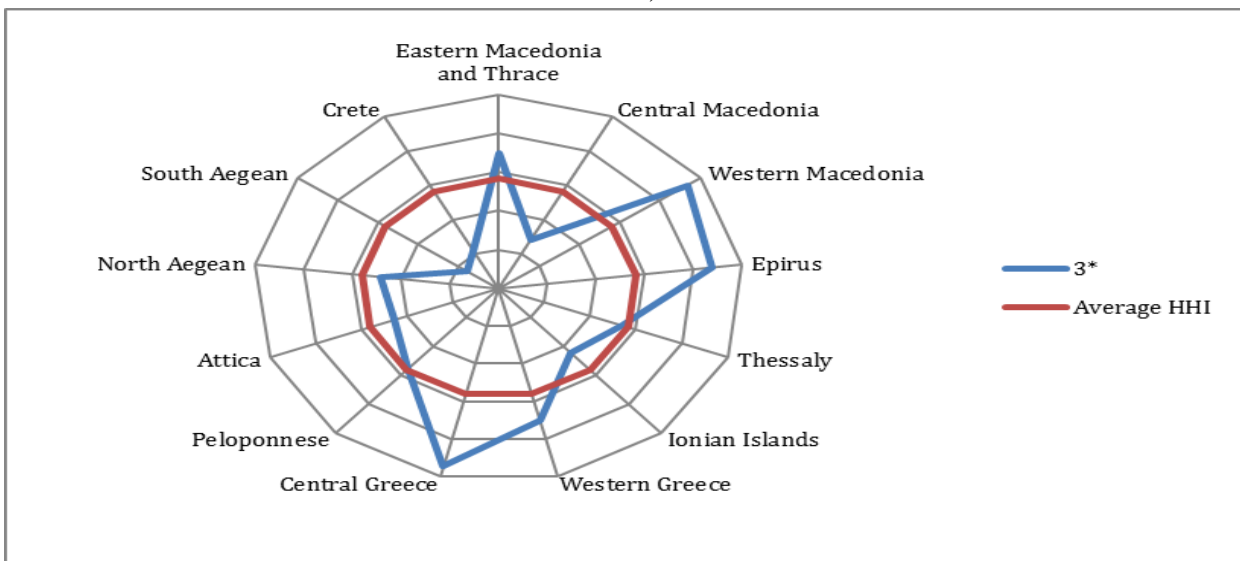
**Figure 2:** The Herfindahl-Hirschmann Index for the Total Market per Region (Size Variable: Rooms)



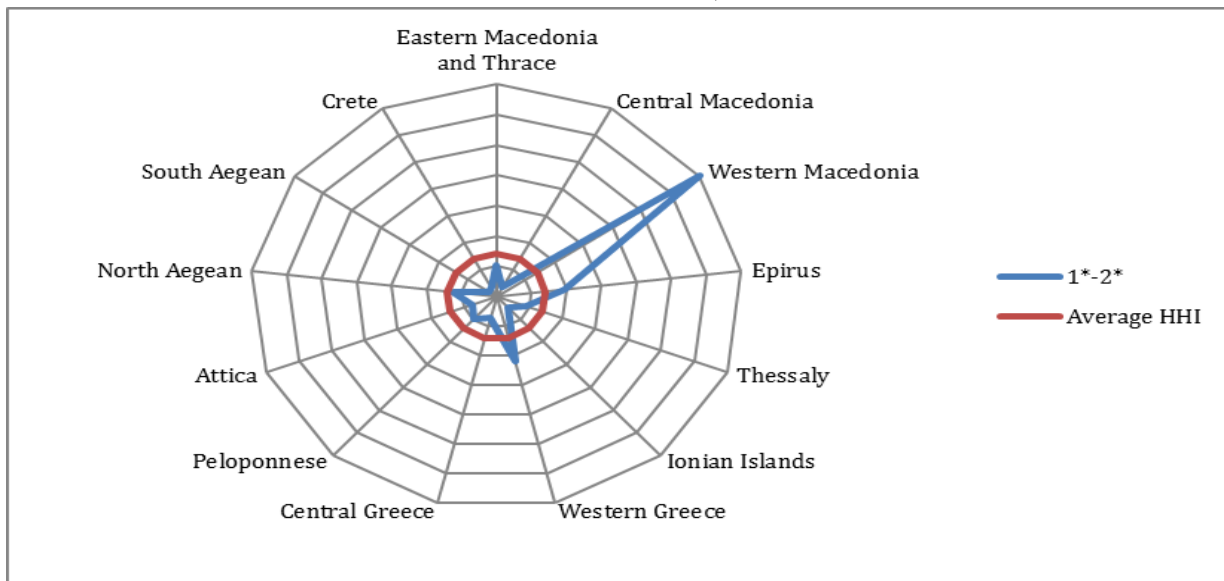
**Figure 3:** The Herfindahl-Hirschmann Index for the 4\*-5\* Category per Region (Size Variable: Rooms)



**Figure 4:** The Herfindahl-Hirschmann Index for the 3\* Category per Region (Size Variable: Rooms)



**Figure 5:** The Herfindahl-Hirschmann Index for the 1\*-2\* Category per Region (Size Variable: Rooms)



From the above figures we observe that:

- (i). In the case of the total and the 4\*-5\* category market, the Western Greece and Western Macedonia regions display relatively higher concentration. Moreover, in the case of the 4\*-5\* category market, the regions of Crete and South Aegean regions display relatively lower concentration.
- (ii). In the case of the 3\* category market, the Western Macedonia, Epirus and Central Greece regions display relatively higher concentration, whilst the South Aegean, Crete and Central Macedonia regions display relatively lower concentration.
- (iii). In the case of the 1\*-2\* category, the Western Macedonia region displays relatively higher concentration.

Thus, once again we may notice that the regions with high (low) tourism activity are characterized by relatively low (high) concentration in their hotel market, which is a fact that further supports the view that the Greek hotel industry displays low concentration and, therefore, we may conclude that, at least as it is derived from the present framework, it operates with high competitiveness.

#### 4. Concluding Remarks

This paper applied the Concentration Ratios for the largest 4, 8 and 16 firms, and the Herfindahl-Hirschman Index to the hotel industry of the thirteen Greek regions for the year 2013. The base of measurement was the number of rooms and beds of hotels. It has been found that:

- (i). There is no significant difference between the results based on rooms and those based on beds.
- (ii). The results derived from the Concentration Ratio and the Herfindahl-Hirschman index indicate that, in general, the concentration in the Greek hotel industry is rather low. This result holds not only for the total hotel market but for the separate markets of the different categories as well.

- (iii). There is a significant difference between the results obtained for the highest categories and those for the lowest categories, the latter displaying much lower concentration ratios and Herfindahl-Hirschman Indices. This rule applies to all the regions of Greece, with the exception of the Western Macedonia region, where the concentration in the 1\*-2\* star category is higher than in the 3\* category.
- (iv). The regions that display considerably high (low) tourism activity are characterized by relatively low (high) concentration in their hotel market. More specifically, the lowest concentration is detected in the regions of South Aegean, Crete and Central Macedonia, which account for almost the two thirds of incoming tourism demand, whilst the highest concentration is detected in the regions of Western Greece, Western Macedonia and Epirus, which accumulate less than 5% of incoming tourism demand.

Since the level of concentration in an industry is an important factor of the market structure, the economic policy implications of these findings would be of some importance for the relevant authorities. Future research efforts should investigate whether alternative measures of concentration and/or methodology could give differentiated results and examine the evolution of concentration in the industry over time.

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## Proposals for Entrepreneurial and Tax Innovation Policies: A Study of Greek SMEs

### **Abstract:**

The role of SMEs is of paramount importance for any individual economy as well as the global economy alike. Greek SMEs, continue to play a significant role for the Greek economy during the depression time the respective economy is going through, by offering employment and creating a great proportion of total value added. However, the negative impact of the financial crisis on the Greek SMEs has been even more pronounced with the suspension of the operation of thousands of businesses. Consequently, it is also of great significance for Greece to introduce appropriate policies to reinforce Greek SMEs viability, solvency and liquidity as well as for the Greek SMEs themselves to take the required action in order to enhance their innovative and entrepreneurial performance. However, in order for the above specified action to be taken, a series of main obstacles such as limited ecological consciousness, constantly changing tax laws, limited finance provided to innovative SMEs by the banks as well as their limited cooperation with universities and knowledge institutions have to be overcome. On the basis of all of the above in this paper a series of proposed policies for helping the Greek economy and SMEs will be presented and discussed.

**Key words:** SMEs, innovation, innovative entrepreneurial performance, innovative tax policies, finance, growth.

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## 1. Introduction

The paramount role of Small and medium-sized enterprises (SMEs) for social well being and economic prosperity of countries has been recognised and acknowledged by governments throughout the world.

Over the last years, it has become evident that the international financial environment, being at the peak of the global financial crisis, has deteriorated, greatly influencing business expectations and consumer confidence internationally. Due to this reality, all of the economies worldwide face additional difficulties and challenges for their businesses' viability and individuals' prosperity alike.

With respect to the financial state of the Greek economy this has followed a steady deterioration route since March 2008, which has led to a low level of the relative financial indicators and indices since the beginning of that year.

The aim of this paper is to present a series of proposals for specific action that needs to be taken by Greece and Greek SMEs alike in order for the latter to improve their innovative and entrepreneurial performance and the former obtain the benefits derived from the developed business activity. However, in order for these proposals to be made a brief outline of the role and contribution of SMEs (with a focus on Greek SMEs) is priory presented and discussed.

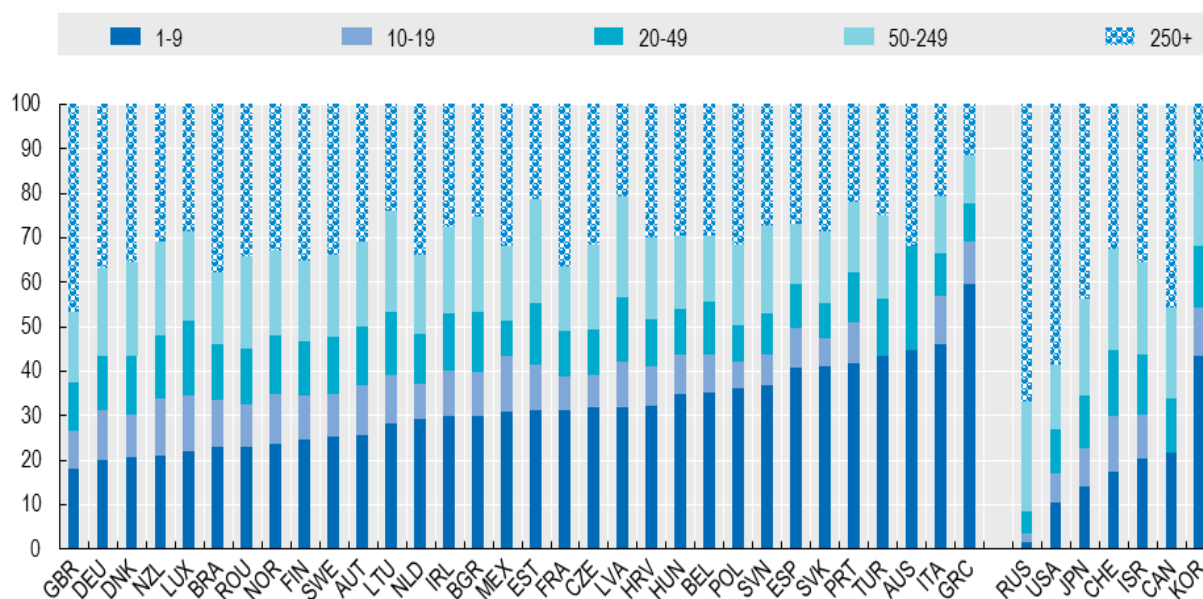
## 2. SMEs' role and contribution

In this section, a synthesis of the current state of knowledge about small and medium-sized enterprises (SMEs) and their contributions to economic and social well-being.

### ▪ SMES as the main source of jobs in the business sector

SMEs comprise key players in the economy and the wider eco-system of firms. Through, enabling them to adapt and thrive in a more open environment and participate more actively in the digital transformation is essential for boosting economic growth and delivering a more inclusive globalisation. Across countries at all levels of development, SMEs have an important role to play in achieving the Sustainable Development Goals (SDGs), by promoting inclusive and sustainable economic growth, providing employment and decent work for all, promoting sustainable industrialisation and fostering innovation, and reducing income inequalities (OECD, 2017).

**Figure 1.** SMEs are the main source of jobs in the business sector



Source: OECD (2017), Entrepreneurship at a Glance 2017, OECD Publishing.

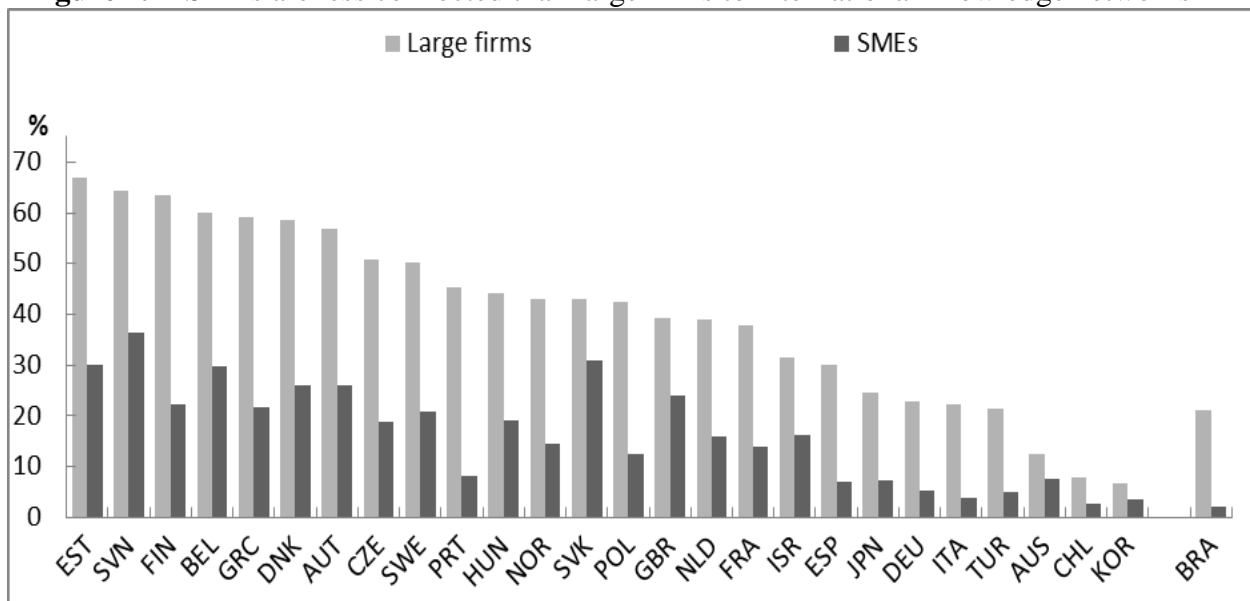
As reflected in Figure 1 above, the significant contribution of Greek SMEs (GRC) as a source of employment in the business sector comes from micro-enterprises that provide almost up to 60% of total employment, while in the rest of the countries, the percentages are more evenly distributed by business capacity with Russia and the US being the opposite example where the largest share comes from enterprises employing 250 people and above.

#### ▪ SMEs as significant contributors to innovation

Although not all SMEs are innovative, new and small firms are often the driving force behind the sort of radical innovations that are important for economic growth. (Baumol, 2002; OECD, 2010b). Nevertheless, a key challenge for many SMEs is to identify and connect to appropriate knowledge partners and networks at the local, national and global levels, as well as to develop appropriate skills and management practices for co-ordinating and integrating knowledge (OECD, 2013b).

Figure 2 below reflects the connection of SMEs to international networks in vis-à-vis their large counterparts. It is apparent that Greek SMEs compared to their large counterparts have one of the most proportionate connections to international knowledge networks which in turn means that they make significant efforts for innovation

**Figure 2.** SMEs are less connected than large firms to international knowledge networks

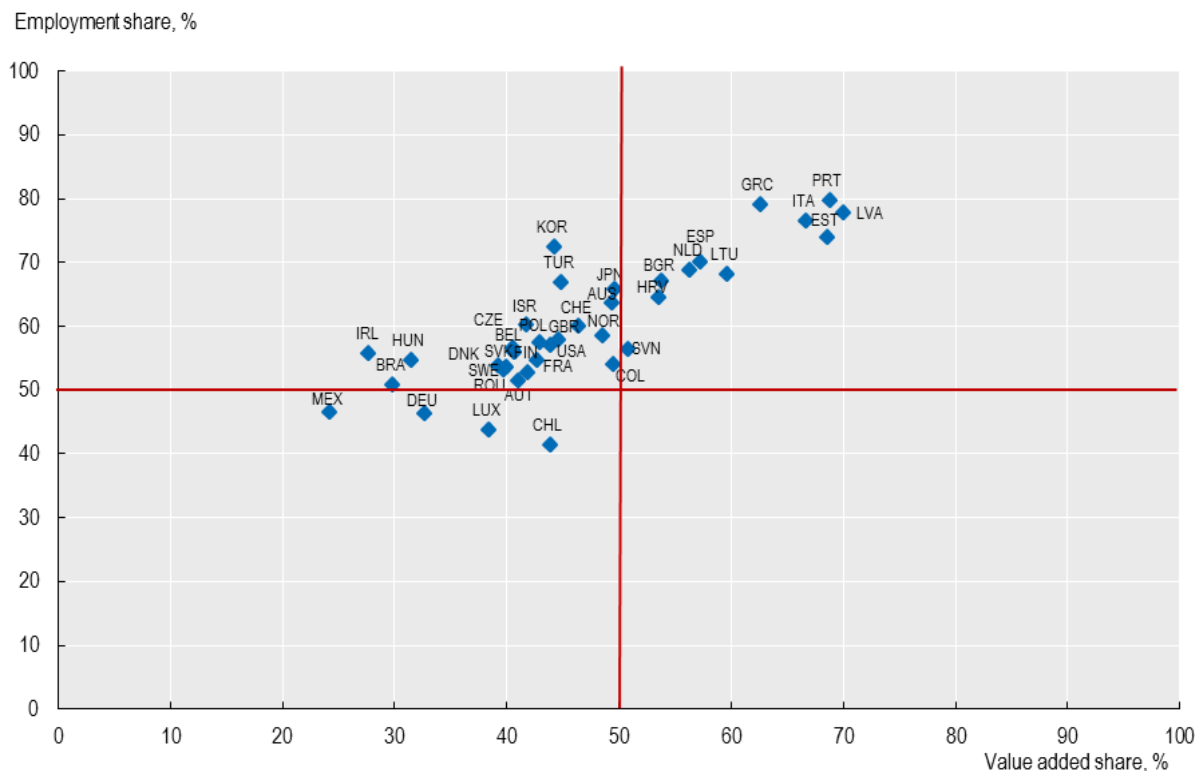


Source: OECD (2017), OECD Science, Technology and Industry Scoreboard 2015, OECD Publishing, Paris, based on Eurostat Community Innovation Survey (CIS-2012) and national data sources, June 2017.

#### ▪ SMEs as significant contributors to the employment and creation of total value added

SMEs comprise a dynamic and evolving population with their composition varying widely across countries and sectors, with implications for their ability to thrive in and contribute to economies with respect to a share offered in employment and a percentage in value added share. In relation to these two variables –axes Greek SMEs present one of the optimum performances, meaning that they have an 80% share of the employment rate and a value added share of 63% (see Figure 2 below).

**Figure 3.** There are large differences in the SME contribution to employment and value added across countries, particularly in manufacturing



Source: OECD (2017), *Entrepreneurship at a Glance 2017*, OECD Publishing: Paris.

### 3. Economic Crisis and European Entrepreneurship

As SMEs are defined by the E.C. and the OECD companies with fewer than 250 employees have an annual turnover not exceeding € 50 million or have an annual balance sheet total not exceeding € 43 million. With regard to the importance of SMEs in the European Union (SMEs), they account for 98% of European enterprises and over 99% in Greece, with 55% of jobs in the private sector, while presenting a high innovation potential Production processes, products and services (IME, 2014).

The global impact of the financial crisis has shown that economic reality is moving much faster than political reality. Thus, the negative impact of the economic crisis and its emergence has resulted in a sharp drop in employment in SMEs, a sharp fall in added value generated and the number of SMEs.

Recent economic crisis did significantly influenced businesses both from demand and supply side. The combination of the economic downturn and fiscal austerity is negatively influencing aggregate demand (Bergthaler, Kang, Liu & Monaghan, 2015). On the other hand the banking crisis led to tougher credit conditions. Economic surveys (EC, 2013; OECD, 2012;) indicating, that SME's are more vulnerable to both shocks than the large companies

The negative impact on Greek SMEs has been even more pronounced with the suspension of the operation of thousands of businesses, an extremely unpleasant situation which is compounded by the refusal of banks to provide financing on the one hand and the increase in lending rates on the other (Katis, 2014).

Very significant is the well known National Strategic Reference Framework NSRF (co-financed and assisted by Greek Government and the European Community-E.C.) linked to the National Reform Program to support and strengthen the economy and entrepreneurship is also important. So we have the NSRF 2007-2013 and the NSRF 2014-2020.

However, the NSRF funds that became successively available were not absorbed to the maximum extent of their availability by the Greek economy due to the fact that Greece did not succeed to a large extent to design or present credible projects that would ensure the maximum support that these European Funds were provided for. The oxymoron in this case lies in the fact that although the Greek economy and its SMEs were in great need for such a kind of 'financial injections' at the same time this proved to be a missed opportunity for the Greek economy since the country was in a period of economic contraction, depriving the economy of the ability to make the most of the available funds, vital for boosting Greek entrepreneurship through the design of appropriate projects. However, there is an indication that Greece is increasingly absorbing Community funds lately. According to the World Economic Forum WEF reports, Greece (2016-2017) is constantly losing its position on the global competitiveness scale. Specifically, according to the WEF evaluations and relevant reports, Greece is less competitive than Latvia, Bulgaria, Rwanda, Albania, Kazakhstan, Colombia, Peru, FYROM, Turkey, Morocco, Iran, Sri Lanka and others. Greece has been ranked among the last E.C. countries in terms of competitiveness (OECD, 2017).

The findings also show that the performance of Greece, affecting the innovation and competitiveness of the country, fall far short of E.C. countries because of significant barriers which are directly related to: the unstable institutional framework, the highest bureaucratic costs, inefficient targeting of spending on technology and research, the lack of information on sources of funding, the lack of culture of innovative entrepreneurship, the traditional structure of the enterprises, introversion and fear of change and possible failure of innovation (IBRD, 2013-2017).

Another important obstacle to the Greek SMEs' entrepreneurship and innovative performance stems from the increase in taxation rates even during the period of financial crisis, resulting in a reduction of the innovative efforts of SMEs. It is concluded on the basis of the results of the survey that the major problems faced by Greek SMEs and which impede their operation are related to high taxation, high operating costs, intense competition from cheaper imported products, competition from larger companies (IME /GSEVEE 2013-2016). Finally, and as far as the extent to which the business environment assists the development of business activity, Greece is ranked lower than the OECD average ranking in terms of business promotion, investors' protection, insolvency resolution, all of which result in negative consequences for Greek SMEs and the Greek economy alike (IBRD- World Bank 2013 -2017).

On the basis of the brief outline of Greek SMEs' profile and the problems faced, the following proposals are put forward. These proposals are divided into three discrete areas: a) proposals related to introduction of innovation (technological, green innovation, human resource management innovation), b) proposals related to Greek SMEs' entrepreneurship, c) proposals related to the introduction and application of taxation innovation (Katis, 2016).

#### **4. Proposals<sup>2</sup>**

On the basis of the brief outline of Greek SMEs' profile and the problems faced, the following proposals are put forward. These proposals are divided into three discrete areas: a) proposals related to introduction of innovation (technological, green innovation, human

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<sup>2</sup> All the proposals that are being discussed below have been made by the author of this paper.

resource management innovation), b) proposals related to Greek SMEs' entrepreneurship, c) proposals related to the introduction and application of taxation innovation.

#### **4.1 Proposals for innovation**

##### **4.1.1 Proposals for applying technological innovation to SMEs - Smart Factories.**

Considering the recent trends in the production process of many developed European countries (2012-2014) there is an increasing automation and codification of the production process followed by SMEs (Geneva, 2013). Greece, where the production process of its SMEs is burdened with a variety of high production costs, rendering many of them uncompetitive and with limited innovative production, needs to promote appropriate policies to create technology-efficient and smart production lines in Greek SMEs. This requires the implementation of innovative business and production processes based on IT systems to optimize the performance of the available equipment, minimize possible negative effects, and prevent or even eliminate production errors. It is therefore specifically proposed the following:

- Provision of State aid to productive SMEs for the recruitment of specialized technical staff capable of managing "technological upgrades" of production lines
- Promotion of European funds to entrepreneurs so that they can deploy energy-efficient large-scale infrastructure projects for the operation of the business so that the investment reduces energy expenditure saving at the same time SMEs' financial liquidity to meet other business needs.
- Reduction of the bureaucratic process and the paperwork that small technology companies are required to produce for their certification of operation.
- Use of State financial as well as European Community funds (Horizon 2020, ERDF - Jeremie) for the introduction of new technological equipment by the Greek SMEs which aim: a) to establish appropriate infrastructure to make use of low-cost alternative raw materials and resources and b) to produce innovative and competitive products, especially products that are to be exported.
- In line with the practice of many European SMEs, it is also recommended for Greek SMEs to use the Internet and other forms of information (through ICT applications) in order to better understand the new needs of their clientele and to promote innovative products and services to them at a small cost.

##### **4.1.2 Proposals for Green Innovation to be implemented by SMEs**

The inclusion of SMEs in the new global innovation stream is assisted and encouraged by the European Union (Strategy for Europe, 2020, LIFE) as a whole, benefiting each Member State in this direction with the ultimate goal of creating "green" SMEs. However, in order to make it possible for Greek SMEs to participate in new innovative actions, reform policies are needed to maintain their competitiveness and long-term sustainability by introducing green innovations, adopting a selected "green" business policy, and implementing ecological Low-cost practices (IBRD, 2014). It is also noteworthy that the economic crisis has reduced Greek consumers' purchasing power and their willingness for buying ecological products and services. In order for green eco-innovation in Greek SMEs to be promoted, the following are proposed:

Simplification of the environmental legal framework applicable to SMEs in order to alleviate administrative burdens, reduce waiting times and facilitate their operation. In more detail, the standardisation of environmental regulations for SMEs facilitates their participation and

assists them to achieve a more organised environmental framework for their operation (OECD, 2015).

#### **4.1.3 Proposals for Innovative Human Resource - HR Policies**

The support policy for the SMEs' innovative entrepreneurial development is determined and influenced, amongst others, by the human resources of the enterprise. Without taking this under consideration, any innovative initiative is difficult to be applied. For this reason, the policies suggested to reinforce the appropriate HR for SMEs include the following:

- Focus on the training and the development of the general skills and the human resources' capabilities of the Greek SMEs, so that their further professional education and development is feasible and easier in modern professional sectors through re-education or lifelong learning programs.
- Provision of financial support for the cooperation of the Greek SMEs with universities, both public and private, in which SMEs' employees can receive top-level training and qualifications, always relevant to their area of specialty, in order to contribute to business innovation objectives of SMEs.
- Planning of employment policies for new polytechnic and technological scientists, aiming at their faster absorption from the labor market and avoiding the migration of these scientists, so much needed by the Greek economy, especially at its present state.
- Promotion of greater financial incentives for the SMEs, in order for enterprises to participate in employment policies that will act against unemployment and will help the employees of SMEs to remain active members of the labor market.
- Provision of financial incentives to local SMEs in order for them to promote their cooperation and develop a regional trading network to further strengthen their competition vis-à-vis big companies.
- Promotion of active participation of human resources in the planning and production processes of innovative products and services implemented by the Greek SMEs, so that their work experience, know-how and ideas are adopted and integrated by the enterprises in question, within the context of their operation and business strategy planning
- Provision of support and reinforcement to the HR bodies and organizations in charge of improvement of the conditions and quality of life of SMEs' workforce at their workplace. Satisfied employees are usually the ones who exhibit willingness and determination to innovate in every form of entrepreneurship they are involved.

#### **4.2 Proposals for improvement of Greek SMEs' entrepreneurial performance**

- Implementation of the necessary reforms for the reduction of the non formal and illegal economic activity of SMEs that distort the healthy and productive competition among SMEs.
- Reform of the procedures followed by the State Organisations of public utilities when called upon to serve the SMEs, with a view to reduce service time and improve the quality of the service provided to SMEs.
- Implementation of ever-evolving reforms aiming at the rationalization of the system of justice of the SMEs. These reforms will include the simplification of the procedures for resolution of tax issues and other administrative differences between the State and the SMEs.
- Development of a vocational training and skills development system based on the needs of SMEs. This requires sound and effective cooperation between the state and business organizations under the possible guidance of global organizations with extensive experience and expertise in the creation of training and skills programs.
- Strengthening and reinforcement of the cooperation between universities and SMEs for

the promotion of the businesses' efforts in the Greek economy

- Improvement of the Greek entrepreneurship in order for foreign direct investments FDI's to be attracted under special agreements and "Fast-track" administrative procedures, so as to make the Greek macroeconomic environment more friendly towards FDI. The multinational companies involved in FDI usually cooperate with local SMEs and this in turn promotes the diffusion of the innovative perception and respective practices applied in the wider economy.

#### **4.3 Proposals for the Introduction of Tax Innovation Policies**

During the ongoing economic crisis, Greek SMEs faced a decrease in the demand for their products and services, which led to a decrease in their liquidity, as well as to an unprecedented ongoing evolution of taxes underlined by unfair and anti-development tax laws and regulations. As a result, many SMEs have closed down, creating huge economic and social problems, while those who are still viable have reduced their staff, their innovative efforts and investments, or alternatively they have moved to neighboring countries with negative effects on the country's GDP. Apparently, the results of the tax policies applied affect the GDP of a country, and according to five independent variables (patents, R & D personnel, R & D expenditure, exports and investments) the negative effect on the country's GDP can be positively affected (Katis, 2016). Proper and fair fiscal policy can affect positively sectors of the economy and promote development and growth. Greece needs a new innovative tax policy that will help entrepreneurship survive and grow by investing in innovative practices that increase the output produced, making it competitive and exportable.

Based on the above, the following relevant proposals are made:

- Particularly careful measures have to be taken, targeting government interventions, including tax aid to the SMEs, so as the respective objectives are achieved. Any tax arrangements for the SMEs should not increase the complexity of the tax system.
- Application of corrective measures to address asymmetry issues in the tax treatment of the of the SMEs' profit and loss results. In particular, what needs to be addressed and corrected is the fact that, while the profits of a SME are taxed according to the year they incur, the losses are not always reversed to a large extent at the time they incur, but they are transferred to the following financial years in order for them to be rebutted at a percentage relevant to future revenues. This does not promote entrepreneurship while it also creates many problems in SMEs' liquidity.
- Application of a lower tax rate, below 10%, to the initial revenues of SMEs regardless of their total level of revenue in order to strengthen their presence in the sector and their continuity of operation. At later stages, this rate can be adjusted in line with the profitability of each SME and the basic tax rates.
- Extension of preferential taxes application to innovative SMEs so as to achieve the following:
  - ❖ Increase of the amount of the after-tax profitability that is available for reinvestment and growth.
  - ❖ Creation of more liquidity for the SMEs through a reduction of tax rates during this difficult economic period. These liquidity savings can be used in turn, for the financing of the daily needs of the SMEs or the needs for investment and development.
- Increase of the depreciation rates of the SMEs, since by increasing them the tax burden imposed on the SMEs is reduced and hence more liquidity is generated and greater funds are available for investment.
- Reduction of the tax rate of the SMEs in relation to the increase of their staff. By this way, entrepreneurship is supported and, simultaneously, the social community in Greece is strengthened, since it is plagued by unemployment and professional contraction and

movement of a great part of scientific force abroad in search of a more promising professional future. This specialised scientific staff could promote the innovative effort of the SMEs and the Greek economy.

- Application of a tax deduction system that reduces even more the tax burden on an SME when it relates to R & D expenditure than to any other form of operational investment. This increases the net present value of research projects, making them more attractive for an SME to invest and complete. It is also proposed that a tax deduction to be applied on the income of scientific staff working in research centers (public/private universities) to create innovative products or services.
- Application of more favorable tax conditions and rules for the new and innovative SMEs. The potential of tax refund or deduction for these SMEs is higher than in large companies, thus giving incentives to prospective investors to invest in new innovative SMEs and start ups. However, in order for these tax refunds to be provided SMEs and their owners will have to meet the basic criteria of tax compliance over the last three years.
- Another form of enhancing the functioning and sustainability of the SMEs that can be implemented is the one that involves a reduction in employment taxes, ensuring thus more liquidity for the SMEs to meet their immediate needs and investments.
- In view of placing greater emphasis on the forms of preferential tax practices to promote alternative forms of SMEs financing in Greece, due to the lack of liquidity, it is proposed to reduce the taxation of investors who lend or invest money in the SMEs operating in the leading sectors of the Greek Economy (tourism, rural craft / industry, technology etc.) or new SMEs start-ups. The tax reduction can be applied as a percentage of the total tax liability of the investor or the lender.
- Establishment of a competent government agency to liaise and cooperate with the Enterprise European Network, the operation of which is supported by the European Commission and aims at the linking of innovation with internationalization policies, so that the Greek SMEs can make the most out of the interconnections and business opportunities provided in the wider E.C. business environment.
- Making of a decision by the state so that risk capital, also known as business angels, who want to finance the often precarious operation of SMEs, can have significant tax breaks, since the banking sector is not providing enough liquidity for entrepreneurship.
- Reduction or elimination of any form of double taxation of SMEs' profits. The profits of the SMEs after being taxed once should not be taxed again or alternatively taxed at a very low rate when declared by the owners or investors of SMEs. This promotes the increase of the investment altitude of the economy.
- Modification of the complexity of the tax laws, especially over the past five years, due to the fact that they create problems for the SMEs and especially for micro-enterprises that do not have access to cost accounting in specialised accounting offices.
- There has to be established a framework of same tax treatment of the same SME issues by all of the Ministries involved. The competent Ministries have to cooperate so that any tax law on entrepreneurship and SMEs does not contradict with the aspirations of the other Ministries or the Government as a whole.

### **5. Potential problems and likely obstacles to the implementation of the proposals**

The selected proposals in the previous section aimed to provide answers on what forms of innovation and tax policies are appropriate and necessary for Greece and which of them can be implemented by state and private sectors and 'players'. However, the acceptance of the proposals presented above may encounter problems, particularly in their adoption and implementation by the state mechanism, and also several of them by the business community.

The main causes of these problems relate to the following:

- For the small and the micro-enterprises of the region, it is very difficult to innovate due to their size, despite the support that can be offered to them by the European support programs. Their collaboration with the regional university research centers on the subjects of innovation and development will help them develop the required innovative culture.
- Although Greece is highly classified with respect to innovation indicators scale of the SBA, the European Innovation Scoreboard, and in the Global Competitiveness Report, it is still difficult today to be imprinted across the spectrum of Greek entrepreneurship. The main reason for this is that the remaining SMEs are more trying to survive the economic crisis and less to innovate in their sector. This creates problems for the growth and the competitiveness of the Greek economy.
- The search for executive staff, capable of contributing to the innovative and ecological effort of SMEs is a rather problematic and defective process at this moment. The main causes of this phenomenon are the movement of many capable scientists abroad, the status of plenty young scientists who have been left without employment for the past 6 years, and this in turn, has affected their effectiveness, while several young scientists having been also absorbed by the public sector.
- Ecological consciousness in the production process that underlines for example green innovation is still far behind in the minds of entrepreneurs, although there are many opportunities and European resources for this kind of production.
- Limited cooperation is registered for the promotion of innovation between university institutions and small and medium-sized enterprises.
- The recent economic policies that have led the economy to internal devaluation, decline of purchasing power and increase of social unrest, have forced many big companies (both foreign and Greek) to carry out their activities abroad. This has created problems to SMEs for two reasons: a) they lost customers and b) large companies consist one of the principle means of innovation diffusion in small and medium-sized entrepreneurships when they cooperate with SMEs.
- The continuous and frequent changes, since 2010, in the staff and administrative structures of the Ministries that relate to entrepreneurship and SMEs have further decreased their support and the possibility to get better information and make better use of the state and community aid.
- Frequent changes in tax laws on entrepreneurship create instability in the economy and weakness in predicting the tax burden on SMEs even in the following year.
- There is no adequate preparation and full understanding by the State and Institutions for tax relief of competitive sectors of the economy (tourism, rural crafts / industry, software) that create new jobs, promote exports and increase Greek economy's surplus value
- Large-scale taxation of SMEs, due to EC and IMF pressures for greater fiscal adjustment of the Greek economy, is continued, while little space is remaining for maneuvers to improve the tax-related provisions of the Tax Administration. However, this cannot be continued and cannot be sustained by the Greek entrepreneurship and the Greek economy. The time to implement a new innovative tax policy by Greece and respective Institutions that will give hope to all involved has arrived.
- It is anticipated that banks, due to the current economic conditions, the European ratings and the restrictions of Basel III, will continue to provide reduced liquidity to SMEs
- The new alternative forms of financing require the preparation of an appropriate legal framework for the security of borrowers and investors alike. The implementation of the legal framework in some of these financial tools has not yet been implemented.

- The financial means offered by the various European funds to innovative productive enterprises are still not well known to the Greek SMEs (Katis,2014)

## 6. Conclusions

On the basis of all of the above it becomes clear the action that needs to be taken in order to assist Greek SMEs to make the most of their intellectual assets as well as of current and potential State policies. A holistic approach is apparently critical to be followed since the broad umbrella of SMEs' policies, in innovative entrepreneurship and tax innovation, includes areas that cut across the boundaries of different Ministries and Government agencies requiring close consultation with other stakeholders, mainly including the business sector, trade unions, and financial institutions (Wagner, 2015). Great attention has also to be paid to how policies developed at national level can be tailored to local conditions, as well as to framework conditions and policies that are shaped at the regional or territorial level (OECD, 2016e). A properly designed strategy for SMEs will bring value added by delivering a comprehensive framework, by identifying key levers for enhancing SMEs' contributions to sustainable and inclusive growth, providing guidance to support policies and yardsticks for measuring progress. An organisation that has the history and the required know how to undertake such an initiative is the well known OECD since for more than two decades has been at the forefront of international SMEs' policy dialogue and efforts to provide an evidence base for more effective SME policies in both OECD and non-OECD Members. Thus Greece as an OECD member can be benefited from the diffusion of knowledge and expertise in the organisation.

Finally, in order for an effective strategy to be designed based on the policies suggested above a clear understanding has to be achieved in relation to the combined effects of the reforms that will result from the implementation of these policies aiming to foster innovation, skills development and sustain business dynamism. Completing this paper the author wishes to stress the significance of: the identification of potential synergies across diverse policy areas, the recognition of heterogeneity of the SMEs population and the acknowledgement of the multidimensional contributions SMEs make to the economy and society.

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## Demographic Changes and House Prices: A case study of the German Detached Houses

### **Abstract:**

According to research, by the year 2050 the German population will see a significant decline in its numbers. German cities especially in the east have already recorded a population decrease leaving big blocks of houses completely empty. The housing market is an area expected to be greatly affected by this event and this will change the relationship between supply and demand factors. There are many studies which have focused on the analysis of this known relationship. However little attention has been given to housing submarkets and the degree of the impact to them. Our study targets in the investigation of parameters that affect housing submarkets in Germany's metropolitan and big cities. The study shows that births, population change and the size of the city are variables that play a significant and negative role to future prices of the under-analysis housing submarkets.

**Keywords:** Real estate; demography; housing submarkets; housing prices; spatial planning; demographic boom;

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## 1. Introduction

Europe's demographic mosaic is expected to change significantly over the next decades. According to many studies and research approaches the European population is expected to become older. The reason for this development has been attributed to three major factors. The first is the baby boom generation which approaches the retirement age and as a result the share of older people will rise significantly. The second factor is the fact that birth rates have remained low for a significant amount of time and finally we are all simply living longer and healthier lives.

In Germany, population projections show that the German population by the year 2050 could fall to as low as 69 million (Statistisches Bundesamt, 2003). Signs of such a decline have already started to show. In 2006, the German population was 82.3 million, 130.000 less in relation to the population recorded at the end of 2005 while in 2016 it was estimated at 82.1 million people (Berlin- Institut fuer Bevoelkerung und Entwicklung, 2006). Although the total population of Germany increased in 2001 and 2002, it has been falling ever since. In 2006, there were 675.000 less births in relation to 2005 when there were 686.000 births. In 2011 there were born 662, 685 babies which is also the lowest number of births that Germany has seen since the end of World War II. The German government ease at least until 2012 the immigration rules in order to attract more immigrants and boost the inner workforce. Since 2012, immigration like the birth rate has fallen in numbers too. In order to be more specific, net immigration falls from 79.000 in 2005 to 20.000-30.000 in 2006 and it is rising again after 2010.

In addition, population ageing and shrinkage are expected to affect the German states in different degree and this will result in the development of new standards and new areas of research. Moreover, the event of the German reunification (occurred in 1990), was a significant event that changed the demographic mosaic of the country and must be considered to any study related to the demographic change of the country. More specific, German states situated in the south and west of the country, due to this event, gained economically and demographically from the inner population relocation while the states situated in the east of the country saw their population to decrease significantly. Because of the incident described previously, soon, Germany's southern cities will be less affected by the future demographic aging, while eastern cities will experience significant losses by the year 2050 (Bundesamt fuer Bauwesen und Raumordnung, 2003; Berlin-Institut fuer Bevoelkerung und Entwicklung, 2006).

Demographic changes, like those previously described, have also triggered the nation's mechanism. More specific, policies and plans have been developed in order to ease the expected economic impact of the demographic ageing and decline. Economic areas which will experience great losses include the pension and health care system, the nursing care and of course the insurance system. For these areas a large amount of studies and research has been made but the burden falls almost completely on the impact of the forthcoming population ageing, and less on the event of population decrease or the birth decrease. Little attention has also been given to other areas, of similar importance like the housing market on the regional level and how the future demographic reality will affect housing submarkets that currently exist. In addition, in an environment like the one observed in Germany little attention has been given to the geographic location of the city, as well as its past population status.

The relationship between financial markets and age distribution has attracted a lot of interest. Milestone to that direction is considered the seminal work by Mankiw and Weil (1989) who found a significant positive relationship between average house prices and demand. A negative and statistically significant correlation has been identified between age distribution and real housing prices in the U.S. by Engelhardt and Poterba (1991) with the use

of time series data. Poterba conducted a regional analysis for the U.S. market and concluded that a significant correlation between house prices and housing demand exists. Few years later, Poterba again in 1998 didn't manage to establish a statistically significant correlation between specific age cohorts and certain asset categories like bonds and stocks and the main reason for this outcome was the fact that the available data at the time were very limited. On the other hand, the same year Bergantino (1998) managed to establish this relationship with the use of data from the Survey of Consumer Finances database. In order to be more specific, he managed to establish the link between real stock prices and aggregate demand for financial assets. In the same field of research Brooks (1998) also presents evidence from the relationship between stocks, bonds and people that were at the time at middle-age which he founds to be positive and statistically significant. DiPasquale and Wheaton (1994), proposed a gradual price adjustment process and found a significant correlation between housing prices and demographic variables.

In relation to housing demand, Ermisch (1996) established a strong correlation between age and the housing services demanded. In the same area, Lee et al., (2001) in his study for Austria found out that demand is affected by the demography. Another important study is the one conducted by Neuteboom and Brounen (2007) which based on their model predicted that there will be an increase in housing demand which is strongly affected by the household age. Similar results were also presented in the study of Eichholtz and Lidenthal (2007) in relationship to future demographic reality and housing demand. In their case, they examined English households and their research showed that human capital is affecting highly the housing demand. Another important conclusion reported in their study was that variables like education affect the demand positively, while variables such as chronic illnesses have a negative effect.

In conclusion, in all the above studies the basic result is that age distribution and generally demographic variables do affect in some way housing demand and prices. However, based on the current literature there is no studies that have examined the relationship between population decline on specific housing submarkets. German states offer a unique area of study for such a research and this because as we have already mentioned, there are many cities that are experienced population decrease while at the same time housing submarkets can be identified. In this paper we make an attempt to present the results of the investigation of future prices for terraced and detached houses on the level of regional metropolitan areas (referee Staude) and big cities (referee Grosse Staudte). The states selected for this sort of research were Bavaria, Northern Westfallia and Baden – Wuerttemberg. Demographic changes are of central importance in this study, while other variables have also been included in the analysis like births, net immigration, the gross domestic product, construction costs and others.

## **2. Theoretical Background of Housing Submarkets**

In the available literature, there are two main theories that explain the existence of housing submarkets. According to the first, housing submarkets exist because the real estate market exhibits multiple states of equilibrium (Goodman, 1978). This means that every submarket reaches the equilibrium state at a different time than another submarket and this assumption goes along with the mainstream and dominant economic approach. The second theory supports exactly the opposite which is the event that the housing submarkets exhibit different disequilibrium stages (Maclennan et al., 1987). Variables such as search and information costs have been found to be highly associated to prices of housing submarkets, but these variables make the idea of equilibrium inappropriate to be assumed. Moreover, the hypothesis regarding the state of equilibrium wants the housing market to “clear” but this does not occur for a number of different reasons, like the durability characteristic or the financial and

psychological costs that affect households when they decide to relocate. All these factors make the “clearing” process very slow (Pryce, 2000).

Housing prices are affected by a different number of variables beside those already mentioned and this results in the creation of different housing submarkets. In other words, these variables that affect housing prices at a different degree results in the creation of housing segments that respond similarly to possible attribute changes due to heterogeneity of the good house (Bourassa et al., 2002). In addition, for every group of residencies there is a corresponding group of households that share common characteristics and based on this assumption the housing market can be segmented. The basic idea that lays behind this idea is the fact that each residence gathers a set of attributes that makes the residence -more or less-desirable (Kauko 2001; Maclennan et al., 1986).

Housing submarkets are also created due to constraints created from buyers that want to benefit from lower prices (Kauko, 2001). The process of house acquisition is twofold. The household consumes capital but at the same time it makes an investment. In addition, each household expects to acquire different future gains from this sort of investment and as a result its decision is affected greatly. Due to the transaction, information and search costs the adjustment process is hard to be achieved because most buyers are poorly informed regarding the dynamic of the market and even less informed regarding the alternatives they have. Only if an attempt is made to gather as many information as possible can help to overcome this obstacle. However, this procedure is very costly and time consuming (Maclennan et al., 1987). From this side, agents play an important role since they are responsible for distributing information regarding residencies which in return results in the segmentation of the house market (Palm, 1978). Furthermore, it must be pointed out that to the author’s knowledge and based on the available literature the role of agents and their contribution to market segmentation has not been investigated.

The academic literature has revealed many studies that deal with the issue of how housing submarkets can be segmented. Some make use of the administrative boundaries (Clapp and Wang, 2006; Maclennan et al., 2006; Chesire and Sheppard, 2004a). Others make use of the political boundaries (Stratzheim, 1975; Ball and Kirwan, 1977; Adair et al., 1996). Socio-economic and environmental characteristics have also been used (Galster, 2000) while we found also a study which attempted to segment the housing market based on the number of rooms available in the residence (Schnare and Stuyk, 1976). Bajic (1985) and Rothenburg (1991) concluded that the housing market can be divided based on the area they cover and other based on the cost of the information (Palm, 1978; Michaels and Smith, 1990; Bourassa et al., 2003; Keskin, 2009). Finally, the type of the property or the type of the residence has also been extensively used (Goodman, 1981; Hancock, 1991; Pryce, 2004; Adair et al., 1996).

All the above-mentioned approaches used in the definition and analysis of housing submarkets reveal how complex the housing market is. Many variables must be considered and usually it is very difficult to be considered in one model alone. In addition, the cities, regions and neighborhoods are constantly changing, creating even more difficulties in the analysis process since markets change as well. The interest however for this field of science remains unchanged among experts. The reason for this interest is the fact that housing submarkets reveal information regarding the asymmetries in adjustment in local shocks (migration, environmental shocks etc.), interact with variables such as employment, transportation and criminality and provide information in relationship to the value of amenities and the consumer behavior (Bates, 2006; Pryce, 2005).

### 3. Methodology

This study tries to analyze average detached house prices of the German metropolitan and big cities, making use of the model previously developed by Engelhardt and Wheaton (1994) and the log log approach previously introduced by Engelhardt and Poterba (1991). The variable “Detached Value” is the arithmetic mean of the house prices recorded for the years 2000-2010 and were supplied by RIWIS and IVD. As we have already mentioned our analysis include metropolitan and big cities data from three distinguished German states and these states are Bavaria, Baden – Wuerttemberg and North-Rein Westphalia. In total, we have available data from 121 cities and from these 43 are in North-Rein Westphalia, 28 in the state of Baden Wuerttemberg and 15 from the state of Bavaria. The rest were supplemented by IVD (Immobilien verband Deutschland).

The analysis follows the equation developed by DiPasquale and Wheaton (1996) where population changes of the cities in the sample are tested. Population data were provided separately from the three statistical offices of the three states. In general data revealed that in most cities the population fell in average 4% to 6%. Similarly, to the population data, the total number of births, immigration statistics and the total number of constructions for residential buildings, houses and space were provided by the three statistical offices of the states. GDP another important variable included in the model is freely available from the BBR online database and it was considered in the estimation equation. Finally rent prices were also provided by both RIWIS and IVD.

The equation finalizes as follows:

$$\text{Ln}(\text{Detached\_Value}) = b_0\text{Ln}(\text{RENT}) + b_1\text{Ln}(\text{Pop}) + b_2\text{Ln}(\text{GDP}) + b_3\text{Ln}(\text{Costs}) + b_4\text{Ln}(\text{Constructions}) + b_5\text{Ln}(\text{City\_size}) + u(1).$$

Where  $u$  is the error term. The variable “costs” refers to construction costs per square meter with an arithmetic mean of about 1.347 Euros.

### 4. Regression Results for Detached Housing Prices

In table 1 we present the results of the regression analysis conducted for detached house prices. Following the cross-sectional approach of the model proposed by DiPasquale and Wheaton (1996) rents (RENTS), population (POP), the variable gross domestic product (GDP) and construction costs (COST) are the basic variables that affect housing prices of detached houses.

Starting with the first model that was tested it can be said basically that the results confirm our initial assumptions. As expected rents do play an important role in detached house price estimation process. The reasons for such an outcome are obvious and they have been confirmed in several different studies. More specific, rents and prices do move similarly because they are much affected by the general economic conditions which are set. If the economic conditions of the country are improving people tend to buy or relocate to better houses and as a result the demand for accommodation increases as well. On the other hand, the available housing buildings or differently the housing stock a variable represented by “Const” is found to be only in the first model significant at the 10% level. The relationship with prices is negative. Same results were found for the variable “Con\_New” which represents then newly built residential space. At this point it must be mentioned that at first, we used the same variable only instead of space we used the number of residencies built during the under-examination period. The result was high collinearity and for that reason we used the residential space measured in square meters.

As expected total population, the gross domestic product and the construction costs were found to be positively and statistically significant to prices of detached houses. To be

more specific, an increase in the gross domestic product or the total population or the construction costs will result in price increases as well. All three variables like in the case of rents are greatly affected by the general economic conditions of the country and the cities themselves. In model 2 we substituted the variable “Rent” with the variable “RentF” which represents rent prices for houses that are occupied for the first time. Again, the results showed nothing unexpected. “RentF” was found to be positively and statistically significant at the 1% level to prices of detached houses.

In model 3 we add to the model the variable “Pop100”. This variable is a dummy variable which divides metropolitan and big cities to two categories. Those with population above 100.000 citizens and to those with population less than 100.000 citizens. In other words, each city with a total population above 100.000 takes the value 1 and the value 0 is given to cities with less than 100.000 total population. The results showed that the city size in population terms has no significant effect on prices of detached houses at the level of 100.000 citizens. However, and according to model 4 when we make use of the variable “Pop200” the model responds quite differently. City’s that gather population above 200.000 citizens affect positively and statistically significant at the 5% level the prices of detached houses. A first assumption for such an outcome is the fact that at least in Germany cities with a population of above 200.000 citizens tend to gather all the economic activity of the state. Moreover, they provide also to people all public services and not only the basic ones. For this reason, prices tend to increase since population increases and as a result demand increases as well.

At this point we need to mention that in every model tested one of the independent variables is the variable “Birth”. This specific variable represents the number of births occurred in every city included in the database. In the case of this specific variable the results were not as initially expected. There are many studies which have found that births affect housing prices positively and statistically significant. For example, in Europe the studies of Kohler et al., (2002), Giannelli and Monfradini (2003), Hughes (2003), Sato (2006) and Glaeser et al., (2005) and many others conclude that housing prices are highly affected by the number of births. Two basic explanations are given for this outcome. First, children affect significantly the decision of a household to buy a house. The household sees the child as “good” and for that reason they usually choose to make an investment by buying a home. As a result, the demand for a residence is affected as well.

**Table I: Factors affecting Detached Housing Prices**

	Rent	Const	Con_New	Pop	GDP	Birth	Cost	Imm	RentF	Pop100	Pop200	PopCh	Cap	Radj
<b>Mod1</b>	0.605*** (0.443)	-0.125* (0.462)	-0.028 (0.151)	0.450*** (0.023)	0.181*** (0.507)	-0.953 (1.008)	0.357*** (0.530)							0.408
<b>Mod2</b>		-0.012 (0.101)	-0.61 (0.500)						0.571*** (0.024)					0.520
<b>Mod3</b>	0.610*** (0.437)	-0.119 (0.436)	-0.014 (0.075)	0.374*** (0.228)	0.165*** (0.342)	-1.049 (1.086)	0.353*** (0.587)			-0.074 (0.544)				0.533
<b>Mod4</b>	0.595*** (0.199)	-0.127 (0.471)	-0.033 (0.183)	0.407*** (0.089)	0.194** (0.052)	-0.874 (0.922)	0.350*** (0.073)				0.133** (0.049)			0.578
<b>Mod5</b>	0.600*** (0.015)	-0.116 (0.423)	-0.083 (0.180)	0.458*** (0.132)	0.174** (0.078)	-0.939 (0.986)	0.371*** (0.052)					0.022 (0.251)		0.608
<b>Mod6</b>	0.599*** (0.792)	-1.739 (0.500)	-0.104 (0.180)	0.485*** (0.437)	0.172*** (0.668)	-0.939 (0.987)	0.368*** (2.645)	0.157 (1.747)						0.662
<b>Mod7</b>	0.515*** (0.205)	1.681 (2.386)	-0.003 (1.264)	0.700*** (0.222)	0.149*** (0.228)	- 0.617** (0.192)	0.703*** (0.194)						-0.122 (0.333)	0.673

\* = significant at the 10% level

\*\* = significant at the 5% level

\*\*\* = significant at the 1% level

Values in parentheses are t-values, while each model has been tested for homoscedasticity with the use of P-Plots and the White Correction.

On the other hand, there are those studies which support the fact that a child reduces substantially the available budget of a household and for that reason the demand for a residence decreases substantially. In this case however, it must be mentioned that those studies were conducted for highly populated urban areas in which although the real wages were higher, food expenses are also higher and child-oriented living space is again much more expensive.

In Model 5 we add the variable “PopCH” which refers to the average percentage change of the total population of the cities of the database. “PopCH” was found to have no significant effect on prices of detached houses. Prices of detached houses are not affected by net immigration which is the variable added in Model 6. According to the literature, immigration is a variable that has been found to play a very important role in the estimation process of housing prices. Many studies have ended up with that conclusion like for example in the study of Frame (2008) and in Gyourko (2006). For that reason, it was an unexpected result especially if one considers the latest developments regarding migration numbers. One possible explanation for this outcome is the under-investigation house type. Detached houses are not the most favourable house type for immigrants. Buying a residence such as this entails high costs and usually can be found in “prestigious” areas and as a result immigrants tend to avoid them.

The final model, Model 7 was estimated with the use of the “Cap” variable. “Cap” is another dummy variable which represents the cities that are the capitals in the regions of the state and as such they take the value 1, while the value 0 is given to all other cities included in the database. The result shows that prices are not affected by the “Cap” variable. We can also see that  $R^2$  adjustment is generally improving slightly from model to model.

## 5. Conclusions

The results of the research presented above, regarding 121 cities, located in three specific states of Germany, for a specific house type – submarket (detached houses), appear to be very interesting. First, in general the basic variables (model 1) that affect prices of this specific housing submarket are also considered important in the analysis of the housing market in total. Furthermore, empirical results of other studies confirmed that rents, population and the gross domestic product are important variables in the investigation of the housing submarket of detached houses. In addition, immigration as well as geographic characteristics of the city proved to be insignificant in the price estimation process. On the other hand, the size of the city seems to play a much more active role in this relationship. Still the city size must be over 200.000 citizens, otherwise no influence will be observed.

Finally, the model can be further expanded. Two directions are significant to this study. The first direction should be Germany’s states complex demographics. For example, although births at the beginning of the under-analysis period were observed to decrease constantly in the end they were stabilized and even increased a bit. Another example can be towards population shrinkage observed in many cities in Germany and the fact that it is expected the population to decrease even more soon.

Demographic developments must be seen even more closely since big changes are at the doorstep and should be investigated. The second aspect which this study can be directed to is the significance of the geographic location of the cities. For example, we just need to think of the situation in Germany. Eastern states in the future will lose a significant number of their population in relation to the Western cities, either due to lower fertility rates or because of the people’s relocation to other states with more opportunities for work such as Bavaria. It will also be fruitful if we test the model on other specific house types, like single family houses or even housing rents.

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## **Social exclusion and People with Disabilities: The case of Greek Secondary Education**

### **Abstract:**

According to the international and Greek literature, people with disabilities may experience social exclusion. The aim of the present paper is to study both secondary education teachers' views as a key factor in the education system and as an important field in students' social network and their conceptualizations about the inclusion of people with disabilities in the formal education system and the removal of social exclusion.. The sample of the present research consisted of 904 secondary school teachers, of whom 474 (52.4%) were men and 430 (47.6%) were women. The findings of our research have shown that: (a) the majority of secondary school teachers believe that educational exclusion of people with disabilities is real in education; and (b) the inclusion policy has got no results whatsoever. Regarding secondary education teachers' attitudes towards people with disabilities, it can be claimed that the majority of teachers are favourably disposed both towards people with disabilities and towards the inclusion policy in Greece. Teachers also identify a more general negative social context within the education system itself, where prejudice, indifference and interferences create a suffocating context when people with disabilities want to communicate with members of the educational community.

**Keywords:** Disability, Secondary education, Greek education system

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## 1. Introduction

According to the international and Greek literature, people with disabilities may experience social exclusion (Barnes & Mercer, 2005; Zoniou-Sideris, 2000; Longmore, 2003; Thomas, 2004), whereas disability cannot be examined without the social environment in which these individuals interact being taken into consideration (Barnes, 1996). An individual's interaction with his/her surrounding space (social and physical) is not only related to dimensions of material arrangement of things, but is also given symbolic conceptualizations by both people with disabilities and other social subjects. The social model (Barnes et al., 1999) introduced to conceptualizations of disability deconstructs the established perception of social and physical "stigma" to individuals for the deficiencies and functions of their body and identifies their disability through social variables. Disability is perceived as a product of social structure and is associated with social, economic and political factors. Social variables, interactions and communication, stereotypes, prejudices, poor information, etc., as well as structural problems (logistic infrastructure, regulatory issues, etc.) can deny people with disabilities to access material and symbolic resources. A supportive education system and its members could ensure the connection of economic and social goals, promote inclusiveness and participation, social cohesion and social trust and build a "society for all".

Social exclusion, which can be defined as the social process or a state of absence or denial of social or political or economic or even individual rights from certain categories of the population into a whole society (Sen, 2000; Chrysakis, 2002), can be the result of deterioration or destruction of social networks. Social exclusion is considered to reduce people's abilities to deal with health issues (Berkman, 2000), their anxiety (Leary, 1990), to obtain a social identity (Ward, 2009), to receive emotional support or material help and gain access to services and information (Berkman & Glass, 2000; Caplan 1974; Cobb, 1976).

## 2. Special Education and Secondary Education in Greece

In Greece, considerable improvement in addressing the issues of people with disabilities have been: Laws 2817/2000 (Government Gazette 78 A / 14-3-2000: *Education of people with special educational needs and other provisions*) and 3699/2008 (Government Gazette 199 / A / 2.10.2008: *Special Education and Training for people with disabilities or special educational needs*).

These laws introduced that people with disabilities have to be educated, thus making the community responsible for these people's socialization. According to Law 3699/2008, students with disabilities and special educational needs, apart from other contexts and frameworks, can attend a school class of the general school, if they are people with mild learning disabilities, or a classroom of the primary school, with a parallel support-co-education by special education teachers. For these students, the social support of important others in the school environment and the creation of social networks plays an important role in their socio-cultural inclusion and integration.

From the *ex officio* position they held, teachers can delineate the school context, influence student interactions, and contribute to creating categorizations and exclusions within the education system. In addition, teachers' conceptualizations of the student's social and personal image, their contribution to students' interaction and the composition of the social structure of the classroom - school (Birch & Ladd, 1997; Pianta, 1994) influence consciously or unconsciously how each student perceives himself / herself and what s/he expects from himself / herself (Giavrimis, 2010).

Thus, teachers "feed" with information and evaluation materials how people with disabilities and the whole society perceive these individuals, while they are at the same time the central factor of the education system that transforms educational policies into daily school practice. Being essentially and symbolically a key part of students' social network,

teachers can facilitate social inclusion of people with special educational needs and reduce problems of educational exclusion through the educational process.

The aim of the present paper is to study both secondary education teachers' views as a key factor in the education system and as an important field in students' social network and their conceptualizations about the inclusion of people with disabilities in the formal education system and the removal of social exclusion.

Our main focus is on secondary school teachers because there is no extensive and sufficient literature in Greece that deals with how these teachers perceive special education issues. The second reason concerns the fact that while all teachers who teach secondary education are *de jure* educationally competent, most teachers have been taught neither quantitatively nor qualitatively the necessary volume of cognitive objects to address their students' educational, pedagogical and psychological difficulties, if they are to be compared with primary school teachers. However, the most important problem is that no special education course has ever been introduced to their university curricula, as it happens with pedagogy and psychology, something that would have contributed to awareness of all those involved in the educational process.

We can indicatively mention that the shortcomings of the two largest Greek academic institutions (i.e. University of Athens and University of Thessaloniki) in teaching subjects that play a primary role in the education system (Philology, Mathematics, Physics) and subjects that are related to people with disabilities and Special Education are great, since only Literature Departments do have a fairly satisfactory number of subjects on Education and Special Education. Furthermore, according to the data of National Statistical Service of Greece (NSSG, 2007), special education in secondary education has not been developed as much as in primary education so that people with disabilities may have a complete course of studies by their teens.

Furthermore, there are no in-service training structures in special education either for the permanent secondary education staff or for substitute and hourly teachers. Thus, the only way for secondary school teachers to get prepared for special education issues is either to pass in the qualifying examinations in Special Education Departments or to go for postgraduate studies in Special Education, something that is quite difficult due to the small number of admissions.

### 3. Method

#### *Sample*

The sample of the present research consisted of 904 secondary school teachers, of whom 474 (52.4%) were men and 430 (47.6%) were women. In terms of the age of the teachers surveyed, 100 (11.1%) were under 30 years of age, 300 (33.2%) were between 30 and 40, 364 (40.3%) were between 41 and 50, and 140 (15.5%) were between 51 and 60 years of age. Moreover, 726 (80.3%) were permanent staff, 112 (12.4%) were substitute teachers and 66 (7.3%) were hourly paid.

#### *Questionnaire*

A questionnaire was used to carry out the research, which included five sections: (a) the first section had questions relevant to education and training; (b) the second had questions about teachers' attitudes towards the people with disabilities; (c) the third included questions related to inclusion and integration of children with disabilities; (d) the fourth section of questions was related to teachers' conceptualizations for people with disabilities; and (e) the last section of the questionnaire referred to basic demographic characteristics (gender, age, specialty, studies, status, etc.). The participants' responses to the questionnaire were provided through a four-level or five-level of Likert-Type Scale Items. In the present study, we analyze questions that are related to teachers' training, support networks that are being developed, the conditions

of inclusion that are being fostered and the difficulties of people with disabilities may be facing.

#### 4. Findings

Data shows that 75% of secondary school teachers believe that there are many people with disabilities who are excluded from or they do not have access to education (Mean=2<sup>2</sup>, Median=2, Quartile1=1, Quartile2=2, Quartile3=2). Indicative of the aforementioned belief is that 758 (83.8%) teachers of the research mentioned that there had been no inclusion of any person with disabilities in their school in the last five years, and only 146 (16%) teachers expressed an affirmative opinion. 88.3% of teachers stated that their school staff lack a qualified colleague who can use strategies to include people with disabilities in the formal education system. 106 (11.7%) teachers stated the opposite opinion.

Following the above-mentioned statements was the statement of about 60% of teachers of the sample that from none to half of the teachers were the ones who could offer help so that a child with disabilities could be included, whereas most of them (40%) mentioned that only 1/3 of the teaching staff would be able to provide support (Table 1). In addition, 65.3% of teachers claimed they were in favour of the inclusion policy, while 34.7% were negative.

**Table 1:** Teachers' support of the integration process of people with disabilities

Answers	Frequency	Percent
None of the teachers	88	9,8
1/3 of the teachers	362	40,0
Half of the teachers	80	8,8
2/3 of the teachers	204	22,6
All	170	18,8
Total	904	100,0

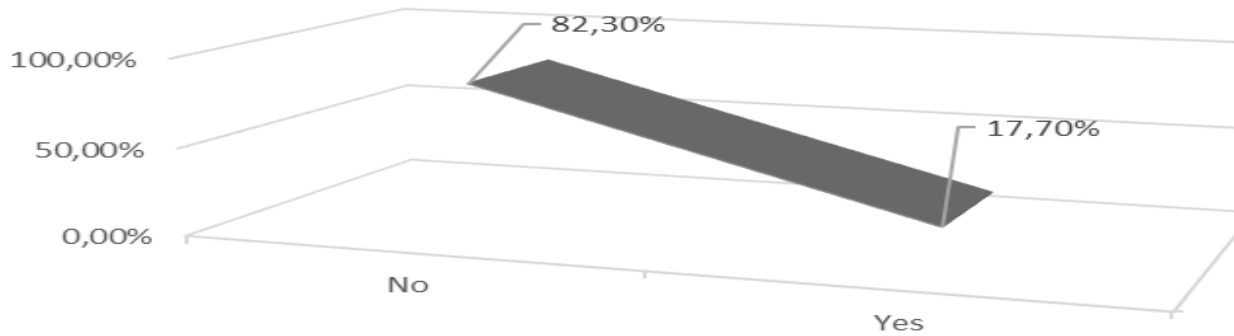
Within the context of those actions, it appears that there are variations associated with the "distance" of action from the individual. The more distant the action from secondary school teachers is, the more positive opinion secondary school teachers have on implementing it. Thus, there has been a great deal of secondary school teachers [744 (82.3%)] who were negative to work within contexts that include people with disabilities, such as a special school. 160 (17.7%) teachers were positive to work within contexts that include people with disabilities (Graph 1). At the same time, when the focus is more on the school context and on the teacher, himself/herself, it appears that about 37% of teachers give half the odds to accept a learner with disabilities in their classroom (Graph 2). These specific findings indicate that there is a large percentage of teachers who oppose to the inclusion of people with disabilities in the formal education system.

It also becomes conspicuous from Graph 3 that teachers identify a more general negative social context within the education system, where prejudices, indifference and interventions create a suffocating environment for people with disabilities to communicate with members of the educational community.

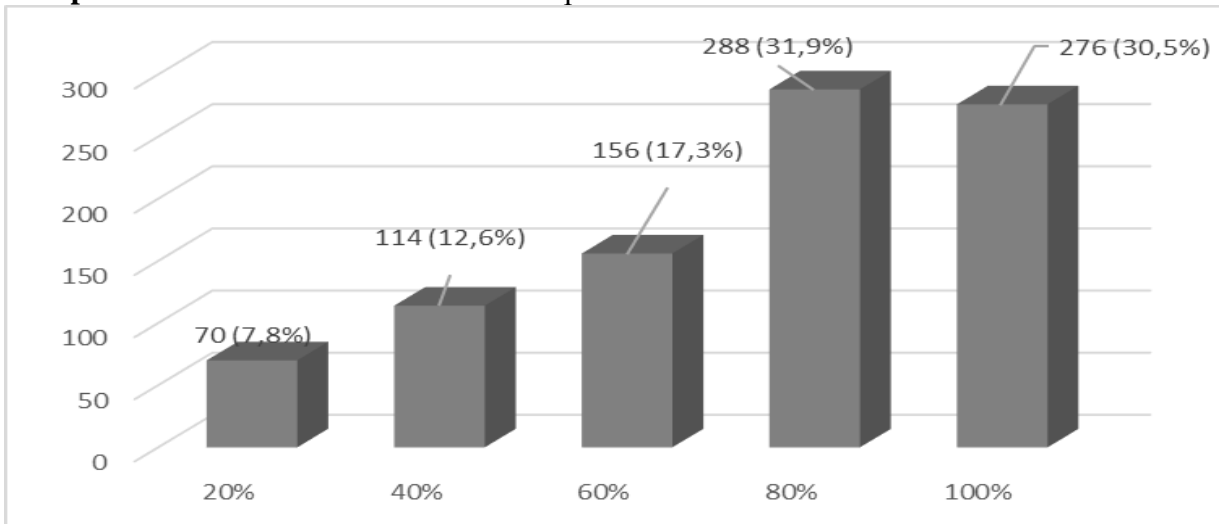
Furthermore, it is shown that both adults' attitudes towards people with disabilities and the existence of discrimination and prejudice play a very important role for the exclusion of people with disabilities from a given educational community.

<sup>2</sup> 1=Only some people, 2=Lots of people but fewer than half, 3=More people than half

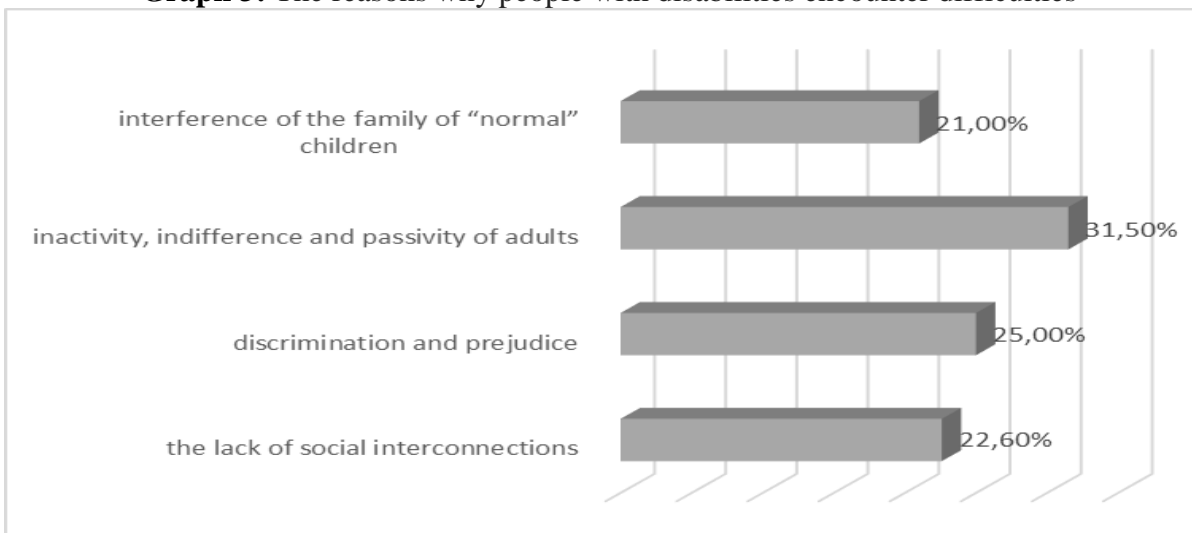
**Graph 1:** Cooperation with a special school



**Graph 2:** Possibilities for inclusion of the person with disabilities in the teacher’s classroom



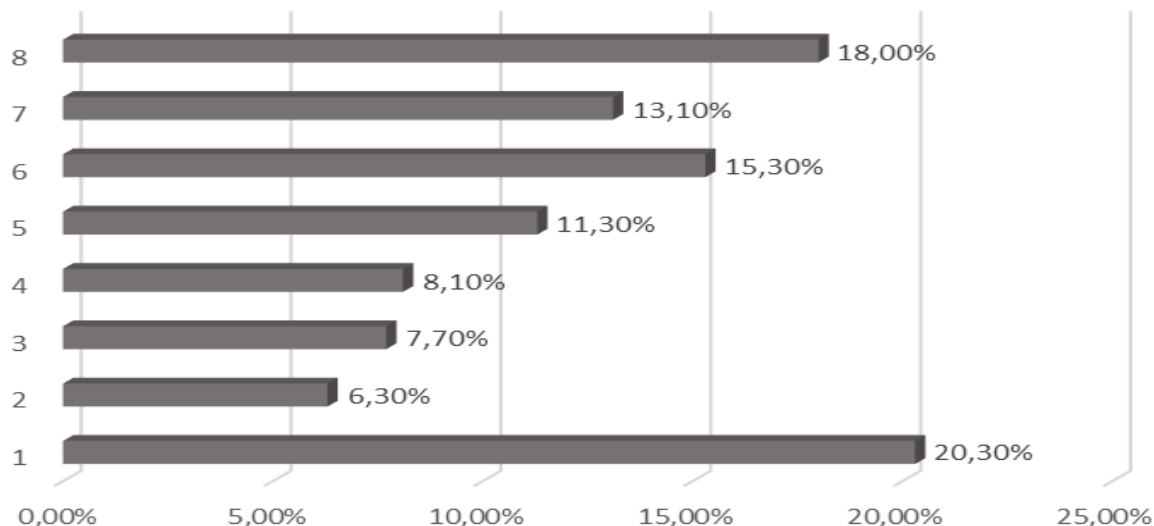
**Graph 3:** The reasons why people with disabilities encounter difficulties



The above-mentioned difficulties that people with disabilities encounter in the education system become more specific when teachers were asked about the individual or social group that can play an important role in the inclusion of people with disabilities. It is a

manifestation of teachers' conceptualizations that the key staff of the school unit (teachers and school principals) play the smallest role. More specifically, teachers are the last factor that can influence inclusion processes.

**Graph 4:** Individuals or groups of individuals that are considered important factors for the inclusion of people with disabilities in the school context.



1. Parents with no-disabled children, 2. Teachers, 3. School director, 4. Co-students, 5. Parents of disabled children, 6. Local community, 7. School counselor, 8. Head of training

Teachers attribute the predominant role both to groups and individuals of the educational community and to external social actors in the core of the school unit. The family and education staff dominate in teachers' positions, while parents of "normal" children and education managers are the most important actors that can support an inclusion process. Moreover, 15.3% of teachers show the importance of local society for responding positively to inclusion policies for people with disabilities (Graph 4).

## 5. Concluding Remarks

The findings of our research have shown that: (a) the majority of secondary school teachers believe that educational exclusion of people with disabilities is real in education; and (b) the inclusion policy has got no results whatsoever. It is indicative that they have noticed that there has been no inclusion of people with disabilities in their school over the last five years. Even today, one cannot claim that the modern *Kaiades* have been eliminated<sup>3</sup>, and people with disabilities are not confronted with social exclusion. This is due to the fact that Greek legislation, a part of the insufficient welfare system, has never been able to develop a holistic approach to people with disabilities. Greek laws were most often confined to practising an allowance policy, a benefit that was distorted within the framework of corruption, anomie and clientelism. People with disabilities encounter a number of obstacles in the education process, resulting in both the reproduction the socio-economic status of their family (i.e. people with disabilities are better educated, because the family shoulders a significant cost for their education) and their social status as people with disabilities, which is associated with social pressure, social inequalities and social exclusion. Laws 2817/2000 and 3699/2008 have brought changes to the education policy for people with disabilities, but it is worth being observed that in the educational praxis the provisions of the aforementioned laws and subsequent individual corrective interventions (e.g. appointment of graduates of Departments

<sup>3</sup> Kaiades, pl. of Kaiadas. Kaiadas was a huge pit in a mountain in southern Peloponnese where Spartan threw in children born with disabilities.

of Special Education) have not been fully implemented due to both legislative problems, logistical infrastructure (building problems, lack of educational and teaching materials, etc.) and inadequate teacher education on disability issues.

Regarding secondary education teachers' attitudes towards people with disabilities, it can be claimed that the majority of teachers are favourably disposed both towards people with disabilities and towards the inclusion policy in Greece. However, it also appears that a significant proportion of secondary school teachers are negatively affected by the inclusion of people with disabilities in the formal education system. There is a proportion of around 35% of teachers who disagree with the inclusion policy for people with disabilities, and the greater the proximity of actions with people with disabilities (inclusion in the school or in the classroom etc.) is, the higher the percentage of negative responses becomes. Disability is treated more negatively as the contact distance decreases (Bezevegis et al., 1994). At the same time, there is a great deal of negativity of secondary education teachers to work in contexts that include people with disabilities, such as a special school. These findings are consistent with research data in international and Greek literature (Zoniou-Sideri, 2000; Zoniou-Sideri & Deropoulou-Derou, 1998; Rakap & Kaczmarek, 2010; Reversi et al., 2007; Soulis, 2002; Wishart & Manning, 1996) and confirm both the inadequacy of the education system to include these people in a more functional way in the community and teachers' inability to deal with such cases (Kypriotakis, 2000; Ward & Le-Dean, 1996). As the research data shows, teachers' inadequate training in issues of dealing with inclusion processes contributes to the aforementioned negativity, as it has been established internationally that education and training of special education teachers influences their attitude towards inclusion (Avramidis et al., 2000; Çağran & Schmidt, 2011). In most Education Faculties, there are no subjects in studies programme being related to general and special didactics and pedagogy.

Teachers also identify a more general negative social context within the education system itself, where prejudice, indifference and interferences create a suffocating context when people with disabilities want to communicate with members of the educational community. According to teachers' views, disability in this case (within the education system), where intermingling is more intense, is treated as stigma by the broader community and assumes a negative social identity. Stigmatization and, by extension, categorization of people with disabilities are these factors that create stereotypes and are associated with particularly debilitating consequences (Goffman, 2001; Rosenhan, 1973). Categorizations of people with disabilities are not general, but, as international research has shown, they are also related to the type of disability (Furnham & Pendred, 1983; Rakap & Kaczmarek, 2010). Stigmatization serves powerful social groups, in our case "normal" people and the educational system itself, in terms of implementing rules against people with disabilities. In addition, the teachers in our research devolve the responsibility of ineffective inclusion policies more to the members of the educational community outside the core of the school unit (teachers-school principals and school managers) and to the local community. The family and educational staff are found to dominate teachers' positions. What is highlighted – by secondary education teachers – is the importance of pressure groups (parents, local society) and the interference of educational policy in the process of inclusion for people with disabilities. It also shows that there should be points of intervention (such as information and awareness of the community, parents and staff of education of the issues involved), and emphasis should be - through educational arrangements - on the assumption of the dominant role the teacher has in the school context to address the difficulties faced by people with disabilities.

In a globalized society where local, regional, national and international partners work together to develop new relationships, it is necessary to focus on redesigning educational structures, reorienting actors and programmes as well as international cooperation, supporting vocational and professional training and retraining teachers to an education for all. What is sought for is how to create an environment of functional interaction, a school based on the

principle of equality so that the school can respond effectively to the rights and needs of all children, regardless of gender, mental or physical capacity, nationality, socio - economic level or racial difference.

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## Looking for Quality in Early Childhood Education and Care systems

### **Abstract:**

Early Childhood Education and Care has been a major political priority for the European Union and other international bodies over the past decades, a priority founded on the view that investments in the early years of life can produce more positive results for children, families and societies. According to research findings, early childhood is critical to a child's cognitive, emotional, linguistic and social development. The development achieved at this stage will lay the foundations for success at school and in the workplace, as well as for the child's physical and mental health. This paper discusses policies aimed at quality preschool education and care. It is a theoretical approach based on written data from individual countries and international organizations. The main conclusion of this paper is that the improvement of the quality of ECEC systems constitutes a major challenge for modern nations, including Greece.

**Keywords:** Preschool Education, Quality, Evaluation, Policies

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## 1. Introduction

Preschool childhood is universally acknowledged as the most crucial period for an individual's overall development. It is at this age that children develop their biological potential. Environments which are conducive to learning and development offer children the opportunity to experience positive and effective interactions and build competences, skills and knowledge which shape their personalities both as children and as tomorrow's citizens.

Over the past decades, considerable interest in early childhood education has been expressed by economists and politicians in view of research results establishing that investment in early childhood is more profitable than investment in later life stages. The primary focus of scientific research is the provision of high-quality ECEC services so that the desired outcomes can be achieved for individuals and society.

Generalized access to ECEC can improve overall efficiency and decrease socio-economic inequalities among students provided that it does not jeopardise the quality of services (OECD, 2011). In today's socio-economic context of cultural pluralism and reduced financial resources, the debate over equality of educational opportunity continues to be relevant.

This paper investigates ECEC policies promoted by international organizations and the European Union and discusses quality criteria and aspects of evaluation in Early Childhood Education and Care. In addition, this paper attempts an analysis of the Greek ECEC system, identifying its strengths and weaknesses and proposing improvements which can enhance its efficiency.

## 2. Defining terms

Early Childhood Education and Care (ECEC) refers to institutions attended by children from birth to the age of compulsory entry to primary school (0-6 years old), irrespective of competent agencies or sources of funding, length of attendance or programme content (European Commission, 2014). In the OECD studies (Starting Strong 2001, 2006 and 2012a, OECD), the term Early Childhood Education and Care refers to ages up to the age of compulsory education (OECD, 2001).

According to UNESCO's 2011 *International Standard Classification of Education* (ISCED), level 0 refers to early childhood programmes with an intentional education component. ISCED level 0 programmes target children below the age of entry into primary education (ISCED level 1). These programmes aim to develop cognitive, physical and socio-emotional skills which are deemed necessary for participation in school and society. Programmes offered at ISCED level 0 are often differentiated by age. There are two categories of ISCED level 0 programmes: ISCED 010 – early childhood educational development, and ISCED 020 – pre-primary education. Various terms are applied to programmes classified under ISCED level 0, including *Early Childhood Education and Development*, *Play School*, *Pre-primary*, and *Pre-school*. Regarding programmes provided by day-care centres or nurseries, it is important to ensure that the specified ISCED level 0 classification criteria are met (OECD, 2016a Education at a Glance, p.26).

Defining *quality* is a demanding task as the term represents an ever-changing concept dependent on the dimensions of space, time and cultural context. As Kamerman argues "...any definition of quality is subject to change over time and defining quality is an ongoing process. The definition of quality, then, may require some reviewing at one point or another. Quality should not be regarded as a static concept" (Kamerman, S. B. (Ed.) 2001). The concept of quality has caused considerable debate among academics and education and early childhood education professionals. According to Peter Moss, "... Quality in early childhood services is a constructed concept, subjective in nature and based on values, beliefs and interest, rather than an objective and universal reality" (Moss, P. and Pence, A. 1994). Quality is not a permanent concept. On the contrary, it develops continuously in accordance with

circumstances. Above all, ECEC quality should be oriented towards the fundamental rights of children. Epstein underlines the importance of preschool professionals in ensuring high-quality services: “High-quality early childhood services depend, in part, on well-trained personnel using coherent and developmentally based educational approaches” (Epstein, A.S. 1999). According to the fundamental principles of Aspin et al., a quality school:

provides students with access to knowledge, skills and attitudes which will prepare them for today's complex society, and enables them to acquire and apply this knowledge and these skills and attitudes,

shows consideration for and promotes the values of excellence and high aspirations,

treats students in a democratic, fair and equitable way,

develops and strengthens students' sense of self-worth,

helps students develop their personal autonomy while emphasizing the value of community service,

prepares students for involvement in the cultural and economic development of society (Aspin, D.N., et al. 1994).

According to the European Childcare Network approach (European Commission, 1996), quality is a relative concept based on values and beliefs. Defining quality is fundamental in its own right, as it can create opportunities to share, discuss and understand values, ideas, knowledge and experience. The process should be participatory and democratic, and it should involve different groups, including children, parents and families and education professionals, whose needs, perspectives and values may be dissimilar. Finally, defining quality should be seen as a dynamic and ongoing process, involving regular reviewing and never reaching a final, ‘objective’ statement. Many European countries currently share common perspectives on both *system* and *pedagogical quality*. *System quality* includes adequate public regulation and financing, proper environmental and care conditions, governance quality, workforce quality, and training of staff working with diversity. *Pedagogical quality* includes enhancing the quality and variety of pedagogical processes by means of pedagogical research. The relational environment is critical for young children; reasonable child-staff ratios, parent involvement and greater attention to transitions, particularly for children at risk, are extremely important aspects (European Commission 2014).

ECEC staff plays a key role in ensuring healthy child development and learning. Areas which can benefit substantially from relevant reforms include qualifications, initial education, professional development and working conditions. Higher qualifications are found to be strongly associated with better child outcomes and working conditions can improve the quality of ECEC services (OECD, 2011). According to the *Starting Strong II* report, figures from various countries reveal a wide pay gap between childcare staff and teachers, with childcare staff in most countries being poorly trained and paid around minimum wage levels (OECD, 2006). UNICEF (2008) highlights appropriate training and working conditions for all staff as an important element of quality. It is noted that only high-quality care offers long-term benefits for society in the form of increased productivity and incomes and higher returns from investments in education. The importance of well-trained staff is also emphasized; 80% of childcare workers should be adequately trained and at least 50% should hold a bachelor's degree. The European Commission Childcare Network targets specify that qualified staff employed in services should be paid at no less than a nationally or locally agreed wage rate, which for staff who are fully trained should be comparable to that of teachers; a minimum of 60% of staff working directly with children in collective services should have a grant-eligible basic training of at least three years at a post-18 level which incorporates both the theory and practice of pedagogy and child development. All training should be modular, all staff in services working with children (both collective and family day care) should have the right to

continuing in-service training, and 20% of staff employed in collective services should be male. Staff-child ratios are specified as follows:

1. 1 adult : 4 places for children under 12 months
2. 1 adult : 6 places for children aged 12-23 months
3. 1 adult : 8 places for children aged 24-35 months
4. 1 adult : 15 places for children aged 36-71 months (EC, 1996).

### 3. Quality policies for ECEC

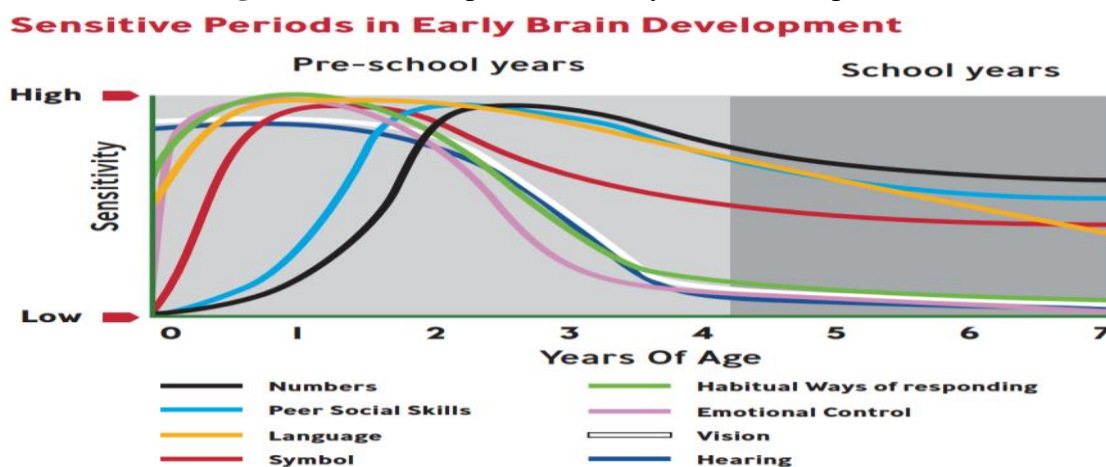
The domain of preschool education and care is increasingly attracting political interest. Besides the European Union, OECD, UNESCO and UNICEF are also focusing on ECEC by producing studies and promoting policies aimed at the provision of high-quality services.

Both research and practices have shown that Early Childhood Education and Care can bring long-term learning benefits, personal development, social integration, as well as integration into the labour market at later stages. Furthermore, it is stressed that investment in early childhood can prove to be more efficient for children, families and societies and can prevent future remedial action, which can be more costly and with lesser comparative outcomes (Heckman, 2004, Melhuish & Petrogiannis, 2006).

The European Commission's Communication on efficiency and equity in European education and training systems (8.9.2006) stresses the importance of improving ECEC, adding that, when investments and reforms focus on the early stages of education, efficiency and equity can be further complemented where appropriate.

The first years in a child's life are critical for their future development and learning. The 'peaks' of brain sensitivity may vary across functions/skills (Council for Early Child Development, 2010). For example, brain sensitivity to the development of emotional control starts from the middle level, increases to the high level from birth to around age one, and declines to the low level, where it stays, from age four. Peer social skills start at the low level, increase rapidly from ages one to two, gradually decrease and remain at a medium level from age four. Similarly, language development starts at the middle level, increases to the high level at around ages one to two, slightly decreases towards age four, and will continue to decrease towards the middle and low levels from then on. Numeracy starts at the low level, increases rapidly from ages one to three, gradually decreases but will be maintained at the high level from age four. The sensitive periods in the development of aspects of the brain are depicted in Figure 1 below.

**Figure 1:** Sensitive periods in early brain development

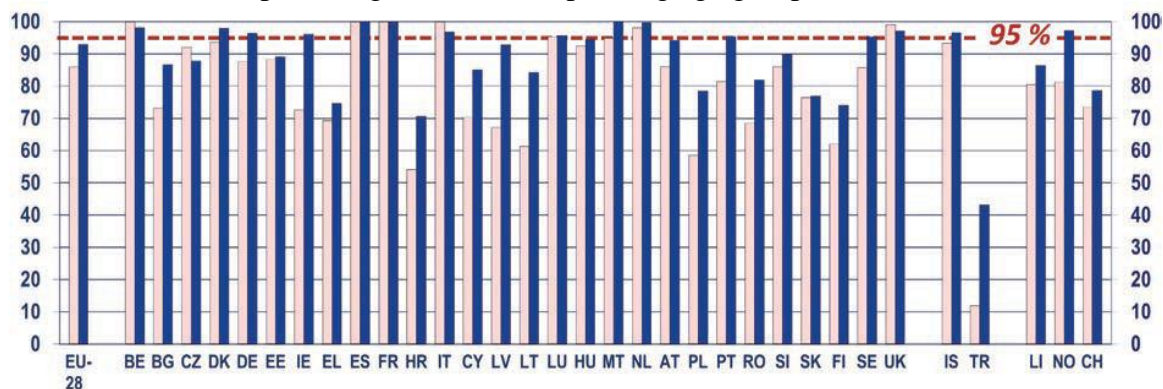


Graph Developed by Council for Early Child Development (ref: Nash, 1997; Early Years Study, 1999; Shonkoff, 2000.)

Source: Council for Early Childhood Development (2010) from the World Bank's Investing in Young Children, an Early Childhood Development Guide for Policy Dialogue and Project Preparation 2011.

As a general rule, it seems that brain development occurs to a great extent from birth to age 4+. During this period, children learn very fast compared to other periods. Children who fall behind in early childhood encounter greater problems in terms of education outcomes, as well as later in life. Therefore, participation in early childhood education is crucial. Its positive effects include improved child well-being and early learning outcomes which lay the foundations for lifelong learning (Starting Strong III), as well as improved later outcomes in education, employment, income, health and other areas (Melhuish et al, 2014).

**Figure 2:** Children between 4-years-old and the starting age of compulsory education as a percentage of the corresponding age group, 2001, 2011



Source: Eurostat, UOE (data extracted November 2013). Στο: European Commission, Key Data..., 2014.

Service availability and accessibility are major issues. An OECD study stresses that widening the access to early education can improve overall efficiency and reduce socio-economic inequalities among students, provided that generalized access does not reduce service quality (OECD, 2012a). In Europe, the issue of accessibility was raised in Barcelona in 2002, where it was determined that by 2010 Member-States should promote policies that would ensure ECEC services to 90% of children from age 3 to the age of entry into compulsory primary education, and to at least 33% of children below that age. These targets were redefined by the Strategic European Framework for Development (ET2020), which set the goal of providing preschool education and care programmes to at least 95% of children between age 4 and the beginning of compulsory education. Figure 2 below represents the level of participation of 4-year-old children in preschool education and care for the years 2001 (pink bars) and 2011 (blue bars). For Greece (EL), participation approaches 70% in 2001, while in 2011 it reaches 75%. However, Greece remains 20% short of the initial goal set by ET2020.

The level of participation for children in the age group 0-3 is illustrated in Figure 3, in which light blue bars represent participation of 30 hours or more per week and red bars represent participation of 1-29 hours. In Greece, the level of participation of 3-year-olds in preschool institutes is around 19%, 14% short of the ET2020 goal.

Widening access to ECEC is particularly important for children from socially disadvantaged backgrounds. Research by the Eurydice Network found that ECEC services can be a medium for reducing social and cultural inequalities (EU, 2009). Furthermore, the countries holding higher places in the tables of the Programme for International Student Assessment (OECD, PISA, 2015) are the countries with the most accessible early childhood education and care systems.

**Figure 3:** Children under the age of 3 in ECEC, by hours per week, 2011, 30 hours or over, from 1 to 29 hours



Source: Eurostat, EU-SILC (data extracted November 2013).

A reading of the 2015 PISA study in the light of the connection between the educational outcomes of 15-year-old adolescents and whether they had attended preschool education and care institutions in their early childhood shows that:

- High-quality early childhood education makes a difference to children's development. The PISA data show a close relation between the number of years that 15-year-old students had spent in early childhood education and their scores on the PISA science assessment and suggest that two years of early childhood education is the minimum prerequisite to obtaining better outcomes at age 15.
- The PISA data reveal that students who had attended early childhood education for at least two years performed better than other 15-year-olds, even when their socio-economic status was taken into account.
- Research shows that disadvantaged children can benefit the most from attending high-quality early childhood education. The PISA data, however, reveal that 15-year-old students from a lower socio-economic background or enrolled in socio-economically disadvantaged schools were less likely to have participated in early childhood education for a minimum of 2 years.
- Participation in early childhood education for at least one year is also beneficial to children with an immigrant background.
- The number of years spent in early childhood education is a strong predictor of low performance at later stages.

Children's participation in preschool education and care institutions varies widely among Member-States of the European Union. In certain countries, these institutions are supervised by one agency only, while in others, including Greece, a number of agencies or Ministries are involved in their operation.

Based on the premise that learning begins at birth, rather than in compulsory education, and that the foundations for child development are laid in early childhood, the concepts of availability, accessibility and universality of preschool education and care are a major priority for individual Member-States and for the European Union as a whole. In addition, it seems that universality and the compulsory nature of education do not entail each other. On the contrary, quality seems to encourage universality even in non-compulsory ECEC contexts. As shown in Figure 2, in some European countries such as Belgium, Germany, Denmark, Spain, France, Ireland, Italy, Luxembourg, Malta, and the Netherlands, the proportion of 4-year-olds attending early education institutions is around 95%, while in countries such as Bulgaria, Greece, Cyprus, Lithuania, Poland and Slovakia this percentage is considerably below the target. Preschool education is compulsory for children aged 5 in Bulgaria, Greece, Cyprus, Latvia, Hungary, Austria, Poland and in some cantons of Switzerland, while in Luxembourg it is compulsory at the age of 4. Interestingly, preschool education is not compulsory in countries with a high rate of participation. It is also worth noting that the rate of attendance of

4-year-olds in 2011 is the same for Greece and Finland, although compulsory education in Finland starts at the age of 6 (European Commission/EACEA/Eurydice, 2016, and European Commission, Key Data Early Childhood Education and Care in Europe, 2014, p. 12).

European interest in promoting high-quality ECEC services is evident in a series of decisions and actions from 1986 onwards. In February 2011, a European Commission Communication raised the main issues of Early Childhood Education and Care in which European cooperation could have added value. The Communication was based on the work of OECD and UNICEF and on the forty quality objectives of the European Network for child care (1996). The Ministers' Council (2011) adopted the conclusions of this Communication and set the priorities. The Council recognized the need for greater cooperation of Member-States at the international, national, regional and local level. It also stressed the need for greater investments and more research and data collection, with the aim of supporting policy planning and programme implementation. In particular, the Council's conclusions on preschool education and care refer to:

- (1). providing equitable access to high-quality, inclusive ECEC, in particular for children from socio-economically disadvantaged backgrounds;
- (2). designing efficient funding models, including targeted funding, which strike the right balance between public and private investment in accordance with national and local circumstances;
- (3). promoting cross-sectoral and integrated approaches to education and care services in order to meet all child needs — cognitive, social, emotional, psychological and physical — in a holistic way;
- (4). supporting the professionalization of ECEC staff, with an emphasis on the development of their competences, qualifications and working conditions, and enhancing the prestige of the profession. In addition, developing policies aimed at attracting, training and retaining suitably qualified staff in ECEC and improving the gender balance;
- (5). promoting developmentally appropriate programmes and curricula, which foster the acquisition of both cognitive and non-cognitive skills, whilst recognizing the importance of play, which is also crucial to learning in the early years;
- (6). supporting parents in their role as the main educators of their children during the early years and encouraging ECEC services to work in close partnership with parents, families and communities, in order to increase awareness of the opportunities provided by ECEC and of the importance of learning from an early age;
- (7). promoting quality assurance with the participation of all key stakeholders, including families;
- (8). promoting European research and data collection on ECEC, where appropriate, in cooperation with international organizations, in order to strengthen the evidence base for policy making and programme delivery in ECEC.

The European Union went on to establish a Thematic Working Group on Early Education and Care, with the aim of assisting Member-States in determining, analysing and exchanging good policies and practices in ECEC services.

## **4. The Greek Early Childhood Education and Care System**

### **4.1. Structure and target of preschool services**

Early Childhood Education and Care services in Greece are provided by a split system made up of distinct structures, namely *vrefonipiakos stathmos* and *paidikos stathmos*, which are day-care centres, and *nepiagogeio* (kindergarten). Both types of centres are expected to set up their rules of operation in compliance with related legislation and regulations specified in ministerial decisions, i.e. central-level steering documents. The responsibility for ECEC governance and regulation at the central level lies with three different Ministerial Authorities.

The Ministry of Interior and Administrative Reconstruction is responsible for the governance regulation of infant centres (*vrefonipiakos stathmos*), which can be attended by children from 6 months to 2½ years, as well as for centres for older children, between the ages of 2½ and 5 (*paidikos stathmos*). As far as private day-care centres are concerned, these fall under the jurisdiction of the Ministry of Health and Social Security. Day-care centres do not follow a formal educational program.

Under the existing legislation, it is the responsibility of day-care centres to provide care in a safe environment and to encourage the physical, mental, emotional and social development of children. Day-care centres are also expected to help compensate for differences related to the cultural, economic and educational background of families. They also have to collaborate with parents and sensitize them to pedagogical and psychological issues. Day-care centres are also responsible for facilitating the transition from the family to the school environment. Finally, day-care centres provide food and care and must comply with hygiene and security regulations (Ministerial Decision 16065, National Gazette 497/22.4.2002).

Funding for day-care centres is granted by municipalities. Rules of operation are either set up and submitted by each centre or defined by the municipality for all day-care centres in its area (as is the case in the municipality of Athens). In both cases, rules of operation must comply with centrally-defined standards and they must be approved by a municipal council. As in many other European countries, in Greece there is no legal entitlement to a place in day-care centres. In fact, the demand is considerably higher than existing places.

From age 4 children can attend a pre-primary school (*nepiagogeio*), which falls under the jurisdiction of the Ministry of Education, Research and Religious Affairs and applies a centrally defined curriculum. Legal entitlement exists only for children aged 5-6, whose attendance is compulsory, whilst for younger ages attendance is possible only when extra places exist. Attendance in the public *nepiagogeio* is free and children living in remote parts of its catchment area have their commuting subsidized.

Despite high demand, there is a serious shortage of places for the younger children in state *nepiagogeio*. This situation has deteriorated since the last year of pre-primary school became compulsory without an increase in the number of places. Due to the austerity measures imposed in the past few years, an increase in places has become rather unlikely. In effect, only one year of pre-primary education is secured for all children.

#### 4.2. Curriculum

The objectives of municipal and private *vrefonipiakos stathmos* and *paidikos stathmos* are established by Ministerial Decisions and Acts. According to the ministerial decision referred to in the previous section, the daily programme should be designed to ensure the harmonious psychosomatic development of children and their socialization through creative activities, peer interactions, dialogue, explication, and activities which foster trust. Corporal punishment is prohibited. The daily schedule should be flexible but in line with the general framework defined by the ministerial decision.

According to Act 4071 (2012), each *vrefonipiakos stathmos* and *paidikos stathmos* should implement a centrally defined pedagogical programme. The same Act specifies the formation of a committee on the evaluation of the pedagogical programme.

The educational programme of *nepiagogeion* is centrally defined and forms part of the national curricula. A major change to its language programme was introduced in 1999 when a constructivist approach to the development of oral and written language was adopted. This new approach promoted oral speech not only in the form of narratives but also in explication, argumentation and other functions through meaningful communicative activities. A radical change also took place in the way picture books were read to students. Teachers should now

ensure that the text and visuals were visible to students, who were encouraged to form and talk about associations with their own experiences and previous readings.

Furthermore, the programme encouraged the establishment of a lending library in each *nepiagogeio* class. Initially, this practice met with opposition owing to lack of funding for the purchase of books. However, it has since been adopted in the large majority of classes, making today's *nepiagogeio* the richest school structure in terms of children's contact with books. With regard to writing, creative writing is encouraged through activities and materials which involve all children in meaningful writing activities, both individual and collective. Reference boards and acquaintance with library books and other written resources contributed by students and teachers provide the basis for literacy events in which children's creative writing occupies a prominent place. These pleasurable and relaxing literacy activities contribute largely to the development of phonological awareness as children engage directly in the coding-decoding process between oral and written language. This language programme was first incorporated in the 2003 Cross-thematic Curriculum for *nepiagogeion*, and is still in use today.

The Cross-thematic Curriculum (Government Gazette, 303 & 304 / 13.3.03) adopts the holistic approach to the child's physical, emotional, mental and social development and places the child at the centre of the educational process. The parents' role as educators is acknowledged and parent-teacher collaboration is encouraged. The basic principles of the theoretical orientation upon which the Cross-thematic curriculum rests are as follows:

- Children learn better in an environment which addresses their needs and in which they feel protected
- Development is stimulated when children experience challenges slightly above their level of skills.
- Knowledge is not merely transmitted. On the contrary, its acquisition is dependent on the constructivist activity of the students themselves.
- Children possess diverse modes of learning.
- Play, whether spontaneous or pedagogically organized, is an important medium for stimulating development.
- Learning occurs in authentic situations, focusing on topics which appeal to children.

The methods applied in curriculum implementation are *Project-based learning*, which engages children in actions which result in concrete productions, and *Theme- or Problem-based learning*, which focuses on producing solutions to real-life problems. Learning activities should be flexible so as to accommodate the needs, inclinations and interests of each child in a safe and comforting environment. They should be designed in ways that promote respect for the cultural and linguistic identity of all children and they should encourage students to construct hypotheses, develop critical thinking, investigate, make decisions and solve problems.

### **4.3. Education qualifications and in-service training of pedagogues and pre-school teachers**

Child-care pedagogues working in day-care centres receive their initial education and training in Higher Technological Institutes (TEI). *Nepiagogeio* teachers are university graduates, a considerable number of whom are employed by *paidikoi stathmoi*. In the course of their studies, both pedagogues and pre-school teachers were sensitized to the distinct needs of children from socio-economically disadvantaged backgrounds. Issues related to present-day multicultural societies and the multicultural environment which is typical of many Greek schools were addressed, in addition to children's rights, citizenship issues, and differentiated pedagogy.

*Nepiagogeio* teachers can receive further training through in-service training programmes, which are often provided by school counselors in the form of workshops or

seminars. School counselors also organize small- or large-scale seminars on issues proposed by teachers. Attendance is compulsory and leave of absence is provided by schools. In addition, school counselors organize training sessions in which participation is optional. Teachers collaborate with their colleagues, parents and school counselors on curriculum implementation and other issues. Active collaboration between pre-primary and primary school teachers is extremely important in establishing bridges between pre-primary and primary school which will ensure children's smooth transition from the former to the latter.

Preschool counselors supervise, mentor and support *nepiagogeio* teachers in their day-to-day teaching needs concerning curriculum implementation. They participate in teachers' evaluation with the aim to improve the quality of educational work. More specifically, a preschool counselor:

- manages educational policy and supports the implementation of educational innovations;
- schedules, monitors and coordinates educational work, encouraging and guiding teachers;
- undertakes training initiatives for teachers and supports in-service training;
- participates in teacher evaluation;
- compiles official reports on teachers.

#### 4.4. Educational work and staff evaluation

The assessment of the Greek education system has been a controversial issue for several decades. According to OECD, "Evaluation and assessment in Greece are under-developed. Until 2013 there were no evaluation and assessment systems at primary and secondary levels" (OECD, Education Policy Outlook 2015).

Over the past 35 years there has been abundant legislation on the evaluation of *educational work* and teachers. According to [Law 1304/82](#), school counselors have a role in teachers' evaluation. Law 1566/85 specifies that school directors, deputy directors, and Heads of the supervising educational authority participate in primary and secondary school teachers' evaluation, while with Law [2043/1992](#) teachers' evaluation is entrusted to these professionals. A few years later, an article of Law [2525/1997](#) explicitly defines the concept and aim of 'evaluation' and the institutions which are to undertake it. In the same Law reference is made to the establishment of a Body of Permanent Evaluators and the procedures for their appointment are specified. Law [2986/2002](#) redefines the aims and the character of evaluation procedures for *school work* and *teacher work* and the authorities responsible for the development and support of the whole process. Circular [Γ1/37100/ 31-03-2010](#) on *school self-evaluation* defines measures to be taken for the facilitation of a pilot programme in schools which will initiate a series of innovatory actions aimed at improving educational work. Law [3848/2010](#) defines the procedure of planning and relevant evaluation actions at the level of individual schools and specifies the authorities responsible for publicizing these actions and school evaluation reports.

Presidential Decree 152/2013 on Teachers' Evaluation establishes the authorities, procedures and criteria for teacher evaluation and promotion. It should be noted that self-evaluation of the educational practice at the school level is carried out by the board of teachers in collaboration with the school principal and is supported by the school counselor. Self-evaluation is conducted on a five-point scale according to the following criteria: interpersonal relationships and expectations, pedagogical climate, organization of school life, understanding resources and students' needs, planning and preparing teaching.

In 2013, the Authority for Quality Assurance in Primary and Secondary Education (ADIPPDE) is created, aiming at the evaluation of *educational work*. ADIPPDE is an administratively autonomous authority supervised by the Ministry of Education. Its mission is to monitor study and assess the implementation of education policy in primary and secondary education, to evaluate the quality of the educational work of schools and other decentralized

educational services, and to supervise evaluation for primary and secondary education teachers. Circular [F1/190089/ 10-12-2013](#) refers to the implementation of the evaluation of educational work for school year 2013-2014. The results of this work are not yet available.

However, no advances have been made and the present government is in the process of reconsidering the issue of evaluation.

Regarding the operation of ECEC services, there are certain strict regulations. In order to obtain authorization to operate, a *vrefonipiakos stathmos* or *paidikos stathmos* must undergo service evaluation, whereby competent authorities decide whether the centrally-defined official standards are met (Ministerial Decision, National Gazette, 1519/4.12.2002). Staff evaluation in day-care centers is conducted according to the framework applied in the assessment of public servants in general (Law 2683/9.2.99). For a *nepiagogeio* to be established, authorization is granted only when its infrastructure complies with the official guidelines for school buildings (School Buildings Organization, 2008).

The Hellenic Statistical Authority collects data on the infrastructure, number of employees and beneficiaries, funding etc. of ECEC services. To a certain extent, these data are considered during educational planning at the central and local level.

*Some strengths typical of ECEC services in Greece*

- Highly-qualified workforce on all levels (ISCED 4, 5 and 6)
- Permanent continuous education for *nepiagogeio* teachers, with mentoring, evaluation and support procedures
- National curriculum for pre-primary schools

*Some weaknesses typical of ECEC services in Greece*

- Small proportion of permanent workforce in day-care centres
- A wide range of staff with different levels of qualification entrusted with the same assignments in day-care centers
- Occasional continuous education for day-care pedagogues
- Lack of a formal curriculum (defined at the central or local level) in day-care centres
- Low accessibility both in day care-centers and in pre-primary schools
- Lack of ancillary staff in pre-primary schools

## 5. Summary and suggestions

Early Childhood Education and Care has attracted considerable political and academic interest in the light of studies which have shown that investments in early childhood bring the greatest benefits for individuals and society. In the case of ECEC, quality improvement means high accessibility to ECEC institutions, a highly-qualified workforce, modern pedagogical programmes and systematic monitoring and assessment of the work produced. The European Union is consistently promoting the enhancement of this field through studies and funding to Member-States.

In an interview to the *Children in Europe* magazine (2011), Nora Milotay stresses that enhancing accessibility is not the only issue. Other aspects of ECEC, including funding and workforce, are also crucial. The Coordinator of the Thematic Working Group of the European Commission also notes that, regardless of the education system adopted by each Member-State, education and care should not be treated separately but, rather, as parts of the same system. Ms Milotay stresses the importance of increasing accessibility for children from underprivileged backgrounds. In terms of investment, she believes that common guidelines should be followed by all Member-States so as to secure and fully utilize European funding for early childhood. Finally, Ms Milotay expresses the view that raising the status of Early Childhood Education and Care in society should be a major priority and that the field of ECEC can contribute substantially to other areas of the education system.

With regard to ECEC in Greece, the authors of this paper wish to propose the following:

3. Measures should be taken to increase accessibility to ECEC institutions for all children.

4. The view that education and care cannot be separated should be promoted. Indeed, it is essential that education and care coexist in each and every ECEC agency. It is also vital that appropriate pedagogical programmes for each age group are implemented with great emphasis on the pedagogical function of play.

- Training programmes informing and sensitizing ECEC workforce to issues of support and management of students' linguistic, cultural and social diversity should be promoted.
- Research on the connection between ECEC attendance and long-term benefits for individuals and society should be supported.
- A National Quality Framework for preschool education and care in Greece should be established in accordance with the European Quality Framework, specifying the domains, indicators and methods of monitoring and assessing ECEC quality.

The authors share the view that a reform of the Early Childhood and Care system in Greece can eliminate its problematic aspects and contribute to the improvement of service quality, producing maximum benefits for children, families, and society.

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## **A Comparison of the Socio-Psycho Educational and Personality Characteristics of Learning Disabled-Dyslexic Children with Normal Controls**

### **Abstract:**

Learning disabled (LD) – dyslexic children experience more social isolation, social exclusion, loneliness, less access to social goods, i.e. in education, employment, welfare, more loneliness and report lower levels of the sense of coherence than the average achieving pupils. Their reading and other learning problems are likely to continue into adulthood. Last but not least, general LD have been associated with juvenile delinquency.

**Aim:** This study examined whether: a) There is a significant correlation between the socio-psycho-educational-environmental problems and LD and b) where LD can be differentiated from their normal controls on the basis of their psycho-socio-educational profile.

**Material:** The parents of the LD as well as their normal controls who participated in the study completed a comprehensive questionnaire, about their children's behavior, their psycho-educational and social behavior.

**Subjects:** Two hundred and twenty seven (227) {122 boys and 104 girls} children and their parents, took part in this research, ranging in age from 6 to 11 and attended grades from 3 to 6. The sample consisted of 136 normal controls (57 boys and 78 girls), and 91 LD-Dyslexic children (65 boys and 26 girls). All were drawn from the "Dyslexia & I.Q. Center". The controls were identified according to their parents answers who had filled the questionnaire that was mentioned above.

**Results:** The LD-Dyslexic children's psycho-educational characteristics were found to be significantly worse than those of the normal controls of the same age. The two groups differed so much that on the basis of their psycho-socio-educational profile the Discriminant Analysis correctly classified the two groups with the high accuracy of 94,6%. The LD-Dyslexic group was correctly identified with 97,6%, while the normal controls were classified with 93,7% accuracy.

**Conclusions:** The very high discrimination accuracy between the two groups raises the possibility to use the 21 questions of the above mentioned questionnaire as a quick, easy to administer, inexpensive and highly accurate screening tool for children with suspected LD-Dyslexia. As it does not include questions about reading, spelling or language, therefore may become appropriate for screening even at preschool age, as a prognostic screening test of LD. The high diagnostic accuracy of the questionnaire has been proven to be highly consistent in different studies ranging from 93,7% to 97,6%. This prognostic-diagnostic screening potential is of particular importance to countries like Greece, where only few and very limited possibilities exist within the educational system for the diagnosis of the LD-Dyslexic children. However, one has to be cautious to the strong possibility that the characteristic psycho-socio-educational profile may not be specific to LD-Dyslexics but also characterize children with general LD of different etiologies, e.g. low IQ, adverse psycho-socio-educational environment, etc. as shown by Aslanidou and Pavlidis. Even so, the questionnaire accurately differentiates children with LD-Dyslexia.

**Key words:** dyslexia, prognosis screening test, diagnosis, Learning disabilities, Learning Disorders, Remediation, Social Behavior, Psycho-socio-educational characteristics, diagnosis.gr

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## 1. Introduction

[www.dyagnosis.gr](http://www.dyagnosis.gr) is an electronic application diagnosing Learning Disabilities by combining 21 questions and the IQ RAVEN test based on many years of detailed research by Dr. Maria Xystrou. [www.dyagnosis.gr](http://www.dyagnosis.gr) has proved to be an easy & fast tool in its use for the purposes of prognosis and diagnosis, low cost and 97.6% precision for children who probably have Learning Disabilities. Given the fact that questions involving reading, spelling and the use of language are not included, it can be applied even to children of pre-school age as a Forecasting Test for Learning Disabilities. The very high accuracy level as a result of statistical analysis, compels/makes the use of [www.dyagnosis.gr](http://www.dyagnosis.gr) the best choice

Learning disabilities cause school failure, which leads to a negative view of the child by adults, his or her peers, and by the child himself or herself, and then leads to association with a delinquent peer group. If children reject social institutions (such as school), they may seek alternative, frequently delinquent, activities. Several authors have suggested that there is a strong association between specific learning disabilities and aggression, antisocial behaviour, and juvenile delinquency. Claims that learning disabilities cause aggressive behaviour and delinquency are increasingly common in the popular press. A variety of theories concerning this purported causal relationship have been proposed. (Cornwall, A., Bawden, HN., 1992)

## 2. Methodology and Research Design

### 2.1 The Aim of the Study

This study examined whether: 1) There is a significant correlation between the socio-psycho-educational-environmental problems and LD 2) Dyslexics-LD could be differentiated from their normal controls on the basis of their psycho-socio-educational profile.

This thesis poses and analyses a problem, but it is not claimed that resolves it. It would need the reflections of many people and the collaboration of different scientific fields, which often nowadays are separated by artificial barriers, to be able to answer little by little the questions that arise in the course of the study. Those concern psychology, anthropology, sociology or ethnology.

### 2.2 The Subjects

Two hundred and twenty seven participants (122 boys and 104 girls) took part in this thesis ranging in age from six (6) to twelve (12) and their parents. The sample consisted of a hundred and thirty six (136) normal controls -boys and girls- from different schools in the region of Thessaloniki and socio-economic status, ninety one (91) dyslexics, ADHD and learning disabled children from the "Dyslexia and I. Q. Centre". All subjects came from the region of Thessaloniki. The subjects' selection as well as their testing took place according to standard ethics and after the necessary permissions were received and the appropriate informed consents were filled out.

### 2.3 The Material

The basic tool used in the study is "Pavlidis' Questionnaire" and IQ Test Raven

In this study the criteria used for identifying dyslexics have been fairly strict and as «quantitative» as possible. The criteria were set after long consultations with educational psychologists and careful critical search through the dyslexia literature. The main aim of the criteria is to distinguish dyslexics from backward readers, and for dyslexics to be at least as retarded in reading as backward readers. Another aim has been the quantification of as many qualitative factors as possible, e.g., educational opportunities. The children had to fulfill all the criteria in order to be included in studies.

*In this study we deal with different age groups and with a breadth of disorders ranging from learning disorders and dyslexia across emotional problems and antisocial behaviour. All*

the normal control subjects come from the region of Thessaloniki and were given the following tests: RAVEN: Standard Progressive Matrices (RAVEN IQ test), Reading Text, Spelling text, Comprehension.

All of the children and their parents spoke Greek as a first language. The dyslexic and learning-disabled participants were tested and diagnosed mainly in “Dyslexia and IQ Centre, Thessaloniki. The normal controls were tested in their schools. Completing the questionnaire took 40-50 minutes.

## 2.4 Procedure

The parents of normal controls participating in the study were be individually given a questionnaire to complete about their children’s reactions and social behaviour in terms of friendship, social adjustment, educational and behavioural problems. The dyslexic children’s parents had already filled in an extended questionnaire Further investigations, particularly socio-educational evaluation, were of major importance.

Both groups of participants wrote a dictated text appropriate for their age. Participants also read a text appropriate for their age and a second text two years below their grade, and their reading speed was calculated. Finally, the RAVEN IQ test and WISC-R verbal and performance scores were analyzed, in a classical as well as in a novel way.

The average duration of the test was 45 minutes per child. There were few children who needed 50-55 minutes. The children were tested individually. There was a stopwatch for the timing. The RAVEN IQ test was given for the whole group at the same time

Of the 360 delivered questionnaires, 280 were completed and returned (boys and girls). In this research only 136 were used. In August 1999 the questionnaire was sent to 80 parents in Melissoxori-Thessaloniki, who were from mid-low socio-economic status. 60 questionnaires were returned and 30 of them are used in the research. In December 2000 the Q was sent to 280 parents who were from middle-high socio-economic status. Questionnaires were returned by 180 of the parents and 106 were used in the research.

## 3. Statistical Analysis

Discriminant Analysis Technique was used to **Classify** if a child is a Dyslexic-LD recording to his psycho-socio-educational profile and to **Define** those factors that are particularly significant in this estimation (rejecting certain others) and to use them in order to evaluate if a child is LD-Dyslexic or not.[**To define the question diagnosing LD**]

Diagnosis (Normal/Dyslexics-LD)		Predicted Group Membership		TOTAL
		DYSLEXICS-LD	NORMAL	
Original Count	Dyslexia-Ld	40	1	41
	Normal	8	119	127
%	Dyslexia-Ld	97,6	2,4	100,0
	Normal	6,3	93,7	100,0

94.6%

Accurately Diagnosed

### 1<sup>st</sup> Analysis

The Dyslexic-LD children's psycho-socio-educational characteristics were found to be significantly worse than those of the normal controls of the same age. The two groups differed so much that, the Discriminant Analysis correctly classified the two groups with an accuracy of 94,6%. The LD-Dyslexic group was correctly identified with 97,6%, while the normal controls were classified with 93,7% accuracy.

### 2<sup>nd</sup> Analysis

*In order to classify if a child is a LD-Dyslexic focusing only in his psycho-sociological profile, we exclude questions relevant to educational profile (a. reading, spelling & arithmetic/ b. reading, spelling). The Discriminant Analysis was repeated.*

*The two groups differed so much that the psycho-sociological profile itself was enough to correctly classify them with an accuracy of 88,8% & 89,9% respectively. The LD-Dyslexic group was correctly identified with 83,7% while the normal controls were classified with 90,6% accuracy.*

**Classification Results<sup>a</sup>**

			Predicted Group Membership		Total
			Has learning difficulties	Normal	
Original	Count	Has learning difficulties	36	7	43
		Normal	12	115	127
	%	Has learning difficulties	83,7	16,3	100,0
		Normal	9,4	90,6	100,0

a. 88,8% of original grouped cases correctly classified.

### 3.1 Reading-Spelling-Arithmetic excluded

#### 3.2 Reading Spelling Excluded

The LD-Dyslexic children's psycho-sociological characteristics –reading & spelling excluded- were found to be significantly worse than those of the normal controls of the same age. The LD-Dyslexic group was correctly identified with 87,8% while the normal controls were classified with 90,6% accuracy.

**Classification Results<sup>a</sup>**

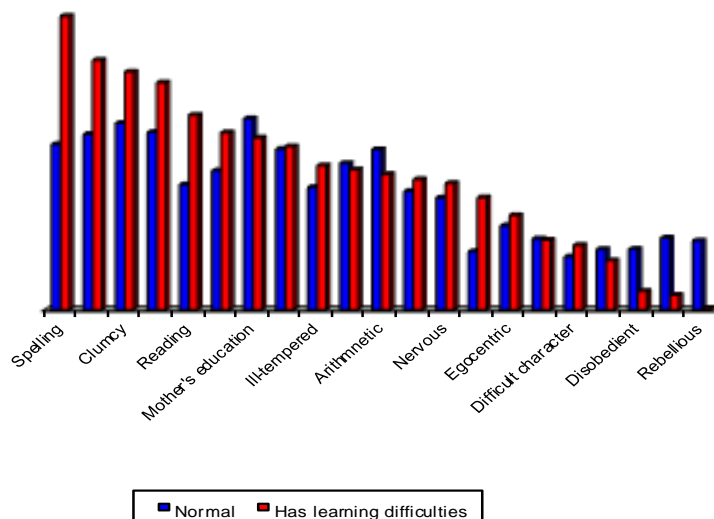
Diagnosis (Normal - With learning difficulties)			Predicted Group Membership		Total
			Has learning difficulties	Normal	
Original	Count	Has learning difficulties	36	5	41
		Normal	12	115	127
	%	Has learning difficulties	87,8	12,2	100,0
		Normal	9,4	90,6	100,0

a. 89,9% of original grouped cases correctly classified.

### 3.3 The results

The results of this thesis using the 21 questions of the screening test “dyagnosis.gr” were most promising. The LD-dyslexic children psycho-socio-educational characteristics were found to be significantly different from the normal controls of the same age. In fact, the two groups different so much that on the basis of their psycho-socio-educational profile the Discriminant Analysis (DA) successfully classified the two groups with accuracy of 94,6%. The LD-dyslexic group was correctly identified with 97,6% while the normal controls were classified

**Classification Function (LD diagnosis)**



with 93,7%.

The results of this study when seen superficially, i.e. the total percentage of their emotional and behavioral problems, confirm and agree with existing literature, which claims that learning disabled and dyslexic children differ in their social skills social, behavior and psycho-educational profile. Learning disabled children seem to understand what is acceptable behavior in our society, they have problems choosing appropriate social behaviours to actually use. (Schumaker & Hazel,1984).

#### 4. Conclusions

The very high discrimination accuracy between the two groups raises the possibility to use the above screening test “www.dyagnosis.gr” as a quick, easily used, inexpensive and highly accurate screening test for children with suspected LD-Dyslexia. As it does not include questions about reading, spelling or language, therefore may become appropriate for screening even at preschool age, as a prognostic screening test of LD. The high diagnostic accuracy of the questionnaire has been proven to be highly consistent in different studies ranging from 93,7% to 97,6%.

The present research was primarily designed to create a social profile of the learning disabled and dyslexic children, likewise designed to empirically identify distinct behaviour in children with learning disabilities and dyslexia through the use of the **screening test “dyagnosis.gr”**. Also, to compare family background in relation to their individuality and self-image in Learning Disabled children to normal controls. Socio-Emotional, educational and behavioral problems may help to better identify that a child may have Learning Difficulties. Although we must keep in mind two important facts: 1) The socio-psycho-educational profile of the LD child may not be unique and it is very likely that its secondary to their learning problems. 2) Psycho-socio-enviro-educational and intelligence factors do not cause dyslexia, but they can contribute to its severity or amelioration\_ (Pavlidis, 1985, 1990, 2004). Even so, the screening test “dyagnosis.gr” with high accuracy differentiates children with LD-Dyslexia from normal controls.

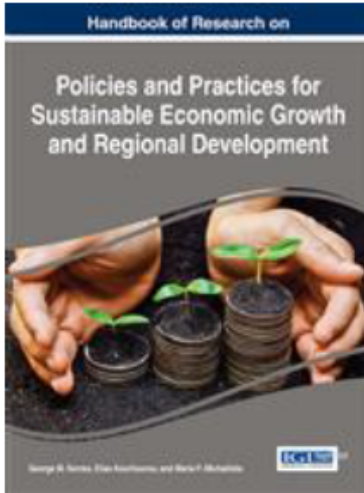
The potential benefits of such a successful rate are of great importance. Learning disabled and dyslexics persons have a limited choice and a reduced possibility of participating in the social activities in a community, as well as poor social behaviour. Perhaps the needs of those with Dyslexia and Learning Disabilities could be neglected and so individuals could loose out on the support they need. The aim is to provide a quick, easy to use, inexpensive and accurate tool for the screening of LD-dyslexics. This potential will be of particular importance to countries like Greece, where only few and very limited possibilities exist within the educational system for the diagnosis of the LD-dyslexic children. The easy identification of children with possible Dyslexia and Learning Disabilities raises the possibility to satisfy their need for treatment. Learning disabled children must be identified so that programs, which also minimise the disability while emphasising the children’s strengths, can be instituted.

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