

PUBLIC SPENDING PATTERNS: THE REGIONAL DISTRIBUTION OF PUBLIC INVESTMENT IN GREECE¹

Yannis Psycharis

University of Thessaly, Volos, Greece

Abstract

The spatial dispersion of public investment constitutes one of the principal elements and also one of the key issues concerning the country's strategic regional development. It is evident that public investment expenditure represents in part the 'social wage' citizens receive, while at the same time it generates external economies for the productive sectors of the economy.

Using a dataset that includes total outlays by all central, regional and local authorities, this chapter traces the distribution of public investment in Greek prefectures (NUTS III spatial level) over the period 1976-2005. It seeks to highlight the spending pattern governments of that period followed, to compare the changes (if any) between different periods, and to try to explain whether redistribution of national wealth or other factors such as political ones could be held as sufficient evidence for explaining the pattern and its temporal changes.

Keywords: Public investment, regional development, territorial public expenditure.

1. Introduction

In recent years, the geography of public investment has gained renewed attention. Public investment affects the regional economy in two ways. The first is the short-term effect; an increase in public investment directly and indirectly stimulates economic growth. The second is the long-term effect; public

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investment creates public capital which provides the economy and society with the necessary infrastructure and upgrades both the social well-being and the development potential of the territories. Classical writers (Buchanan, 1949, 1950 and 1952; Scott, 1952; Musgrave, 1959; Oates, 1972 and 1998; Samuelson, 1954; Tiebout, 1956; Hirschman, 1957) and more recent advances in empirical work have given prominent position to the role of public investment in economic development (Bennett, 1980; Heald, 1994; Aschawer, 1989). This is why the geographical dispersion of public investment has taken on a renewed political salience for many governments in the contemporary public policy debate (Heald and Short, 2002: 714).

This chapter examines the regional distribution of public investment in Greece during the 30-year period from 1976 to 2005. In the course of this period, the volume of public investment increased at current prices by 63 times². However, at constant prices, increases were much less intense; in the year 2005, the volume of public investment was 1.7 times higher than that of the year 1976, whereas the year 2004 was 2.3 higher in comparison to the year 1976. It is also worth noting that the Public Investment Budget as a percentage of GDP fluctuated around 4% for the period 1976-1997, and between 5-6% for the period 1997-2005.

2. The Geography of Public Finance – Methodological Issues

Research into the geography of public finance is not at all a straightforward issue. There are tremendous methodological problems when the scale of analysis changes from the national to a sub-national level. Decisions over a number of issues are of crucial importance for the foundation and limitations of the analysis. Problems involved include, amongst other things, decisions over the determination of the periods, the geographical scale of analysis and the manipulation of statistical data.

Choice of one period of time rather than another is of course an arbitrary and occasionally confounding issue. Different periods emerge when the analysis is based on economic cycles rather than on political cycles. Hence, decisions over periods are usually determined by the actual purpose of the analysis. This also has some limitations. Trends in public spending, for example, that have been observed in one period might have started before the period under study.

Another problem is related to the availability of data at the disaggregated geographical levels since usually only a part of the expenditure has a specific geographical orientation. A large amount of public spending remains unallocated, yet this unallocated amount is not at all geographically neutral. Furthermore, even in cases of geographically identifiable expenditure it is

² In 2004, the year of the Athens Olympic Games, public investment volume reached its highest level ever, which was 80 times higher than that of 1976.

questionable whether these increments 'in' the geographical boundary of the prefectures are also 'in and for' the prefectures.

Concerning the measurement issues, it is quite different to construct a geographical pattern of public expenditure based on the volume of public spending rather than on the per capita payments. The latter is the most commonly used measurement in order to make comparisons. As we will discuss later, this also has some limitations. There is also another issue which is related to what we really measure. The evolution of the gross amount of public investment is an analysis of flow, whereas the accumulation of public capital is an analysis of capital formation.

Finally, the coverage and content of public investment in the course of a 30 year-period is gradually changing and different types of payments have been included in the public investment budget, whereas other types have been removed. These changes impact on regional distribution to the extent that the location of benefits of new programmes (e.g. life-long learning) is different from that of the beneficiaries of discontinued programmes (border regions support programmes).

3. The Geography of Public Finance in Greece – Data and Sources

There are different perspectives through which public investment expenditure in Greece has been studied in the past (Psycharis, 1990, 1993, 2000, 2004; Lambrinidis *et al.*, 1998; Rovolis, 1999; Lambrinidis *et al.*, 2005; Mpistikas, 1985; Petrakos and Psycharis, 2004; Psycharis and Georgantas, 2004; Psycharis and Monastiriotes, 2007). This chapter aims to comprehensively address the regional funding patterns of all different governments during the period 1976-2005, and also to consider some plausible explanations for such changes. The regional distribution of public investment for such a long time period in Greece is being studied for the first time. This is the obvious benefit of this chapter; it systematically presents the pattern of public investment allocation in Greece over a long period and it provides the base-line for further research.

Our analysis focuses on Greece during the period 1976-2005. Greece covers an area of 132,000 km², has a population of 11,961,758 inhabitants and is divided into 51 prefectures (in Greek, *nomos*)³. Greek prefectures correspond to level III of the Nomenclature of Territorial Units for Statistics (NUTS) of EUROSTAT, the Statistical Office of the European Union. The average surface of a representative prefecture is 2,587 km² (range from 356 km² to 5,461 km²). The prefectures are a key feature of the Greek political, administrative and planning structure and also the base unit for constituencies, with the exception of Attiki and Thessaloniki, which contain five and two constituencies each respectively. In addition, prefectures had been, and to a very large extent still

³ See also Figure 7.

are, the spatial level on which the attention of regional development policy has been focused for many years. Regions which today play an important role in regional policy didn't exist until 1986; they were legislated for in that year, but they didn't become fully functional until after 1997.

Developing such a comprehensive analysis requires access to data sources different from the conventional ones (*see* data Appendix). The starting point for our analysis was the payments made through the State Investment Programme. The Greek Public Investment Programme (PIP) is part of the Greek Annual Budget; it forms a very important constituent of the State Budget and, of course, is approved by Parliament. The PIP is the main mechanism for providing the Greek economy with infrastructure, and it also encompasses the structural funding from the European Union.

Data that are used in this study include all payments realised by different tiers of public administration; the national (ministerial) level, the regional, the prefectural, and the local. Such data include public investment in infrastructure for the economy's primary and secondary sectors, payments for infrastructure in the form of roads, bridges, ports, airports and tourist facilities, urban infrastructure (primarily water and sewage facilities and housing), social infrastructure (education and health), etc. To obtain a measure of public investment at constant prices, sectoral deflators were used for the different categories of infrastructure investment. All variables are expressed in euros and at constant 2000 prices (*see* also at the data Appendix). For every variable, there are 1,650 observations, i.e. 51 cross-section observations per year.

The assignment of public investment to different prefectures is not at all a straightforward issue. Regionally allocated public investment accounted for some 55% of total public investment in the study period. The remaining 45% remains unallocated and could not be assigned to any specific prefecture (for the UK experiences *see* also Heald and Short, 2002: 749; Cameron *et al.*, 2004). This includes inter-regional projects or projects that affect the entire population of the country. The current study is based only on the regionally allocated part of the expenditure (regionally identifiable or regionally relevant expenditure).

The analysis presented below is carried out in sub-periods. Each sub-period is determined by the duration of each government's period of office.. Based on the above, the main periods of the study are the following: 1976-1981, 1982-1989, 1990-1993, 1994-2000, and 2000-2004.

These periods coincide with particular political parties' terms in office. Thus, Period 1976-1981, the 'New Democracy' (ND) party, the Liberal Party, was responsible for the country's government. This was also the period of restoration of democracy after the falling of the dictatorship in 1974. The next period begins in 1982 and covers the period 1982-1989. This comprises the 'Socialists' Era'. During this period, the 'Panhellenic Socialist Movement' (PASOK)

was responsible for the country's government (1981-85, 1985-89). Over the period 1989 to 1990, Greece was governed by three short-lived governments with limited mandates, one was a coalition between the conservative party of New Democracy and the Left, one was a caretaker government, and one was a 'national unity' government in which New Democracy shared power with both PASOK and the Left. In 1990, the ND party won the elections and formed a government. Only from the middle of 1990 through 1993 was the conservative party of New Democracy alone in power but, again, its extremely weak parliamentary majority (of one vote) formed a decisive obstacle to the implementation of policy choices. Internal conflicts within the party led to the collapse of the ND government and a victory in the 1993 elections for PASOK, who also won the 2006 and 2000 elections, returning to power and remaining in power for the entire period 1993-2004 (1993-96, 1996-00, 2000-04). In the elections of the 2004, the ND party won the elections and returned to power.

Table 1: Periods of the Post-dictatorial Greek Governments

1974-1977	New Democracy Party – Liberal Party
1977-1981	New Democracy Party – Liberal Party
1981-1985	PASOK – Socialist Party
1985-1989	PASOK – Socialist Party
1989	Coalition government – Liberal Party and the Left
1989	Caretaker government
1989-1990	National unity government
1990-1993	New Democracy Party – Liberal Party
1993-2006	PASOK – Socialist Party
1996-2000	PASOK- Socialist Party
2000-2004	PASOK- Socialist Party
2004-2007	New Democracy Party – Liberal Party
2007-	New Democracy Party – Liberal Party

Following this introduction, the regional variations in public spending patterns for five periods are presented with an examination of some reasons for these variations. Then, a presentation of summary statistics sums up the persistence and changes of the pattern over time along with a short conclusion.

4. The Geography of Public Finance in Greece by Political Period

At the outset, it is important to emphasise that the most common ranking on regional spending patterns is constructed according to *per capita* distribution of public expenditure (i.e. Heald, 1994; McLean and McMillan, 2003). Regional comparisons of total spending are meaningless unless a suitable measure is introduced. As Short (1978: 502) states '*...population would appear to be the most suitable overall yardstick ... since public expenditure as a whole is related to the needs of people*'. However, as Anton (2000: 431-2) argues '*...it is too easy to over-interpret per-person expenditure information ... because even relatively small sums can appear large when divided by the tiny population. Conversely, more heavily-populated states receive very large amounts but, because those expenditures are divided by much larger populations, the data consistently show below-average receipts*'. In this chapter, the principal ranking is based on per capita values. However, the magnitude of public spending is also included in the analysis as well as GDP per capita as '*another prima facie indicator of regional needs*' (McLean and McMillan, 2003: 48).

4.1. The Period 1976-1981 – New Democracy Party in Power⁴

In this section, the stylised facts that have resulted from the analysis are presented in Table Ia at the Appendix. The analysis is carried out using average public investment expenditure by period. The first column of this table show per capita distribution of regionally allocated public investment over the period 1976-1981. From the bottom line of the table, it can be seen that the regionally allocated public investment per capita over the period 1976-1981 averaged €191.95. The unallocated amount per capita of that period was €163.30. The total average public investment per capita was €355.30. What is presented below, however, is only the regionally allocated part of public investment.

Table Ia shows per capita public investment compared to the national mean. As can be depicted from that table, there are significant regional variations in the distribution of public investment across Greek prefectures, ranking from €467.82 for Evros to €85.02 for Trikala. More specifically, Evros, the north-east border prefecture of Greece, with €467.82 public investment per capita is ranked first, receiving public investment two and a half times the country average. Conversely, Trikala, an agricultural prefecture of western Thessaly, with €85.02 public investment per capita is ranked least, with public investment less than half that of the country average. The max/min ratio between the 'most advantaged' and the 'least advantaged' prefecture is 5.5 (see Table 11).

⁴ It is also worth noting the Prime Ministers of this period. The first elected post-dictatorial government under Konstantinos Karamanlis was that of 1974-1977. He also won the 1977 elections and remained Prime Minister until 10th May, 1980, when he was elected President of the Hellenic Republic and Georgios Rallis became Prime Minister of the country on October 21st 1981.

During this period 23 prefectures receive shares above the country average, and 27 prefectures receive shares below it.

Starting from the 'most advantaged' prefectures, it can be seen that the mountainous prefecture of Evrytania, which received on average €388.80 public investment per capita, holds the second place in the relative ranking. The agricultural prefecture of Serres, with €387.62 public investment per capita, holds the third position in the ranking. Both prefectures had received twice as much as the country average. The agricultural prefecture of Ileia, with €357.11 public investment per capita, holds the 4th place and Ioannina, a prefecture in the region of Hpeiros (the least well-off region of the country), with €294.48 public investment per capita, holds the 5th place in the ranking. The other five places are held by Voiotia, an industrial prefecture adjacent to Attiki, Pella, which is the industrial prefecture adjacent to Thessaliniki, the mountainous prefecture of Grevena, the prefecture of Preveza and the Prefecture of Samos Island. All these were the top ten 'beneficiaries' of that period.

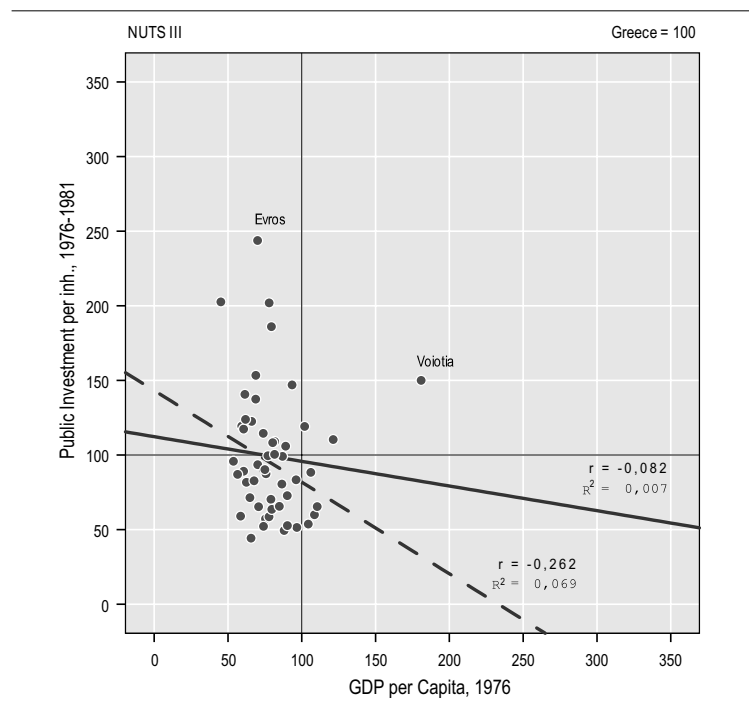
At the other end of the spectrum, there are the prefectures with public investment per capita well below the national average. As stated above, the prefecture of Trikala, which received €85.02 public investment per capita, held the lowest place. The prefecture of Larisa, with €94.79 public investment per capita, held the 50th and thus second worst place in the ranking. The mountainous prefecture of Kozani, with €98.82 public investment per capita, held the 49th place, third from bottom in the ranking. The agricultural prefecture of Karditsa, with €100.17 public investment per capita, held the 48th place. The prefecture of Fthiotoda, with €101.25, held the 47th place. The prefectures of Imathia, Pieria, Kerkyra, Arta, and Evoia held the bottom ten places in the ranking. All of these ten prefectures received public investment around and below 50% of the national average and were the net 'losers' of that period.

Apart from examining the extreme cases, it is worth having a closer look at the prefectures of Attiki and Thessaloniki. These two prefectures include the largest urban agglomerations in Greece: Athens and Thessaloniki. Attiki, which contains Athens, the capital of Greece, receives the lion's share of public investment at nominal values (37.6% of the total), but in per capita terms this prefecture receives only 10% above the national average and holds the seventeenth position in the relevant ranking. Thessaloniki, with per capita public investment 27% below the national average, holds the thirty-fifth position in the ranking.

All of this raises a number of questions. Let us examine two of them. Firstly, is there any clear pattern for the regional allocation of public investment during this period? The answer in general is no. No more than a quick glance at the 'winners' and 'losers' lists doesn't seem to reveal any 'clear' geographical pattern emerging so far. The geography of public investment is rather 'patchy'.

Secondly, are there any reasons explaining the relative distribution of public investment during this period? This question cannot be answered without conducting extended work. However, one plausible explanation is that the regional distribution of public investment had being dictated by redistribution of national wealth in favour of the prefectures with higher 'needs'. Some economists believe that distributional issues should form an integral part of the public sector spending schemes. If this had been the case, one would expect to see a negative correlation between the level of economic development (expressed by GDP per capita) and the public support that prefectures received (expressed by public investment per capita). The coefficient correlation between GDP per capita and public investment per capita is presented in Figure 1.

Figure 1: Scatter-plot of per capita Public Investment (1976-1981) and GDP (1976) for Greek Prefectures (Greece=100)



When regional GDP per capita in 1976 is plotted against public investment per capita for the period 1976-1981, it seems there is a small negative relationship between the values under study – the slope of the curve shows a relatively small negative gradient – which, however, is not statistically significant, and thus no substantial redistributive effect can be proved. This result, however, has been influenced by outliers; such is the case of Voiotia in the upper right quadrant and Evros in the top left quadrant of the Diagram. Even when

outliers are excluded, still redistribution cannot carry sufficient evidence of geographical redistribution, as indicated by the broken line in the Diagram. Conversely, as can be depicted from the bottom left quadrant, in a large number of cases, prefectures lagging behind in economic development were also lacking in public investment expenditure support.

As a general conclusion to the preceding analysis, it could be said that the Liberal governments of that period followed a pattern with the principal aim of directing public investment to the country's industrial poles, such as Voiotia, the industrial 'satellite' adjacent to Attiki, and Pella, the industrial 'centre' adjacent to Thessaloniki being given priority, and the selective support of particular areas such as Evros (a special circumstances border prefecture), Evrytania (a mountainous prefecture and one of the least-developed), as well as certain agricultural areas, such as Serres (which was the place of origin for the country's Prime Minister, K. Karamanlis) and Ileia (the place of origin of the Minister of Economics, Ath. Kanellopoulos). However, the level of underdevelopment does not seem to have comprised a fundamental factor for the regional distribution of public investment in the period 1976-1981. Attiki received the bulk of public investment in nominal terms and above the average in per capita terms. Let us not forget however, that during the 1970s, Athens' rate of expansion was particularly high, and as a consequence urban development problems took on a sense of urgency and their resolution demanded substantial infrastructures, something which policy could not ignore.

4.2. The Period 1982-1989 – Socialist Party in Power⁵

This period was characterised by the following two elements. Firstly, it was a period when successive PASOK governments were ruling the country (1981-85, 1985-89). Secondly, structural funding from the European Economic Community, which Greece joined in 1981, strengthened the financing of public investment.

In 1981, a political change came about in Greece when the Socialists won the elections and remained in power almost throughout the decade. In this section, the degree to which the Socialist governments reset the geographical priorities for public investment provision thus causing a re-shuffling of the ranking compared to the previous period will be investigated. Table 2 reports the spatial allocation of public investment allocation during these two periods (see also Table Ib at the Appendix).

As this table shows, regionally allocated public investment per capita over the period 1982-1989 averaged €212.73 compared to €191.95 of the previous period

⁵ The year 1981 was a turning point in Greek politics since PASOK won the elections and formed the first socialist government. The period 1981-1989 constituted the 'Socialists Era' under Prime Minister Andreas Papandreu with two consecutive terms in power 1981-1985 and 1985-1989.

1976-1981⁶. Thus, the socialist governments followed a more expansionary fiscal policy in the 1980s compare to the fiscal policy of the 1970s. What were the geographical consequences of this expansionary fiscal policy?

Firstly, public investment increased in most prefectures. However, important variations still existed between different prefectures, ranking from €714.37 in Evritania and €135.50 in Ileia, with a max/min ration of 5.2. Evrytania stands first in ranking with €714.37 per capita over the period 1982-1989, enjoying support 4.2 times higher than the country average. Kefallinia with €553.59 holds the second position in the ranking and is enjoying a 2.6 times higher level of support than the country average. The same applies to Voiotia, which with €491.11 public investment per capita holds the third place in the ranking and is receiving support 2.3 times above the country average. Rethymni with €454.6 and Evros with €426.4 public investment per capita are holding the forth and fifth place in the ranking respectively. These two 'beneficiaries' receive support amounting to twice the country average. In total, 34 out of 51 prefectures receive support above the country average⁷. Even the least favoured prefectures received support only 36% below the country average in comparison to the 46% of the previous period. The vast majority of prefectures were finally benefiting from the distribution of national wealth. However, the disparity between the most advantaged and the least advantaged prefectures became more intense! The standard deviation index for that period is 116.4 compared to 83.3 for the previous one (*see* Table 11). This might sounds like a paradox but it is due to the fact that the more advantaged prefectures got disproportionably higher support than the less advantaged. As a result, the gap between the most and the least advantaged was increased.

Perhaps the most striking of the several conclusions that can be derived from Table 2 is the relative change in regional rankings across the two periods. Rank order correlation as high as 0.546 makes it clear that significant changes came about over the period 1982-1989 in comparison to the 1976-1981 period, causing an important re-shuffling for the relative position each prefecture holds in the new ranking. In order to trace these changes, the transition matrix analysis has been applied. Transition matrix is a very commonly used technique to highlight changes in the rank order and to pinpoint precisely the 'winners' and 'losers', the prefectures that got higher amounts and were upgraded in the relative rankings and vice versa. As the transition matrix table (*see* Table 2) indicates, only 20 out of 51 prefectures were kept in the same quintile for both periods. The remaining 31 were moved, of which 13 were downgraded and 18 were upgraded. Table 3 reports the extreme cases of prefectures that were upgraded or downgraded during this period.

⁶ The unallocated amount per capita of that period was €180.9. The total average public investment per capita was €393.7.

⁷ During the previous period, only 20 out of 51 prefectures received support above the country average

Table 2: Transition Matrix - Changes in the Pattern of Public Investment Allocation: 1982-1989 vs. 1976-1981

Public investment per capita ranking quantiles NUTS III						
1976-1981 (row)	1982-1989 (column)					
	42-51	32-41	22-31	12-21	1-11	Total
42-51	4	3	3			10
32-41	2	4	3	1		10
22-31	1	3	1	4	1	10
12-21	1		2	4	3	10
1-11	2		1	1	7	11
Total	10	10	10	10	11	51

Table 3: Changes in the Pattern of Public Investment Allocation: 1976-1981 and 1982-1989. A Selection of Extreme Cases

Unit		Change in ranking for public investment per capita						
NUTS III		1976-1981			1982-1989			Change
		euro/cap.	Rank	GR=100	euro/cap.	Rank	GR=100	Places
Negative	gr233 Ileia	357,11	4	186	135,50	51	64	-47
	gr126 Serres	387,62	3	202	155,72	46	73	-43
	gr3 Attiki	211,79	16	110	174,86	43	82	-27
	gr122 Thessaloniki	169,69	27	88	148,04	47	70	-20
	gr124 Pella	282,05	7	147	243,42	26	114	-19
	gr251 Argolida	203,24	19	106	221,18	31	104	-12
	gr253 Korinthia	125,57	38	65	138,48	50	65	-12
	gr231 Aitolokamania	179,56	24	94	204,39	35	96	-11
	gr112 Xanthi	171,13	26	89	203,40	36	96	-10
Positive	gr143 Magnisia	139,75	34	73	175,21	42	82	-8
	gr431 Irakleio	125,96	37	66	233,37	28	110	9
	gr133 Kozani	98,82	49	51	181,98	39	86	10
	gr144 Trikala	85,02	51	44	175,23	41	82	10
	gr245 Fokida	190,14	22	99	343,65	12	162	10
	gr242 Evvoia	115,05	42	60	227,65	30	107	12
	gr132 Kastoria	135,00	36	70	271,85	23	128	13
	gr114 Drama	137,08	35	71	276,51	21	130	14
	gr211 Arta	113,28	43	59	251,58	24	118	19
	gr141 Karditsa	100,17	48	52	250,89	25	118	23
	gr433 Rethymni	158,77	31	83	454,61	4	214	27

Starting from the prefectures that dropped down in terms of investment allocation, incontrovertibly, the most dramatic case is Ileia, which fell from the 4th position it held in the 1976-1981 period, and was downgraded to the last (51st) place in the respective ranking for the 1982-1989 period. Thus, in the 1 to 51

scale, it was downgraded by 47 places. This severe drop is the most extreme case. Another striking revelation portrayed in these data is Serres which fell from 3rd place in the period 1976-1981, to 46th in the period 1982-1989, and was therefore downgraded by 43 places in the 1 to 51 scale. These two prefectures moved from the highest quartile to the lowest. Both used to be among the beneficiaries of the previous period. Attiki, fell from 16th place to 43rd, i.e. it dropped 27 places. Thessaloniki drifted further, from 27th place to 47th, a drop of 20 places. Finally, the fall in rankings of some other prefectures is also impressive. This is particularly the case for Pella (from 7th to 26th), Argolida (from 19th to 31st), Korinthia (from 38th to 50th), Aitolokarnania (from 24th to 35th) and Xanthi (from 26th to 36th).

Conversely, there are other prefectures that have improved their position in the ranking. Here, the most impressive case is that of Rethymni, which from the 31st position in the 1976-1981 ranking rose to 4th in the period 1982-1989, changing its relative ranking by 27 positions. The transition Karditsa experienced, from 48th to 25th place, i.e. a difference of 23 places, was also impressive. In development terms, this agricultural prefecture was lagging behind by 20% below the national average in the year 1982. This is not the case for Rethymni, which showed a level of development above the national average. However, this prefecture had among the highest proportions of PASOK voters in the country (51.5% in 1981 and 57.2% in 1985, the highest percentage PASOK got in any constituency). This may provide some evidence by way of explanation. Arta also experienced a substantial upgrading, by 19 places, from 43rd position to 24th. Clearly this department required a boost since its level of development was lagging 25% behind the national average. Though the fact that it was the constituency and the place of origin of D. Tsovolas, who served for an extended time as Minister of Economics for the governments of this period, should not go unnoticed. Kefallinia, which holds the second place in the ranking and was upgraded by 11 places, was the place of origin for G. Arsenis, who served as Minister of National Economy for many years in the Socialist governments of that period. Several studies of the determinants of public spending have found strong indications that modern transfer spending tends to be a function of (geographic) political clout rather than 'need' (Anderson and Tollison, 1991: 162). Such discretionary policy has been studied in many other cases in the relative literature and more extended commentary seems warranted for the Greek case.

Apart from these cases, certain other departments also show important changes. These are as follows: Drama rose by 14 positions, from 35th to 21st, Kastoria by 13, from 36th to 23rd, Evvoia by 12, from 42nd to 30th, Fokida (from 22nd to 12th), Trikala (from 51st to 41st), and Kozani (from 49th to 39th) and Irakleio by (from 37th to 28th).

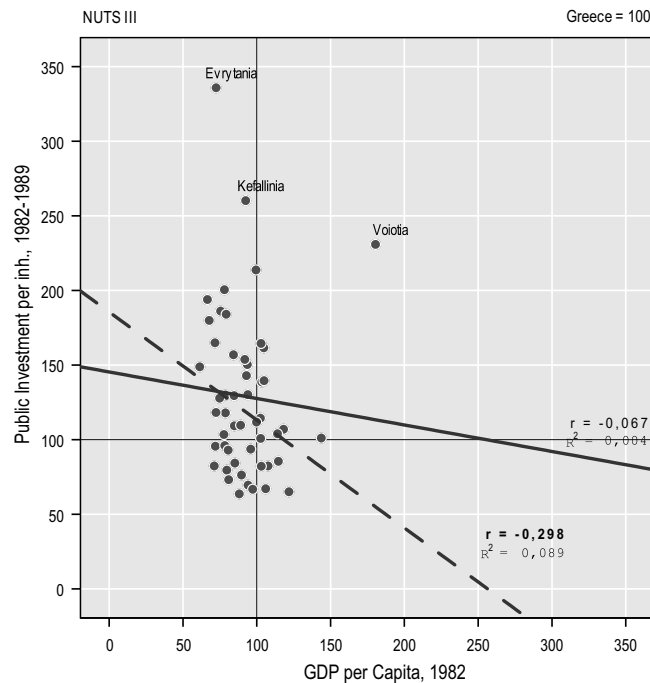
On closer inspection, it can be observed that these transitions have a particular geographical reference. The agricultural prefectures of Thessalia, which

were neglected the previous period, the majority of the insular prefectures and certain border prefectures, were upgraded. All Kriti's prefectures rose significantly in the rankings, the prefectures of Keffalinia and Zakynthos, and also, Kastoria.

By way of contrast, Attiki and Thessaloniki lost public investment. Attiki's share in absolute terms was reduced to 28.5% from 37.6% of the previous period. Many of the beneficiaries of the previous period, such as Serres, Pella, Chalkidiki, Ileia, Argolida, all the prefectures of Dytiki Ellada (apart from Achaia), as well as Evros, also lost public investment.

In looking for an overall pattern, one might expect that the lower the level of prosperity, in terms of GDP per capita, the higher the level of public investment per capita. Was this system more redistributive when compared with that of the previous period? As Figure 2 shows, although the redistributive curve possesses a negative slope greater than that of the previous period, this slope again is not statistically significant. Hence, redistribution is not on its own a sufficient determinant to explain the reasoning behind the regional distribution of public investments during the period under study, even when outliers are excluded, as the broken line shows.

Figure 2: Scatter-plot of per capita Public Investment (1982-1989) and GDP (1982) for Greek Prefectures (Greece=100)



The general conclusion is that in the period 1982-1989, as in the previous period, there is again not a clear geographical pattern for the distribution of public investment. There seems, however, to have been important changes in the spatial distribution of public investment, compared with the preceding period. Public spending increased as well as redistribution. The redistribution also had some 'clear' exceptions which were the beneficiaries of the previous period. The 'biased' distribution of funds cannot be examined further in this chapter. Indeed, these results are so interesting, and the issue so significant from a political point of view, that it deserves further investigation – something that goes beyond the scope of this chapter.

4.3. The Period 1990-1993 – The Return of New Democracy⁸

The political instability of the two-year period 1989-90 and the return to power of the New Democracy party (1990-1993) comprise this period's political characteristics. Another feature of this period is that public investment incorporated the European Funding form the 1st Community Support Framework (CSF) of 1989-1993.

Fundamental changes should not be expected during the course of a four-year period. However, as Table Ic shows, regionally allocated public investment dropped to €200.36 from the €212.73 of the previous period⁹. This might be attributed to the political instability of the period 1989-1990 and also to the limited administrative capacity of the country to absorb the European funds from the 1st Community Support Framework, which officially started in 1989.

The regional spending pattern of that period shows remarkable stability between 1982-1989 and 1990-1993. Rank order correlation as high as 0.81 reveals that the largest number of prefectures hold the similar position in the two rankings. Tables 4 and 5 present the main transitions in the relative positions of the prefectures regarding their participation in national per capita public investment during the period under study.

What stands out immediately and evokes some surprise is that per capita investment in Attiki and Thessaloniki were not only far below average, but drifted further and further down, being among the lowest in the rankings. Attiki, with €137.13 public spending per capita, experienced public investment 32% below the national average and was ranked 47th, while Thessaloniki, with €126.30, showed public investment 35% below the national average and was

⁸ Over the period 1989 to 1990, Greece was governed by three short-lived governments. The coalition government between the conservative party of the New Democracy and the Left under Tzannis Tzannetakis (from July 2, 1989 to October 12, 1989), the caretaker government under Yiannis Grivas (from October 12, to November 23, 1989) and the 'national unity' government under Xenophon Zolotas in which New Democracy shared power with both PASOK and the Left (November 23, 1989 to April 11, 1990). In 1990, the ND party won the elections and formed a government under Prime Minister, Konstantinos Mitsotakis. The period 1990-1993 constitutes the return of New Democracy in Greek government, under Konstantinos Mitsotakis.

⁹ The unallocated amount per capita of that period was €166.20. The total average public investment per capita was €366.50.

ranked 49th. Only five prefectures had per capita public investment below that of Attiki, and only two below Thessaloniki. Thus, an even more substantial downgrading of Attiki – and Thessaloniki – is observed in the rankings in terms of participation in national per capita public investment.

Table 4: Transition Matrix – Changes in the Pattern of Public Investment Allocation: 1982-1989 vs. 1990-1993

Public investment per capita ranking quantiles NUTS III						
1982-1989 (row)	1990-1993 (column)					
	42-51	32-41	22-31	12-21	1-11	Total
42-51	7	3				10
32-41	2	3	4		1	10
22-31	1	4	2	3		10
12-21			3	3	4	10
1-11			1	4	6	11
Total	10	10	10	10	11	51

Table 5: Changes in the Pattern of Public Investment Allocation: 1990-1993 vs. 1982-1989. A Selection of Extreme Cases

Unit		Change in ranking for public investment per capita						
NUTS III		1982-1989			1990-1993			Change
		euro/cap.	Rank	GR=100	euro/cap.	Rank	GR=100	Places
Negative	gr124 Pella	243,42	26	114	177,72	40	89	-14
	gr433 Rethymni	454,61	4	214	335,80	18	168	-14
	gr242 Evvoia	227,65	30	107	174,60	43	87	-13
	gr421 Dodekanisos	327,12	14	154	253,64	27	127	-13
	gr432 Lasithi	350,00	11	165	284,17	23	142	-12
	gr111 Evros	426,45	5	200	340,43	16	170	-11
	gr223 Kefallinia	553,59	2	260	376,17	13	188	-11
	gr232 Achaia	237,84	27	112	182,91	38	91	-11
	gr255 Messinia	319,83	15	150	261,29	25	130	-10
	gr127 Chalkidiki	294,99	19	139	252,25	28	126	-9
	gr3 Attiki	174,86	43	82	137,13	47	68	-4
Positive	gr122 Thessaloniki	148,04	47	70	126,30	49	63	-2
	gr254 Lakonia	197,93	38	93	206,08	32	103	6
	gr114 Drama	276,51	21	130	359,28	14	179	7
	gr125 Pieria	169,38	44	80	184,49	37	92	7
	gr434 Chania	304,03	17	143	430,98	9	215	8
	gr245 Fokida	343,65	12	162	663,11	2	331	10
	gr411 Lesvos	232,47	29	109	316,28	19	158	10
	gr231 Aitoloakarnania	204,39	35	96	269,49	24	135	11
	gr244 Fthiotida	142,10	49	67	198,40	34	99	15
	gr222 Kerkyra	179,30	40	84	305,30	22	152	18
	gr112 Xanthi	203,40	36	96	443,60	7	221	29

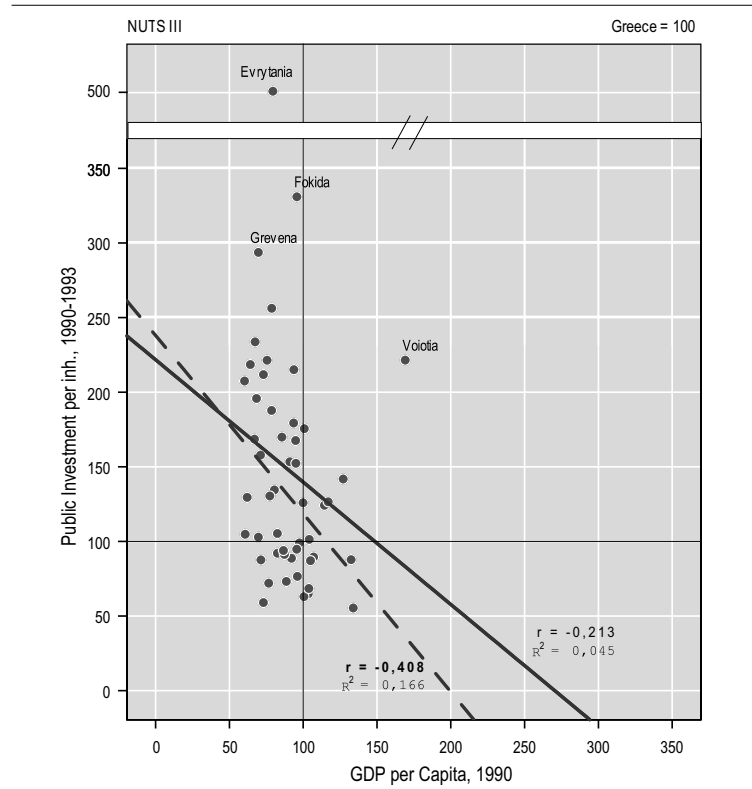
In contrast to the above, there were certain interesting developments in the top places in the ranking. Evrytania, with €1000.38 expenditure per capita, occupied the first position in the ranking with public investment five times greater than the country average, and seven times greater than that of Attiki. It is clear that Evrytania benefits from the highest per-capita expenditures. Apart from the fact that Evrytania is one of the most sparsely-populated and mountainous prefectures, it was also the constituency of P. Bakoyannis, a politician who was assassinated by terrorists in 1989 and after that Evryatnia was the constituency of D. Bakoyanni, his spouse, who is also the daughter of the Prime Minister of that period Konstantinos Mitsotakis. Fokida with €663.10 public investment per capita holds the second place in the ranking, enjoying public support three times higher than the country average. Grevena with €588.40 holds third place in the ranking, and Samos with €513.31 occupies fourth place. Ioannina, with €468.30, is placed fifth. The top four beneficiaries received public support at least twice the national average. Amongst other reasons, political circumstances have played a role in this development. The majority of these beneficiaries are electoral crucial constituencies; they are single-seat and dual-seat prefectures. Due to the marginal majority, these constituencies became politically crucial for the elections. This fact probably influenced public investments positively, with the goal of gleaning a favourable vote from each respective government. The intense political antagonism and tensions of the period brought addition resources to these prefectures.

As previously stated, important changes in the ranking should not be expected during the course of four-year period. As can be seen from the transition matrix, 21 out of 51 prefectures remain at the same quartile between the two periods. Of the rest, 15 were upgraded and 15 were downgraded. However, changes were unremarkable.

Nine prefectures moved down by 10 to 14 places in the ranking. Rethymni (by 14 places), Lasithi, Dodekanisos and Messinia (by 12 places), Evvoia, Kefallinia and Evros (by 11 places), and Achaia and Pella (by 10 places). In the same period, seven prefectures improved their position moving up at least 10 places. The most substantial rise was by Xanthi (from 36th to 7th place, a change of 29 places). Kerkyra's transition (from 40th to 22nd place, a change of 18 places) and that of Fthiotida (from 49th to 34th place, a change of 15 places) were also substantial. Aitolokarnania rose by 11 places in the rankings, while Fokida, Lesbos and Chania rose by 10 places. Chania was the only prefecture in Kriti where public investment increased. Chania was the place of origin of the Prime Minister K. Mitsotakis. Thus, although there are no significant changes in the regional distribution of public investment between the current and the previous period, there were certain interesting cases. The intense political competition during this period resulted in an increase in investment in small and electorally decisive prefectures. Indeed, a large number of small, agricultural, border and mountainous prefectures, with below-average levels of economic development, received above-average per capita public investment.

Despite the fact that there were certain exceptions, the pattern of supporting the less-developed prefectures was more apparent and marked during this period than in any of the preceding periods. Conversely, the most populated areas of Attiki and Thessaloniki drifted further in the ranking. As a result of the above, a greater redistribution effect observed at this period.

Figure 3: Scatter-plot of per capita Public Investment (1990-1993) and GDP (1990) for Greek Prefectures (Greece=100)



Thus, as a general conclusion it may be said that from a redistribution perspective, this period's policy was more redistributive than all those preceding it. Statistically, the inverse relationship was more significant, particularly when outliers were removed. The inverse relationship was more obvious than any other period. This was to a great extent a result of the decline of Attiki's relative position in the country's public investment tables. This may also be related to the fact that many 1st CSF projects were small-scale and applied at a regional level. There might be also a case of inertia, especially for short periods of time. More recently, Mackay, 2001: 570, observed an extremely high correlation between spending in different regions of the U.K. in succeeding tiers which led him to the conclusion that '*History and habit, custom and practice*

have a powerful impact on public spending. There is inertia. Last year's spending is an excellent guide to this year's and this year's to next year's.'

4.4. The Period 1994-2000 – The Return of Socialists¹⁰

This period had the following characteristics. Firstly, PASOK returned to government and remained in power throughout the period under study. This period also coincided with the implementation of the 2nd Community Support Framework (1994-1999). The larger part of the CSF and also funding from the Cohesion Fund was implemented through the Public Investments Budget. The principal aim of economic policy during this period was to meet the requirements, the convergence criteria of the Maastricht Treaty, in order to secure the country's participation to the European Economic and Monetary Union (EMU)¹¹. The aim of this section is to present the regional distribution principle for public investments during this period.

Table Id shows a sharp increase in per capita public investment spending during this period. Nationally, regionally allocated public investment per capita over the period 1994-2000 averaged €261.47, which constitutes an increase of 30%, compared to the preceding period 1990-1993¹². The sharp increase in the total volume of public investment of that period can be attributed to the increased European funding from the second Community Support Framework and the Cohesion Fund. However, this increase was also due to the transferring of funding from the European Social Fund and the European Agricultural Guidance and Guarantee Fund-Guidance section, from the Current Expenditure Budget, to the Public Investment Budget. Up to 1996, these funds had been registered in the Current Expenditure Budget¹³. Having added new programmes to the data, it is of some interest to consider the distributional consequences of this increase.

The rank order correlation of 0.71 shows that there were not significant changes between 1990-1993 and 1994-2000. But comparing 1982-1989 and 1994-2000, the coefficient correlation of 0.56 indicates that between the two decades 1980s and 1990s there are significant changes in the pattern, comparable to the changes between the 1970s and the 1980s (*see* Table 10).

¹⁰ PASOK under Andreas Papandreou won the elections in 1993 and remained in power until 1996 (from October 13, 1993 to January 22, 1996). His last term was marred by poor health and advancing age and finally he stepped down as Prime Minister and leader of Pasok and was succeeded by Costas Simitis (January 22, 1996). Papandreou died on 23rd of June 1996. Pasok under Costas Simitis won the elections in 1996 and 2000, having two consecutive terms in power (March 10, 2004 to April 9, 2000).

¹¹ In 1998, eleven EU member-states had met the convergence criteria, and the Eurozone came into existence with the official launch of the Euro on 1 January 1999. Greece qualified in 2000 and was admitted on 1 January 2001.

¹² The unallocated amount per capita of that period was €248.40. The total average public investment per capita was €509.90.

¹³ After the government legislation from the year 1996 all structural funds channelled through the Public Investment Budget.

Table 6: Transition Matrix - Changes in the Pattern of Public Investment Allocation: 1990-1993 vs. 1994-2000

Public investment per capita ranking quantiles NUTS III						
1990-1993 (row)	1994-2000 (column)					
	42-51	32-41	22-31	12-21	1-11	Total
42-51	6	4				10
32-41	3	2	3		2	10
22-31	1	2	3	4		10
12-21		1	2	5	2	10
1-11		1	2	1	7	11
Total	10	10	10	10	11	51

Table 7: Changes in the Pattern of Public Investment Allocation: 1990-1993 vs. 1994-2000. A Selection of Extreme Cases

Unit		Change in ranking for public investment per capita						
NUTS III		1990-1993			1994-2000			Change
		euro/cap.	Rank	GR=100	euro/cap.	Rank	GR=100	Places
Negative	gr241 Voiotia	443,80	6	222	205,81	38	79	-32
	gr255 Messinia	261,29	25	130	180,54	44	69	-19
	gr112 Xanthi	443,60	7	221	290,07	25	111	-18
	gr141 Karditsa	307,36	21	153	225,57	37	86	-16
	gr213 Ioannina	468,33	5	234	321,95	20	123	-15
	gr413 Chios	415,73	11	207	309,37	22	118	-11
	gr433 Rethymni	335,80	18	168	275,83	29	105	-11
	gr114 Drama	359,28	14	179	293,34	24	112	-10
	gr254 Lakonia	206,08	32	103	186,49	42	71	-10
Positive	gr432 Lasithi	284,17	23	142	240,87	33	92	-10
	gr122 Thessaloniki	126,30	49	63	200,19	40	77	9
	gr125 Pieria	184,49	37	92	285,35	28	109	9
	gr134 Florina	211,09	30	105	320,00	21	122	9
	gr252 Arkadia	188,18	36	94	288,49	27	110	9
	gr113 Rodopi	259,57	26	130	374,20	12	143	14
	gr127 Chalkidiki	252,25	28	126	367,74	14	141	14
	gr3 Attiki	137,13	47	68	254,12	32	97	15
	gr233 Ileia	118,33	50	59	238,51	34	91	16
	gr244 Fthiotida	198,40	34	99	447,24	7	171	27
	gr232 Achaia	182,91	38	91	414,51	9	159	29

The first point, as can be seen in Table 7, is that after more than a decade of constant decline, Attiki upgraded its position in the public investment rankings by 15 places, from 47th to 32nd place. Thessaloniki, likewise, rose by 9 places, from 49th to 40th. This increase in Attiki and Thessaloniki has catalytically

affected the pattern of regional distribution for public investment during the period under study. It is clear that, during the period a transition to a more centralist system for the spatial distribution of public investments was taking place, leading to a new polarisation between the two large urban centres and the rest of the country.

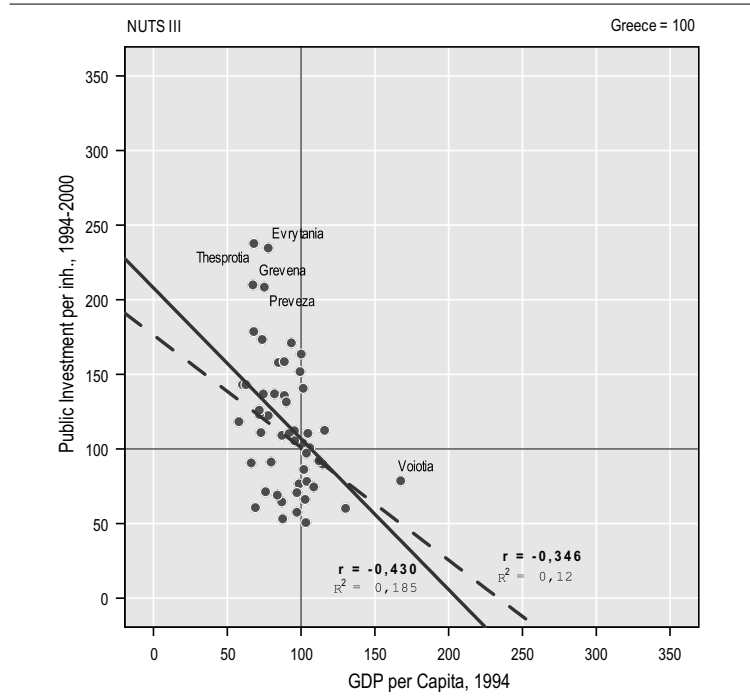
The tendency to strengthen the highly urbanised prefectures appears to be confirmed in the case of Achaia. This prefecture rose by 29 places and reached the 9th place from the 38th which it had occupied in the previous period. This development could probably be related to the fact that this department possesses the third largest city in the country, Patras. In addition, the three aforementioned prefectures constitute the basic transport infrastructure nodes in the country, and were given high priority by the 2nd Community Support Framework 1994-1999. Achaia, Attiki and Thessaloniki are the principal nodes in the P.A.T.H.E¹⁴ axis. On these grounds, it is clear why the prefecture of Fthiotida was strengthened and upgraded significantly from 34th to 7th place, moved up by 27 places. Ileia, Chalkidiki and Evros were also upgraded. Chalkidiki was also the area of origin of the Deputy Minister of the Economy Chr. Pahta, responsible for the management of CSF resources. Pieria probably owes its upgrading to the fact that it is on the P.A.T.H.E axis.

Voiotia showed a decline in its relative position of 32 places, probably because certain road infrastructures were completed. Fokida also showed a large decline. Ioannina and Messinia, Karditsa, Xanthi, Evrytania, Pella and Lakonia followed suit. The cases of increases in public investment were more numerous and interesting. The three most urbanised departments – Achaia, Attiki and Thessaloniki – were upgraded. The prefectures along the PATHE axis, such as Fthiotida and Magnisia were also upgraded. Three formerly agricultural departments which experienced significant support in the 1970s – Evros, Chalkidiki and Ileia – began to enjoy significant support again. Rodopi, in northern Greece, rose from 26th to 12th place. It appears that we had come full circle, so that in the 1990s we had returned to a regional distribution principle for public investments reminiscent of that of the 1970s.

Summing up, it can be observed that during the 1990s the Socialist governments followed a pattern that favoured the most populated areas and prefectures on the main road corridors of the country. Most probably this was influenced by the large scale infrastructure projects financed by the Community Support Framework 1994-1999 which aim was to upgrade the country's main infrastructures. Attiki and Thessaloniki, received a substantial amount of public investment per capita and this was a catalyst for the pattern of public investment allocation of this period. Redistribution, as it can be depicted from the scatter-diagram, was close to the previous period.

¹⁴ Patra-Athens-Thessaloniki-Evzoni.

Figure 4: Scatter-plot of per capita Public Investment (1994-2000) and GDP (1994) for Greek Prefectures (Greece=100)



4.5. The Period 2001-2004 – The Olympic Games Period¹⁵

This is the period for the preparation of the 2004 Athens Olympic Games. It was anticipated that Olympic Projects would have affected not only the total magnitude of public investment in the country but also the pattern for regional allocation of public expenditure. The 2004 Olympic Games were going to be primarily hosted in Greater Athens, a metropolitan region that already disproportionably accounts for most economic activity in Greece. Further polarisation was expected as a result of preparing the region for the games. A widespread consensus on this has led to policy initiatives and actions aiming to counteract spatial unevenness in propelling development. Indeed, this sensitivity to spatial asymmetry of the effects of preparing and hosting the games seems to be uniquely characterising of Greek organisational authorities. The

¹⁵ Over the period 1989 to 1990, Greece was governed by three short-lived governments. The coalition government between the conservative party of the New Democracy and the Left under Tzannis Tzannetakis (from July 2, 1989 to October 12, 1989), the caretaker government under Yiannis Grivas (from October 12, to November 23, 1989) and the 'national unity' government under Xenophon Zolotas in which New Democracy shared power with both PASOK and the Left (November 23, 1989 to April 11, 1990). In 1990, the ND party won the elections and formed a government under Prime Minister, Konstantinos Mitsotakis. Period 1990-1993 constitutes the return of New Democracy in Greek government, under Konstantinos Mitsotakis.

preparations for such enormous and costly events can lead to a distortion in spatial dispersion of national wealth, by disproportionately benefiting selective places against the needs of the other. The stylised facts for this period are reported in Table Ie.

There are many interesting conclusions that can be derived from the stylised facts. Let us start with the simple observation that the total volume of public investment during that period increased dramatically. In per capita terms, the average amount was €424.19, an unprecedented increase throughout the 30-year study period. Undoubtedly, the most striking of the several facts is that 55.6% of the total (€10.321million) invested in Attiki. Attiki, with €661.89 public investment per capita, was ranked 3rd. Another important feature is that only ten prefectures experienced public investment above the country's average. The remaining 41 prefectures received below average expenditure support. However, in absolute terms, a large number of prefectures received substantial support during the period of the Olympic Games, probably through the Greece 2004 programme, which was aiming to finance infrastructures throughout Greece.

The rank order correlation 0.709 reveals that the ranking hasn't changed dramatically. The transition matrix (Table 8) and Table 9 report the changes in the relative position of the prefectures.

As stated above, the most striking case was that of Attiki, which was upgraded by 29 places, from the 32nd to the 3rd place in the ranking. Irakleio escalated to the 13th from the 41st place and gained 28 places in the rankings. Irakleio, the capital city of the prefecture, was one of the four Olympic Cities (the cities of Thessaloniki, Volos, Patra and Irakleion were going to host football games at the qualifiers-stage). This most probably explains the fact that Magnessia, the prefecture with the capital city of Volos, has been upgraded by 19 places in the ranking. The same applies to Thessaloniki, as well as to Ileia, the place of birth of the Olympic Games. Korinthia, the adjacent prefecture to Attiki, has also an impressive progress reaching the 21st from the 48th place.

At the other extreme, Preveza dropped by 20 places from 4th to 24th and Chania fall by 19 places, from 11th to 30th. There was also a reduction in the relative position for the prefectures of Evros, Kavala, Xanthi, Rodopi, all belonging to East Macedonia and Thrace region.

In summary, the Olympic Games period has caused an unprecedented increase in public investment. Attiki experienced a tremendous increase in the volume of public investment. A distortion in the regional allocation of public investment occurred. Despite the absence of any clear pattern, the positive sign for the correlation coefficient indicates that there is a positive relationship between level of economic development and the support that prefectures receive. This results in broadening the gap between the most prosperous and the less-developed areas of the country.

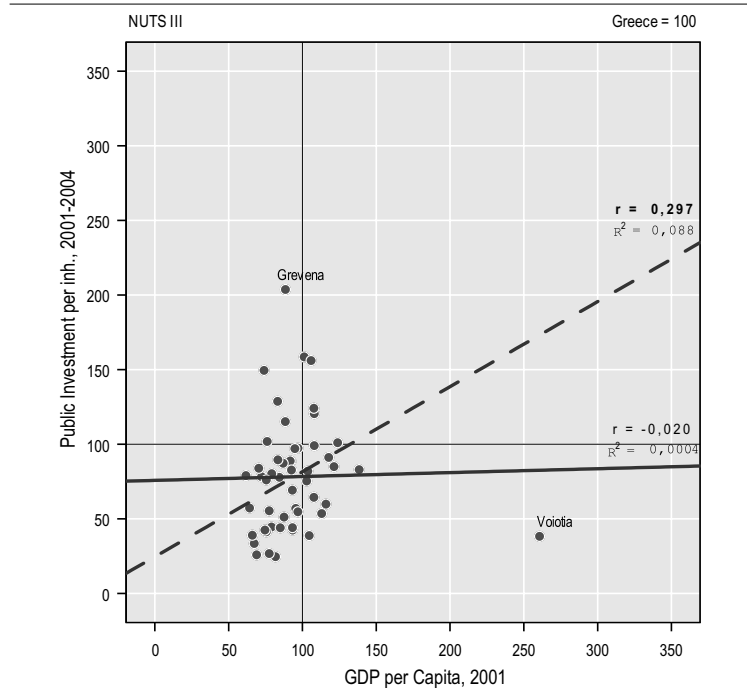
Table 8: Transition Matrix - Changes in the Pattern of Public Investment Allocation: 1994-2000 vs. 2001-2004

Public investment per capita ranking quantiles NUTS III						
1994-2000 (row)	2001-2004 (column)					
	42-51	32-41	22-31	12-21	1-11	Total
42-51	7	2		1		10
32-41	3	3	2	1	1	10
22-31		5	1	4		10
12-21			4	2	4	10
1-11			3	2	6	11
Total	10	10	10	10	11	51

Table 9: Changes in the Pattern of Public Investment Allocation: 1994-2000 vs. 2001-2004. A Selection of Extreme Cases

Unit		Change in ranking for public investment per capita						
NUTS III		1994-2000			2001-2004			Change
		euro/cap.	Rank	GR=100	euro/cap.	Rank	GR=100	Places
Negative	gr214 Preveza	544,99	4	208	340,39	24	80	-20
	gr434 Chania	397,17	11	152	293,78	30	69	-19
	gr111 Evros	412,86	10	158	330,17	27	78	-17
	gr115 Kavala	288,93	26	111	186,82	41	44	-15
	gr112 Xanthi	290,07	25	111	188,85	39	45	-14
	gr113 Rodopi	374,20	12	143	331,99	26	78	-14
	gr231 Aitolokarnania	355,22	17	136	322,59	28	76	-11
	gr211 Arta	237,01	35	91	165,50	45	39	-10
	gr114 Drama	293,34	24	112	242,77	33	57	-9
Positive	gr232 Achaia	414,51	9	159	370,34	18	87	-9
	gr422 Kyklades	343,84	18	132	420,16	11	99	7
	gr122 Thessaloniki	200,19	40	77	253,97	32	60	8
	gr125 Pieria	285,35	28	109	355,91	20	84	8
	gr233 Ileia	238,51	34	91	335,09	25	79	9
	gr142 Larisa	139,11	50	53	187,09	40	44	10
	gr213 Ioannina	321,95	20	123	488,55	8	115	12
	gr143 Magnisia	263,71	31	101	413,05	12	97	19
	gr253 Korinthia	157,33	48	60	352,01	21	83	27
	gr431 Irakleio	194,90	41	75	411,77	13	97	28
	gr3 Attiki	254,12	32	97	661,89	3	156	29

Figure 5: Scatter-plot of per capita Public Investment (2001-2004) and GDP (2000) for Greek Prefectures (Greece=100)



5. Overview and Conclusions

The main aim of this chapter was to shed light into an almost unexploited area of modern public policy in Greece, namely the geographical pattern of public spending. Tracing public investment over a thirty-year period is not at all a straightforward issue.

In this chapter, every effort has been made to tackle the methodological problems mentioned in the introductory part. The chapter has also studied public investment data over a thirty-year period, one of the longest periods in the relative literature. This is the most consistent dataset that has ever constructed on regional spending in Greece. Data on public investment have been collected from the same source but have never presented in conventional statistics. Public investment is expressed in euros and at constant 2000 prices. The sub-periods are constructed according to the duration of each government's term(s) in office. Although the decision of a government of a particular period may have influenced the payment made by another government in the following period, the aggregate sums based on a number of years indicates general trends and gives more plausible results.

Having tackled these issues, analyses showed that striking variation exists in the regional allocation of public investment. However, the mere fact of

regional variations in per capita public investment is insufficient evidence for judging whether the observed distribution has been 'right' or 'wrong'. The obvious benefit of this chapter is that it systematically presents the pattern of public investment allocation in Greece over a long period and it provides the base-line for further research.

Analysis showed, firstly, that there are marked inequalities in the flows of public investment across the Greek prefectures. However, there is not a 'clear' pattern for the regional dispersion of public investment in Greece. Neither a north-south/mainland-island/urban-rural divide nor 'the needs-based approach' could carry sufficient explanation for the allocation of public investment. Analysis by period showed that the picture for the regional allocation of public investment is rather 'patchy'.

Secondly, history and inertia for the stability of the devolved spending in the UK (Mackay and Williams, 2005: 819, 826) and 'the remarkable stability' of regional spending pattern in the USA (Anton, 1982: 430), seem to apply to the regional distribution of public investment in Greece. However, it is less intense in comparison to these cases and tends to wane over time (*see* Table 10). The rank order correlations between the five periods are 0.546, 0.811, 0.715 and 0.709. The most important change (0.546) came about between the 1970s and the 1980s and could be attributed to differences between Liberal and Socialist government policies. This change was more acute than the one between the 1990s and early 2000s (0.709) which could be attributed to the Olympic Games. Both had a tremendous influence on the spatial dispersion of public investment but in opposite directions; the former towards a higher dispersion and the later towards a higher concentration.

Table 10: Rank Order Correlation of Public Investment Distribution between Political Periods (Rearson Correlation Matrix)

Period	1976-1981	1982-1989	1990-1993	1994-2000	2001-2004	1976-2005
1976-1981	1.000	0.564	0.429	0.372	0.229	0.578
1982-1989		1.000	0.811	0.565	0.277	0.790
1990-1993			1.000	0.715	0.376	0.874
1994-2000				1.000	0.709	0.862
2001-2004					1.000	0.664
1976-2005						1.000

Thirdly, the level of underdevelopment – and as result, redistribution – does not appear to have constantly and systematically comprised the principal criterion for explaining the regional pattern of resource allocation in Greece during the period 1976-2005 (*see* Table If at the Appendix). In looking at an overall pattern, one might expect that the lower the level of prosperity, the higher the level of public expenditure. Quite strikingly, however, a large number of prefectures that were lacking behind in economic development terms received

below-average public investment. This prolonged underinvestment for some prefectures was one of the most important findings of the analysis (see Figures 6 and 7).

Figure 6: Scatter-plot of per capita Public Investment (1976-2005) and GDP (1976) for Greek Prefectures (Greece=100)

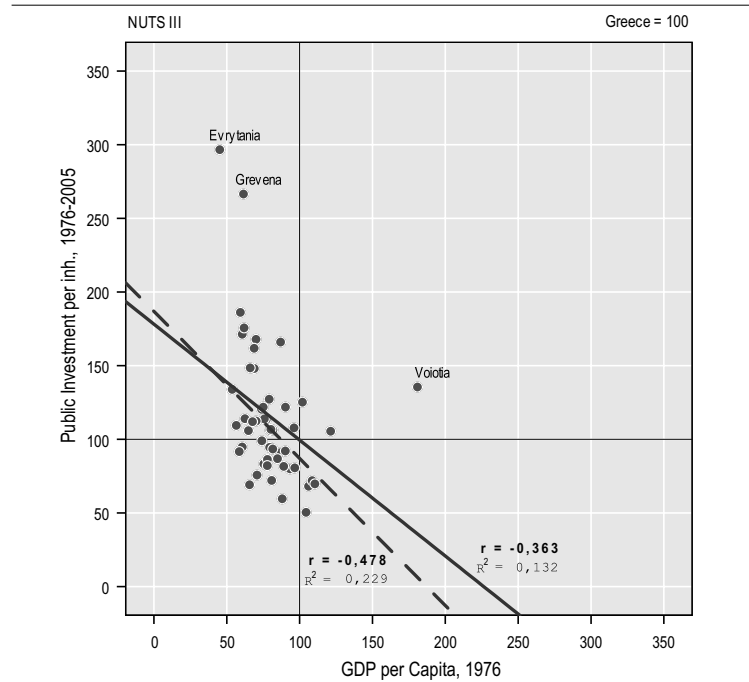


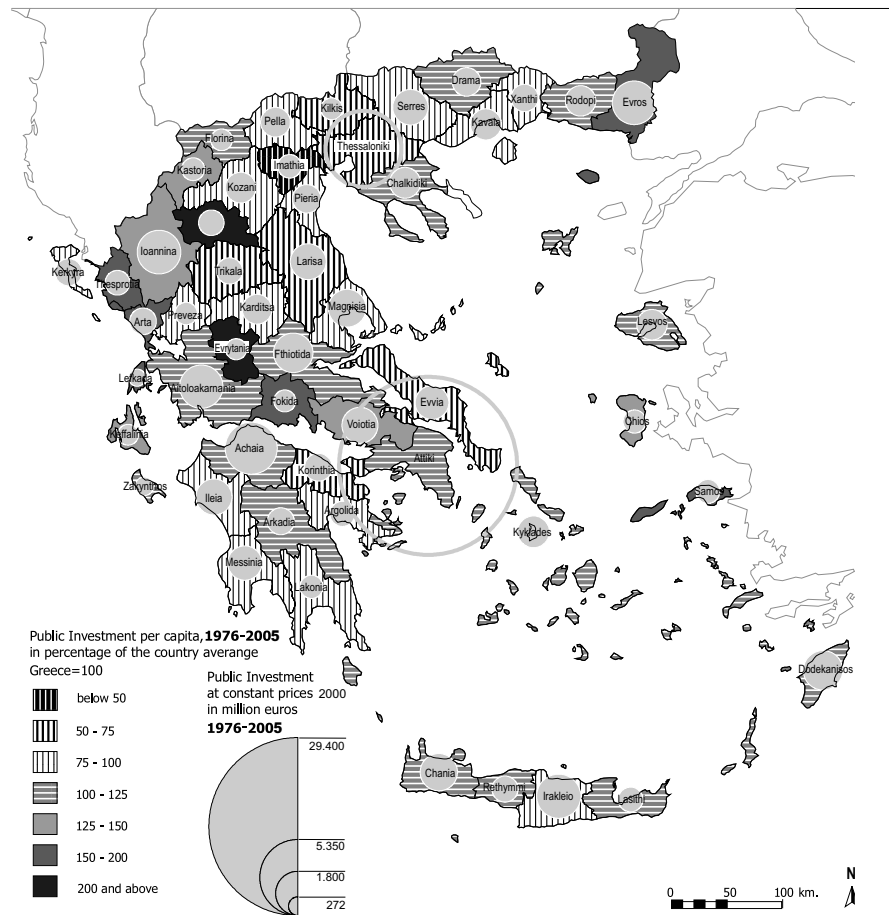
Table 11: Summary Statistics of Public Investment Regional Distribution by Period

Index\Period	1976-1981	1982-1989	1990-1993	1994-2000	2001-2004
Maximum	467.816	714.372	1.006.379	621.367	863.966
Minimum	85.016	135.498	111.059	132.449	104.561
Max/min ratio	5.5	5.3	9.1	4.7	8.3
Regional average	190.049	274.423	296.454	305.509	331.863
Standard deviation	83.362	116.485	162.853	120.960	159.117
Coefficient of variation	0.439	0.424	0.549	0.396	0.479
Coefficient of variation weighted	0.368	0.369	0.480	0.301	0.666
National average	191.946	212.729	200.359	261.466	424.187
Standard deviation	83.384	132.102	189.579	128.879	184.424
Coefficient of variation	0.434	0.621	0.946	0.493	0.435
Coefficient of variation weighted	0.364	0.377	0.524	0.308	0.473

Fourthly, the policy concerning the regional distribution of public investment that was followed throughout the study period does not seem to have been

dictated by a higher-level strategic regional development plan. For this to have been the case, the government should have been systematically monitoring and recording the public capital balance by prefecture, noting potential gaps, omissions, inequalities and needs, and distributing resources accordingly. Sadly, this has not been the case. In contrast, the regional distribution of public investment seems to be dictated more by faltering, ad hoc interventions based on opportunistic and some times politically myopic criteria, rather than by coordinated interventions dictated by some well-researched plan of recorded needs.

Figure 7: Spatial Distribution of Public Investment per capita and Public Investment in Absolute Values, 1976-2005



Source: Ministry of Economics and Finance, own elaborations

Last, but not least, the regional distribution of public investment seems not to remain unaffected by electoral geography. The electoral preferences of prefectures, even the place of origin of certain members of each government,

seem to comprise explanatory variables for the regional distribution of public investment. This is consistent with what Mackay and Williams state (Mackay and Williams, 2005: 819) that in explaining the pattern, 'great weight has to be given to political influences'. Obviously this conclusion requires additional evidence, and cannot be generalised nor substituted for other factors, which in conjunction with it, contribute to a better understanding of the regional distribution of public investment in Greece.

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APPENDIX

Table I: Regional Distribution of Regionally Allocated Public Investment per capita over the Period 1976-2005 and Sub-periods, in euro (€) – at Constant 2000 Prices – (Top 10, Bottom 10, Attiki and Thessaloniki)

Table Ia					Table Ib				
Unit		1976-1981			Unit		1982-1989		
NUTS III		euro/cap.	Rank	GR=100	NUTS III		euro/cap.	Rank	GR=100
Top	gr111 Evros	467.82	1	244	Top	gr243 Evrytania	714.37	1	336
	gr243 Evrytania	388.88	2	203		gr223 Kefallinia	553.59	2	260
	gr126 Serres	387.62	3	202		gr241 Voiotia	491.11	3	231
	gr233 Ileia	357.11	4	186		gr433 Rethymni	454.61	4	214
	gr213 Ioannina	294.48	5	153		gr111 Evros	426.45	5	200
	gr241 Voiotia	288.01	6	150		gr412 Samos	412.57	6	194
	gr124 Pella	282.05	7	147		gr213 Ioannina	396.08	7	186
	gr131 Grevena	269.99	8	141		gr224 Lefkada	391.51	8	184
	gr214 Preveza	263.80	9	137		gr131 Grevena	382.73	9	180
	gr412 Samos	237.80	10	124		gr212 Thesprotia	350.85	10	165
Bottom	gr3 Attiki	211.79	16	110	Bottom	gr143 Magnisia	175.21	42	82
	gr122 Thessaloniki	169.70	27	88		gr3 Attiki	174.86	43	82
	gr242 Evvoia	115.05	42	60		gr125 Pieria	169.38	44	80
	gr211 Arta	113.28	43	59		gr142 Larisa	162.38	45	76
	gr222 Kerkira	112.55	44	59		gr126 Serres	155.72	46	73
	gr125 Pieria	109.89	45	57		gr122 Thessaloniki	148.04	47	70
	gr121 Imathia	103.13	46	54		gr121 Imathia	142.83	48	67
	gr244 Fthiotida	101.25	47	53		gr244 Fthiotida	142.10	49	67
	gr141 Karditsa	100.17	48	52		gr253 Korinthia	138.48	50	65
	gr133 Kozani	98.82	49	51		gr233 Ileia	135.50	51	64
Total		191.95		100	Total		212.73		100
Table Ic					Table Id				
Unit		1990-1993			Unit		1994-2000		
NUTS III		euro/cap.	Rank	GR=100	NUTS III		euro/cap.	Rank	GR=100
Top	gr243 Evrytania	1,006.38	1	502	Top	gr212 Thesprotia	621.37	1	238
	gr245 Fokida	663.11	2	331		gr243 Evrytania	613.62	2	235
	gr131 Grevena	588.42	3	294		gr131 Grevena	548.98	3	210
	gr412 Samos	513.31	4	256		gr214 Preveza	544.99	4	208
	gr213 Ioannina	468.33	5	234		gr224 Lefkada	467.14	5	179
	gr241 Voiotia	443.80	6	222		gr412 Samos	453.24	6	173
	gr112 Xanthi	443.60	7	221		gr244 Fthiotida	447.24	7	171
	gr212 Thesprotia	437.81	8	219		gr245 Fokida	427.62	8	164
	gr434 Chania	430.98	9	215		gr232 Achaia	414.51	9	159
	gr214 Preveza	424.36	10	212		gr111 Evros	412.86	10	158
Bottom	gr144 Trikala	175.57	42	88	Bottom	gr3 Attiki	254.12	32	97
	gr242 Evvoia	174.60	43	87		gr122 Thessaloniki	200.19	40	77
	gr123 Kilikis	153.41	44	77		gr254 Lakonia	186.49	42	71
	gr142 Larisa	146.58	45	73		gr251 Argolida	185.09	43	71
	gr126 Serres	144.24	46	72		gr255 Messinia	180.54	44	69
	gr3 Attiki	137.13	47	68		gr242 Evvoia	173.10	45	66
	gr121 Imathia	129.97	48	65		gr126 Serres	168.78	46	65
	gr122 Thessaloniki	126.30	49	63		gr144 Trikala	158.71	47	61
	gr233 Ileia	118.33	50	59		gr253 Korinthia	157.33	48	60
	gr253 Korinthia	111.06	51	55		gr124 Pella	150.68	49	58
Total		200.36		100	Total		261.47		100

Table I (continued)

Table Ie					Table If				
Unit		2001-2004			Unit		1976-2005		
NUTS III		euro/cap.	Rank	GR=100	NUTS III		euro/cap.	Rank	GR=100
Top	gr131 Grevena	863.97	1	204	Top	gr243 Evrytania	697.03	1	297
	gr224 Lefkada	672.47	2	159		gr131 Grevena	626.30	2	267
	gr3 Attiki	661.89	3	156		gr212 Thesprotia	437.59	3	186
	gr212 Thesprotia	634.05	4	149		gr412 Samos	412.83	4	176
	gr412 Samos	546.18	5	129		gr224 Lefkada	402.61	5	171
	gr244 Fthiotida	526.49	6	124		gr111 Evros	394.47	6	168
	gr127 Chalkidiki	511.29	7	121		gr245 Fokida	390.09	7	166
	gr213 Ioannina	488.55	8	115		gr214 Preveza	380.32	8	162
	gr221 Zakynthos	432.27	9	102		gr223 Kefallinia	349.02	9	149
	gr243 Evrytania	428.39	10	101		gr213 Ioannina	348.00	10	148
Bottom	gr122 Thessaloniki	253.97	32	60	Bottom	gr3 Attiki	247.85	29	105
	gr123 Kilikis	180.37	42	43		gr133 Kozani	189.39	42	81
	gr254 Lakonia	180.27	43	42		gr124 Pella	187.88	43	80
	gr144 Trikala	175.49	44	41		gr254 Lakonia	178.05	44	76
	gr211 Arta	165.50	45	39		gr123 Kilikis	169.35	45	72
	gr242 Evvoia	164.50	46	39		gr242 Evvoia	169.14	46	72
	gr241 Voiotia	162.49	47	38		gr253 Korinthia	163.92	47	70
	gr126 Serres	142.01	48	33		gr144 Trikala	162.51	48	69
	gr124 Pella	113.30	49	27		gr122 Thessaloniki	160.10	49	68
	gr255 Messinia	109.97	50	26		gr142 Larisa	140.10	50	60
	gr121 Imathia	104.56	51	25		gr121 Imathia	118.61	51	50
	Total	424.19		100		Total	235.01		100



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