OECD Territorial Reviews

Regional Policy for Greece Post-2020

REGIONAL PROFILES

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Abbreviations and acronyms

ALMP	Active Labour Market Policy
BOP	Balance of Payments
CA	Certifying Authority
CAP	EU Common Agricultural Policy
CF	Cohesion Fund
CFP	Common Fisheries Policy
CLLD	Community-Led Local Development
DAFNI	Sustainable Islands Network
DEMETRA	Organisation of Agricultural Vocational Education, Training and Employment
DG REGIO	European Commission Directorate-General for Regional and Urban Policy
DG REFORM	European Commission Directorate-General for Structural Reform Support
DWT	Deadweight Tonnage
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
ECB	European Central Bank
EDP	Entrepreneurial Discovery Process
EEA	European Economic Area
EIB	European Investment Bank
EIF	European Investment Fund
EKDDA	National Centre for Public Administration and Local Government
ELSTAT	Hellenic Statistical Authority
EMFF	European Maritime and Fisheries Fund
ENPE	Association of Regions of Greece
EPAnEK	Operational Program for Entrepreneurship, Competitiveness and Innovation
ERDF	European Regional Development Fund
ESF	European Social Fund
ESIF	European Structural and Investments Funds
ETC	European Territorial Co-operation
EYSE	Special Service for the Implementation
EYSEKT	Special Service for the Co-ordination and Monitoring of ESF Actions
EYSSA	Special Service for Strategy, Planning and Evaluation
EYTHY	Special Service for Institutional Support
GNTO	Greek National Tourism Organisation
GVA	Gross Value-added
GVC	Global Value Chain
IB	Intermediary Body
ICT	Information and Communication Technology
IDIKA	National Social Security Service
IIS	Integrated Information System
IMF	International Monetary Fund
ITI	Integrated Territorial Investments
KEDE	Central Union of Municipalities of Greece
KEK	Vocational Training Centres

LAG	Local Action Group
LRAs	Local And Regional Authorities
LSP	Local Spatial Plan
MA	Managing Authority
MCS	Management and Control System
MIS	Special Service for the Monitoring Information System
MoEE	Ministry of the Environment and Energy
MoU	Memorandum of Understanding
MOU	Management Organisation Unit of Development Programs
MTFS	Medium-Term Fiscal Strategy Framework
NAS	Greek National Adaptation Strategy
NCA	National Co-ordination Authority
NDP	National Development Program
NGO	Non-Governmental Organisation
NSRF	National Strategic Reference Framework
NWMP	New National Waste Management Plan
OAED	Manpower Employment Organisation
OP	National and regional Operational Programs
PA	Partnership Agreement
PEDA	Regional Association of Municipalities of Attica
PIB	Public Investment Budget
PIP	Public Investment Program
PPP	Private Public Partnerships
PSKE	State Aid Information System
R&D	Research and Development
RAI	Regional Authority Index
RDP	Rural Development Program
RIA	Regulatory Impact Assessment
RIS3	Research and Innovation Strategy for Smart Specialisation
ROPs	Regional Operational Programs
RTI	Research, Technology and Innovation
SEO	Social Economy Organisation
SMEs	Small and Medium Enterprises
SSP	Special Spatial Plan
TiVA	Tourism Trade in Value Added
TO	EU Thematic Objectives
UNHCR	United Nations Refugee Agency
VAT	Value Added Tax
VET	Vocational Education and Training
YEI	Youth Employment Initiative
ZOE	Urbanisation Control Zones

Introduction

The Territorial Review “Regional policy for Greece post 2020” has been undertaken by the OECD in partnership with the Ministry of Development and Investments of Greece and DG-REFORM of the European Commission.

During the project, which lasted 2 years (October 2018-November 2020), the OECD has conducted desk analysis, web-seminars and interviews with relevant actors and stakeholders, and four one-week field visits to Greece (in November 2018 and January, April, September 2019) to make research interviews and collect information in order to inform the Territorial Review. Meetings were held with officials from all the 13 Greece’s regions and from the central level, notably: regional governments and authorities, managing authorities of regional and national operational programs, academics, representatives of municipalities and business networks and associations, NGOs as well as the ministry of the economy and development, the ministry of the interior and all the relevant sectoral ministries.

In addition, in 2020 the OECD has conducted a regional survey based on a structured questionnaire. Selected public and private stakeholders from the public, private and academic sectors in each region were asked to express their views on the development problems and policy priorities of their territory. One hundred and eighty-six (186) institutions from all the regions answered the questionnaire, which was composed of five sections. In the first section respondents had to identify development challenges for the region and to rank development priorities. In the second section, respondents were asked to evaluate whether the thematic objectives of their Regional Operational Program (ROP) were directly related to and addressing the development problems of the region. In the third section, they were asked to express an opinion on whether the design and implementation of the ROP was satisfactory and identify challenges for the implementation. In the fourth section, respondents were asked to evaluate the expected benefits of the ROP on the region. Finally, in the fifth section they were asked to make suggestion to improve the impact of EU funds in the next 2021-2027 programming period.

On 1 October 2020, the OECD published the Territorial Review report: Regional policy for Greece post-2020[1], which examines the regional development, the EU Cohesion policy and the multilevel governance frameworks in Greece and offers policy guidance to strengthen Greece’s regional development and well-being. The Review stresses that policies for economic growth, social capital and environmental sustainability are more effective when they recognise the different economic and social realities where people live and work. The report illustrates the importance to align place based regional development strategies with sectoral policies (support for private investment, infrastructure and human capital policies) in each place to generate multiplier effects.

This document, “Regional Policy for Greece post-2020: Regional profiles”, complements the Review report offering a detailed socio-economic picture of each of the thirteen Greece’s regions and a discussion of their development priorities and strategies for the years to come.

[1] https://www.oecd-ilibrary.org/urban-rural-and-regional-development/regional-policy-for-greece-post-2020_cedf09a5-en.

Greece's regions: overall view

Regional profiles, inequalities and challenges

The analysis of the regional structure of the Greek economy reveals persisting imbalances in terms of GDP per capita, population and welfare. The Greek economic space is dominated by the presence of the metropolitan area of Athens that is part of the Attica Region but functionally extends beyond its borders, embracing clusters of significant industrial activity located a short distance in the neighbouring regions.

Table 1 shows that Greece maintains significant regional inequalities that are related: (a) to the allocation of population and activities over space and (b) the differences in a number of significant development indicators. The Attica metropolitan region, which concentrates 36% of the population and 48% of the national GDP (more than 50% if one counts also satellite industrial establishments in the surrounding regions), has a GDP per capita that is 136% of the national average. It is also one of the largest and most densely populated cities in Europe with 990 inhabitants per sq. km, a figure that is 12 time higher than the national average. It has almost doubled its population, experiencing strong migration inflows in the 60s, 70s and 80s from the peripheral regions that contributed significantly to a strong and lasting growth, but also to the environmental and social problems of the metropolis.

Table 1. Basic regional indicators of Greece, TL2 level

Region	Population (2018)	Density (2018)	GDP regional share (2016)	GDP per capita (2016)		RIS, 2017 EU=102.5	RCI 2016 Value in the 0-100 scale and rank
				GR =100	EU = 100		
Greece	**10741165**	**81.4**	**100.0**	**100.0**	**59.2**		**23.53**
Attica	3,756,453	986.5	47.5	135.6	80.3	76.9	44.97 *(180)*
Central Macedonia	1,875,996	98.0	13.7	78.6	46.6	67.3	20.29 *(239)*
Thessaly	722,065	51.4	5.2	77.3	45.8	59.2	11.16 *(252)*
Western Greece	659,470	58.1	4.6	73.6	43.6	64.8	6.53 *(262)*
Crete	633,506	76.0	4.9	84.3	49.9	71.4	12.93 *(250)*
East Macedonia - Thrace	601,175	42.5	3.9	69.8	41.3	53.4	5.67 *(265)*
Peloponnese	576,749	37.2	4.5	82.9	49.1	48.0	8.84 *(258)*
Continental Greece	555,623	35.7	4.6	89.9	53.2	53.8	10.48 *(254)*
South Aegean	340,870	64.5	3.4	108.5	64.2	48.5	7.93 *(259)*
Epirus	334,337	36.3	2.2	72.0	42.6	54.3	11.64 *(251)*
Western Macedonia	269,222	28.5	2.2	87.7	51.9	62.9	6.05 *(263)*
North Aegean	211,137	55.0	1.4	74.9	44.3	54.6	0 *(268)*
Ionian Islands	204,562	88.7	1.8	92.7	54.9	42.9	10.15 *(256)*

Note: OECD Territorial Level (TL) 2 regions correspond to Eurostat's NUTS2.
Source: ELSTAT (2018), Eurostat (2018), RCI (2019)

Central Macedonia in the north, which includes Thessaloniki, the second metropolitan region of Greece, has a significantly lower GDP per capita, equal to 77% of the national average. The regions with relatively higher GDP per capita are the island regions of South Aegean, Ionian and Crete (with 109%, 93% and 84% of the national average respectively), the region of Continental Greece, hosting the satellite industrial areas of Attica (90% of national average) and the energy supplying region of Western Macedonia (87% of national average). The regions with the lower GDP per capita are the border region of Eastern Macedonia and Thrace and Epirus (70% and 72% of national average).

Although the region of Attica has a GDP per capita that is almost double than that of the weakest region of East Macedonia and Thrace, the most serious problem for balanced growth is not related so much to this development gap itself, but to the fact that the metropolitan region of Attica concentrates nearly half of the economic activity of the country. A combination of agglomeration economies, market size and capital status (all high-level administrative functions and 50% of public employees are located in Athens) exerts strong attraction forces to the rest of the country and does not leave enough room for growth to the smaller peripheral cities.

Most regions have a GDP per capita that is very low compared to the EU average. With the exception of Attica that is getting somehow close to the EU average (80%), the relatively more advanced island regions have a GDP per capita in the range of 50-60% of the EU average, while the relatively less advanced regions in northern and western Greece have GDP per capita figures in the range of 40-50% of the EU average.

Similar type of inequalities exist in terms of the innovative capacity of the regions, measured by the Regional Innovation (RIS) index. As R&D in Greece is mostly related to the public sector, the regions that host significant academic institutions and research centres tend to have higher RIS value. Attica has the highest value, which is around 75% of the EU average. It is followed by three regions with significant science base (Crete, Central Macedonia and Western Greece), but most other regions have low (in the 50+ range) or very low (40+ range) values, which is about half the EU average figure. The characteristic difference between RIS and GDP per capita is showed by the island regions that appear with relatively high GDP per capita figures because of mass tourism (South Aegean and Ionian) have the lowest figures in terms of innovative performance.

The last column of Table 1 presents the figures of Regional Competitiveness Index (RCI) for the Greek regions, which is measured by the EC (2019) as "…a measure of the ability of regions to offer an attractive and sustainable environment for firms and residents to live and work". The RCI Index is based on 74 indicators organized in 11 pillars measuring many aspects of the economic, institutional, social and policy environment at the regional level. The first observation is that inequalities among regions are significantly higher, as the figure of Attica is more than twice higher than that of Central Macedonia one (which is having the second highest figure) and about 4 times the figure of Crete, Epirus and Thessaly that follow. The gap with the remaining of the regions is even higher. The second observation is that the Greek regions (and Greece as a whole) have a very poor performance in this index. The metropolitan region of Attica is in the 180th place (among 268 TL2[2] regions) and is having actually the lowest figure from all metropolitan regions in Europe, except that of Bulgaria). The other regions have significantly lower positions and are very close to the bottom of the ranking (EC, 2019). It seems that inequalities appear to be much higher at both the national and European scale when measured by composite indicators. A similar Composite Index of Welfare and Development[3] estimated for TL2 and TL3[4] regions in Greece confirms this trend.

[2] For Greece OECD Territorial Level (TL) 2 regions correspond to Eurostat's NUTS2.

[3] Petrakos and Psycharis (2016a).

[4] For Greece OECD Territorial Level (TL) 2 regions correspond to Eurostat's NUTS2 and TL3 to NUTS3.

The figures identify two significant development gaps, an internal and an external one, related to two important policy challenges. The first challenge is to bridge the development, competitiveness and welfare distance between the laggard regions and the metropolitan region of Attica. The second challenge, which is even more important, is to bridge the distance between the Greek regions and the EU average in terms of critical development and welfare indicators.

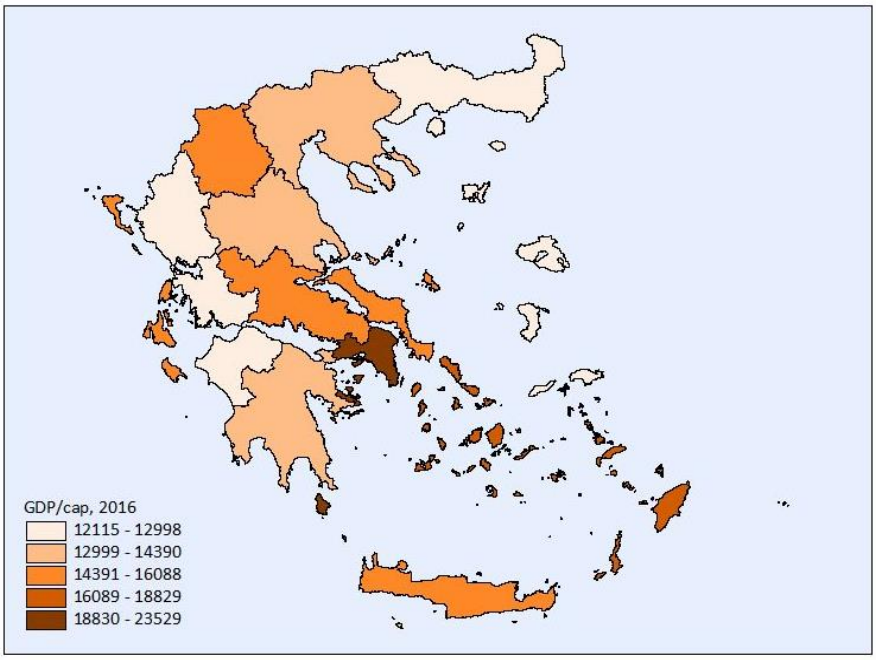
Figure 1 presents the differences in the development level among TL2[5] regions. Besides the energy supply region of Western Macedonia, which appears with a modest level of development, but currently faces severe challenges related to its post-lignite strategy, the larger part of the border zone and the western part of Greece is characterized by low levels of development. On the other hand, Attica, its neighbouring region of Continental Greece and the islands (except North Aegean) are characterized by a higher level of development. The arising pattern, where the metropolitan region (with its satellite extensions) and most islands have higher level of development, while most of the other mainland regions (especially in the northern borders and the west) have a lower level of development, depicts to a significant degree differences in the productive structure of the regions.

The metropolitan region of Athens has a productive structure that combines scale, externalities, variety and openness and a mix of tradable and sheltered activities that allowed it to reach its dominant position in the economy. The islands have developed a strong specialization in tourism, which relies on domestic and (mostly) international demand and have managed to take advantage of their unique physical, built and cultural environment. Some of them are top international destinations and have developed a relatively monoculture economy, while some others (especially Crete) have managed to connect to some extent tourism to the agro-food sector. In both cases, the driving force behind their success is mainly international tourism, which makes their performance conditional to external factors beyond national or regional control. On the other hand, most of the mainland regions face a number of constraints in their performance related to limited variety in their productive base, accessibility, scale and quality in production, missing infrastructure and services as well as structural difficulties to compete in the European markets.[6]

[5] For Greece OECD Territorial Level (TL) 2 regions correspond to Eurostat's NUTS2.

[6] Petrakos and Saratsis (2000), Petrakos et al. (2012), Petrakos and Psycharis (2016b).

Figure 1. GDP per capita in the Greek TL2 II regions (€/inh), 2016

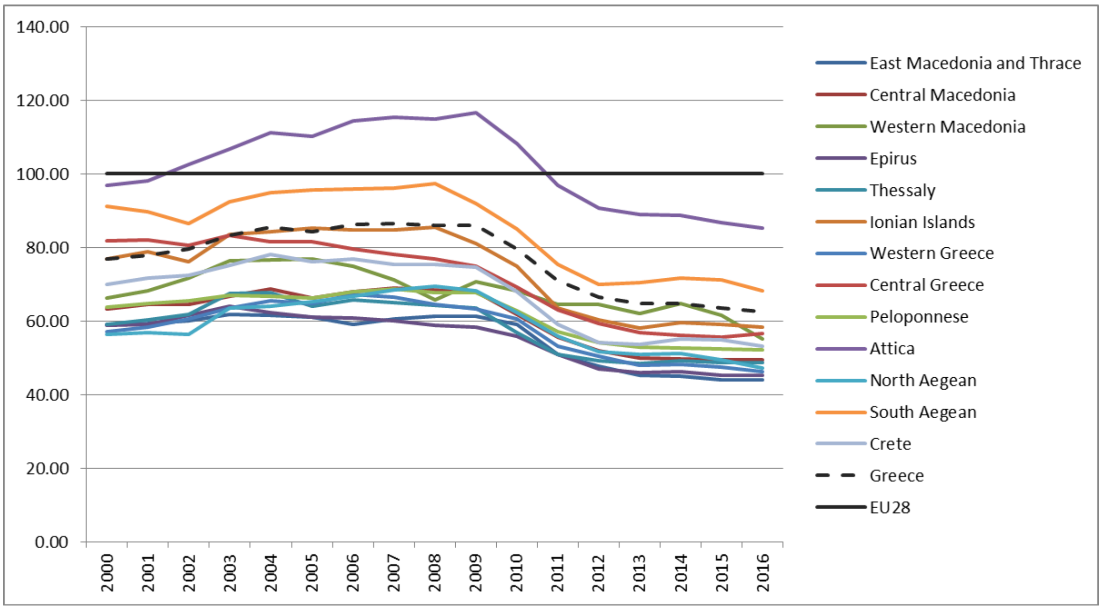


Note: For Greece OECD Territorial Level (TL) 2 regions correspond to Eurostat's NUTS2.
Source: Table 1

Figure 2 shows the evolution of regional GDP per capita at TL2[7] (13 regions) level during the period 2000–16. Attica region (top line) maintains its leading position and its distance from the national average (the dashed black line) throughout this period, which also includes the period of the post-2009 economic crisis. All other regions follow a similar pattern of growth and decline, although the speed of adjustment may vary according to their specific characteristics. We also notice that the lagging behind regions at the beginning and the last year are the same. The crisis has affected dramatically the size and the structure of the economy, but it does not seem to have changed to a noticeable degree regional hierarchies.

[7] For Greece OECD Territorial Level (TL) 2 regions correspond to Eurostat's NUTS2.

Figure 2. TL2 regional GDP per capita, 2000-2016 (€/inh, const. 2010 prices, EU28=100)



Note: For Greece OECD Territorial Level (TL) 2 regions correspond to Eurostat's NUTS2.
Source: Estimations from ELSTAT (2018)

Although Attica has maintained its dominant position in the economy during the crisis, this should not hide the serious internal divides within the metropolis, as many inner-city areas and a large part of the working-class districts have all suffered from massive lockouts, employment losses and widespread poverty during the period of the crisis.[8]

The available evidence indicates that inequalities inside the regions are also significant[9] as rural and mountainous or remote areas have a significantly lower performance than regional urban centres. Therefore, the general pattern of regional inequalities in Greece is the combination of a core-periphery component (Athens versus the regions), a south-north component (the islands versus the border regions), an east-west component (the main national transport corridor versus the mountainous range of Pindos), as well as the urban-rural component at the intra-regional level. These disparities at various levels of aggregation draw an overall map of significant spatial inequality that is driven by market dynamics, but also by policy choices.[10]

Regional policy at a glance

Table 2 outlines the regional allocation of ESPA[11] and of the Regional Operational Programs (ROPs), as well as that of the Rural Development Program and the National component of the Public Investment

[8] Maloutas (2014), Artelaris and Kandylis (2014).
[9] Artelaris and Petrakos (2016).
[10] Petrakos and Psycharis (2016)
[11] Data retrieved on 5.3.2010.

Program (NPIP).[12] It also presents the share of R&D and Entrepreneurship programs in each ROP and the rate of implementation of ROPs (measured as a share of payments to budget).

Table 2. Regional Policy Indicators

Region	ESPA allocated in Regions*		ROP Budget**		Rural Development Program in the region*		NPIP payments 2017	ROP in R&D	ROP in entrepreneurship	ROP implementation***
	(million €)	(%)*	(million €)	(%)	(million €)	(%)	(million €)	(%)	(%)	(%)
Greece	**24,013**	**100**	**5,979**	**100**	**5,122**	**100**	**655.5**	**4.64**	**9.32**	**29.52**
Attica	5,125	21.34	1,174	19.64	150,94	2.95	135.3	5.95	11.24	31.04
Central Macedonia	5,364	22.34	1,009	16.89	872,79	17.04	21.8	3.39	10.31	35.7
Thessaly	1,686	7.02	423	7.09	826,20	16.13	51.4	3.39	11.21	24.89
Western Greece	2,415	10.06	507	8.49	478,45	9.34	55.4	3.47	10.39	26.93
Crete	1,475	6.14	449	7.52	489,96	9.57	23.1	4.77	6.71	27.58
East Macedonia - Thrace	1,603	6.68	521	8.73	488,62	9.54	23.5	5.39	7.14	23.63
Peloponnese	1,071	4.46	284	4.76	497,46	9.71	37.6	3.91	10.5	30.93
Continental Greece	1,344	5.6	215	3.61	393,34	7.68	44.5	5.79	7.06	33.94
South Aegean	709	2.95	172	2.89	118,70	2.32	29.4	4.31	5.74	38.11
Epirus	1,212	5.05	337	5.64	158,78	3.1	60.7	5.65	7.34	30.45
Western Macedonia	686	2.86	339	5.69	375,81	7.34	51.4	6.1	9.14	20.86
North Aegean	690	2.87	310	5.19	214,22	4.18	53.6	3.71	9.19	25.33
Ionian Islands	627	2.61	231	3.88	56,98	1.11	67.8	4.1	6.14	30.65

Note: * Based on procurement and calls by 5/3/2020; ** Total EU and national contribution; *** Payments as a share of total budget by 5/3/20.
Source: www.anaptyxi.gov.gr

Figure 3 presents the relation of the regional allocations of ESPA, ROPs, RDP and NPIP to the regional GDP per capita. A number of observations can be made from the examination of the Table and the Diagram. First, the resources devoted for the development of the regions in this very critical period are significant. If considered overall, the ESPA and RDP funds for the 2014-20 period and an estimated sum of NPIP of about 5 billion for the same period equal an amount circa 35 billion euros in a period of 7 years. Therefore, being at the end of the programming period, the expectation is that these funds should have a significant impact on regional growth.[13]

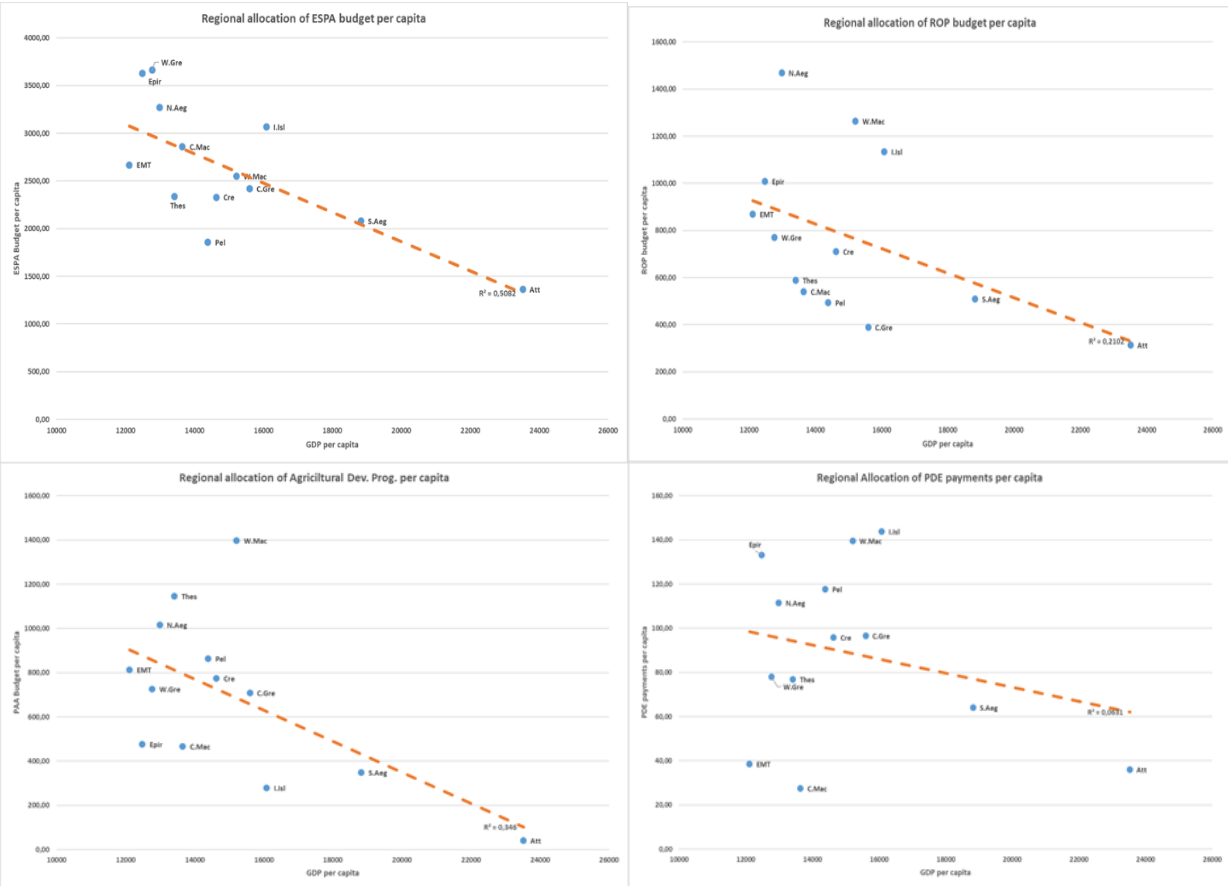
Second, the EU funded Programs (ESPA, ROPs and RDP) have an embedded cohesion logic, as they tend to allocate higher level of resources per capita to regions with lower levels of development. Therefore, by design, these Programs contribute to some extent to regional convergence, hence a smaller spread of observations around the trend line would be expected and therefore a more targeted intervention. The same seems to be the case with the NPIP (at least for 2017), although the slope of the

[12] ESPA, ROP and RDP figures are in terms of public expenditure, that is, they include both the EU and the national contribution.

[13] TA recent study indicates that this impact may be conditional on the economic and structural characteristics of the regions (Sotiriou and Tsiapa, 2015).

line in the diagram is flatter, indicating a weaker influence of GDP per capita in the allocation of NPIP resources.

Figure 3. The contribution of ESPA, ROP, ADF and PIP in regional convergence



Source: Estimates from ELSTAT (20218), EC (2018), RCI (2019)

Third, the allocation of resources going to R&D and entrepreneurship in the ROPs is rather low. Although some regions devote more resources than others, the general picture is that they may not be sufficient to support the needs for investment, innovation and restructuring in a way that ensures the local science base effectively involved and thus promotes permanent science-business partnerships. One explanation is that more resources for R&D and entrepreneurship are available in the Sectoral Programs implemented at the national level. However, these are related to horizontal actions that do not necessarily take into consideration or reflect local needs, capabilities and specializations.

The final observation is that progress in the implementation of the ROPs is relatively slow. Although some regions are doing relatively better than others, the general picture is that payments are roughly around 30% of the budget in March 2020. Delays in implementation are mostly related to the late start of the programs, resulting from a long preparation and design period. Additionally they are caused by bottlenecks and obstacles caused by over-regulation embedded in the system of operation of Structural Funds, by delays in issuing the necessary permits for projects and finally because of a number of approved projects that are relatively immature.

Development challenges

One of the main goals of the regional workshops and the survey conducted during this study was to identify the main challenges faced by the regions, taking into consideration their different characteristics and idiosyncrasies. Table 3 presents the five (5) most important challenges that have been reported in each region by regional stakeholders. The code in each cell corresponds to the type of challenge, as presented in Table 4. Different shading in both Tables is associated with different broad categories of challenges. The analysis of the regional stakeholders' responses reveals that the top challenges are those related to lack of investment activity, bureaucracy, unemployment, limited high quality products and youth outmigration.

By grouping the different options and responses into broader categories related to main challenges (A. Productive system weaknesses, B. Social problems, C. Unemployment, D. Administrative burdens, E. Infrastructure needs, F. needs for Training), it becomes clear that the challenges related to the productive environment of the regions are considered to be the most important ones.In fact they rank most often (29 times) in the top 5 of the responses of stakeholders.

Unemployment, which appears as the top challenge in many regions, is treated as a separate category, because it can be seen as both a problem of the productive system that does not generate enough jobs and at the same time as a serious social problem. In either case, social problems appear to be the second most important broad category of challenges (cited 11 times), followed by Administrative burden (9 times) and unemployment (8 times). Overall, the weaknesses of the productive system and the social problems are the top challenges faced by most regions.

Table 3. Top five development challenges in the regions

	Major Development Challenges				
	1st	*2nd*	*3rd*	*4th*	*5th*
Attica	C1	A1	D1	B1	B3
Central Macedonia	C1	A1	D1	A6	A2
Thessaly	C1	A1	A2	A6	D1
Western Greece	C1	B2	A1	B1	D1
Crete	D1	A2	E1	F1	A3
East Macedonia - Thrace	C1	A1	D1	A2	B1
Peloponnese	D1	A3	A1	A6	B1
Continental Greece	A1	E4	C1	B1	A3
South Aegean	E5	A5	E3	A2	E2
Epirus	C1	A1	B2	B1	A2
Western Macedonia	C1	A1	B1	D1	A5
North Aegean	A3	B1	A2	A4	A5
Ionian Islands	E3	D1	A2	A4	E1

Source: Elaboration from OECD questionnaire survey

Table 4. Broad categories of development challenges

Challenges	*N**	*Broad category*	*N**
A1. Lack of new private investment	9	**A.** Productive system weaknesses	29
A2. Limited specialization in high quality products	8		
A3. Lack of business and innovation support services	3		

A4. Lack of local value chains	2		
A5. Limited sectors and narrow productive base	3		
A6. Dominance of small firms and limited export capacity	3		
B1. Youth outmigration	8	**B.** Social problems	11
B2. Low income and limited local demand	2		
B3. A share of population lives in poverty	1		
B4. Low quality or missing social services	0		
C1. Unemployment	8	**C.** Unemployment	8
D1. Sluggish administrations that do not support investment	9	**D.** Administrative burden	9
D2. Weak territorial cooperation among authorities and stakeholders	0		
E1. Low quality or missing transport infrastructure	2	**E.** Infrastructure needs	7
E2. Low quality or missing sewage and water infrastructure	1		
E3. Low quality or missing waste disposal/processing facilities	2		
E4. Limited presence of Universities and Research Centres	1		
E5. Low quality of health care facilities	1		
F1. Lack of trained, or experienced labour force	1	**F.** Training	1
F2. Low quality or missing vocational training services	0		

Note: * N is the number of times each challenge appears in the top five responses.
Source: Elaboration from OECD questionnaire survey.

Bureaucracy appears to be the third most frequently mentioned challenge, which, however, in some regions appears very high in their list of challenges. It should be noticed that regional stakeholders consider on average that bureaucracy is the first most important factor that causes long delays in the implementation of the structural funds and development policy (the second one is delays in issuing permits and the third is the centralization of the decision making process). They also consider that the central government is mainly responsible for bureaucracy (60% of responses), with the European Commission (26% of responses) and the regional administrations (14% of responses) taking the second and third place.

Missing, or low quality infrastructure of different types (transport, urban, environmental and scientific ones) appears as the fifth most frequently mentioned challenge, while dealing with labour force training appears as the last one.

This being the general pattern, however different regions value and rank these challenges in a different way that apparently stems from their own characteristics. For example, unemployment is considered the top challenge in seven regions, including the two metropolitan ones. However, this is not a top challenge in the island regions. In fact, in the islands it does not even appear among the top five challenges. Likewise, and with the notable exception of North Aegean, affected by youth outmigration, the island regions do not report any serious social problem among the top five challenges. Their focus seems to be more on missing infrastructure, administrative burden and the productive system.

While all regions result showing a common pattern regarding some type of weaknesses of their productive system, they also feature differentiated issues: the mainland and metropolitan regions face more serious unemployment and social challenges, while the island regions more often challenges related to infrastructure. Administrative burden challenges seem to be present in all types of regions. The above analysis indicates that different regions face a different mix of problems and challenges that requires a more focused and place-based approach to designing and implementing policy priorities and actions.

Development opportunities

In order to deal with the detected challenges, regional stakeholders define a number of development opportunities that are relevant to the profile of their respective region. Table 5 presents the top five opportunities. The coding in each cell corresponds to the typology, which is presented in Table 6. Different shading in both Tables is associated with corresponding broad categories of opportunities and (the responding) policy priorities.

The analysis of the regional stakeholders' responses reveals that the top opportunities for the regions are associated with: development of new forms of tourism (ii1: citied in 10 regions among the top 5 opportunities), development of a strong science base (iii1: citied in 10 regions among the top priorities), transformation of the agricultural sector (iv1: cited in 9 regions among the top 5 priorities), protection of the environment and cultural heritage (vi: citied in 8 regions among the top priorities), development of the energy sector (i5: cited by 6 regions among the top priorities), development of new start-ups in ICT, bio- and agro-tech sectors (i4: citied in 5 regions among the top priorities), and restructuring of local and regional administration (vi1: citied in 5 regions among the top priorities).

Table 5. Top five development opportunities for the regions

	Top-5 Development Opportunities				
	1st	*2nd*	*3rd*	*4th*	*5th*
Attica	i4	iii1	v1	i2	iii2
Central Macedonia	i2	iv1	ii1	iii1	i3
Thessaly	iv1	i4	iii1	ii1	vi1
Western Greece	iii1	vi1	iii2	i1	i5
Crete	ii1	iii2	v1	iii1	i5
East Macedonia - Thrace	iv1	i5	i6	iii1	ii1
Peloponnese	ii1	iv1	v1	iii1	i1
Continental Greece	iv1	iii1	ii1	i5	vi1
South Aegean	ii1	v1	vi1	i4	iv1
Epirus	iv1	ii1	v1	vi1	i3
Western Macedonia	iv1	vi2	i4	i5	i2
North Aegean	ii1	v1	iii1	i4	i3
Ionian Islands	ii1	v1	i5	iii1	iv1

Source: Elaboration from OECD questionnaire survey.

By grouping different opportunities in broader categories (marked with the same shade in Tables 5 and 6), we observe that those related to industrial development and restructuring (i) prevail in the general picture, as they are citied among the top five priorities more often (20 times) than any other category. They are followed by opportunities related to the science base of the regions (iii), those related to the development of a new form of tourism industry (ii), to agriculture (iv), to culture, quality of life and the environment (v) and the restructuring of local/regional administration and new forms of governance (vi).

The emphasis on industry (modernization of existing industry, new sectors, support value-chains, new start-ups, renewable energy and logistics) is in line with the discussions and policies for the re-industrialization of Europe as well as aligned to the capabilities of most regions. It is highly compatible and complementary with the second broad category, which aims to develop a strong science base supporting the innovative activity of industry. The third broad category, related to the development of new forms of tourism, is highly compatible with the development of a new and more diverse agriculture (fourth broad category) and the preservation of culture and the environment (fifth category). The restructuring of the local and regional administration (sixth broad category) is compatible and conducive to all other priorities.

Although this is the general pattern, each region values and ranks opportunities in a differentiated way that conforms better its own characteristics and challenges. For example, island regions place more emphasis on tourism (that appears as a top ranked opportunity in all of them) and on the protection of the quality of environment, heritage and life (that appears in the second or third place in all of them). The metropolitan region of Attica identifies a mix of opportunities that places an emphasis on innovative start-ups, its rich science base, the environment and its historical heritage. Central Macedonia, the second metropolitan region, identifies a mix of opportunities and policy priorities in new industrial sectors with competitive advantages, agriculture, tourism, its science base and value-chains. Islands place more emphasis on tourism and the preservation of their physical and cultural environment. All of them combine these top priorities with some short of industrial development (new start-ups, energy, value-chains), while some also see opportunities in developing their science base and the primary sector.

Table 6. Broad categories of development opportunities

Priorities	N*	Broad category	N*
1. Support existing manufacturing sectors in which the region has already a comparative advantage and experienced workforce to modernize production technology, improve products and seek new export markets.	2	i. Industry	20
2. Support the development of new manufacturing sectors in which the regions can develop a comparative advantage based on a development plan that seek diversification of the production base through targeted and coordinated policies at the regional and local level.	3		
3. Develop value chains (local forwards and backwards linkages) in sectors of strong competitive advantage in order to withhold locally a greater part of the value added of tradable products and services.	3		
4. Develop new start-ups in the ICT, bio-food, bio-health, agro-tech, social economy, circular economy or other high profile and frontier sectors, with the support and cooperation of research labs, incubators and innovation or business support services	5		
5. Develop the energy sector through investment in renewable energy projects, such as solar, aeolic, geothermal, hydroelectric, as well as local energy networks that will reduce the energy cost of production and make the region an attractive investment destination	6		
6. Take advantage of national or international transport networks to develop logistic services and/or assembly lines for tradable commodities in specific transportation hubs in the region.	1		
1. Develop new forms of tourism (gastronomic, agro-tourism, health, cruise/yachting, winter, experience, etc.), expand touristic period, and connect tourism with the local agriculture, food, science, culture and craft sectors.	10	ii. Tourism	10
1. Develop a strong science base (Universities, Research and Innovation Centres) that will support key economic sectors to become innovative and competitive and attract high quality human resources to the region	10	iii. Science base	13
2. Make the region an academic destination by developing strong academic institutions, facilities and services attracting students and scientists from other regions and abroad for research, work or study, making Higher Education an important industry for the region.	3		
1. Support the transformation and diversification of the primary sector towards quality and organic products and develop a new agro-food sector exporting to niche and high-end markets.	9	iv. Agriculture	9
1. Preserve the environment, as well as cultural, architectural or historical heritage, improve local amenities and services and make quality of life an asset that will attract new residents in the region.	7	v. Environment and cultural heritage	7
1. Transform local and regional government to an efficient mechanism supporting economic activities and new investment in the region by providing effective land and development planning, services and permits.	5	vi. Administration	6
2. Develop a regional incentives framework that will include long-term concession of municipal land and a number of local services and support in order to actively attract large	1		

investment of domestic or foreign origin in sectors that can benefit from the advantages and characteristics of the region and operate complementary developing linkages with the regional production fabric			

Note: * N is the number of times each challenge appears in the top five responses.
Source: Elaboration from OECD questionnaire survey.

On the other hand, less advanced mainland regions tend to identify a mix of opportunities that includes in the top places the qualitative upgrading and restructuring of agriculture, some type of actions related to industrial development and the development of new forms of tourism. Some regions that are already endowed with strong academic and research institutions (or some that expect or strive to do so) expect a more decisive role for their science base in supporting the innovative activity of the regional economy, while some others see a new development role for local and regional governments.

The figures show that the mix of top opportunities of the regions depends to a large extent on their economic and structural characteristics and responds to the challenges they face. From the national perspective it is important that the regions identify windows of opportunity for a new production model based on quality, diversification, extroversion, technological upgrade, value chains, start-ups in frontier sectors, science-industry cooperation, sustainability and a new model of governance. At the regional level, however, the right mix (that will largely affect policy choices) relies on local assets and knowledge that need to be mobilized in a policy climate encouraging their participation in the design and implementation development programs.

Development priorities for the next Programming Period

The combination of development challenges and opportunities determines to a large extent policy priorities. Regional stakeholders have identified in Table 4 the weaknesses of the productive system (lack of investment, quality products, value chains, limited specializations and small firms) as the top development challenge. They have also identified social problems (outmigration, low income, poverty) and bureaucracy to be the second and third most important challenge, followed by unemployment and missing infrastructure. Also, they have identified in Table 6 in broad lines the productive sectors (industry, tourism and agriculture) and the science base of the regions as the areas where top development opportunities arise. These choices determine to a large extent their preference for the allocation of resources in the next 2021-27 programming period among policy priorities.

Tables 7 and 8 present the suggested allocation of resources in the next programming period to three main policy priorities related to (A) the productive system, (B) infrastructure and (C) human capital. They also present the ranking of these priorities at the regional and national level.

Priority A relates to policies that will improve the productive system of the region by enhancing investment, employment, innovation, competitiveness, value chains, product diversification, economic restructuring, and start-ups.

Priority (B) is related to policies that will improve transport infrastructure (roads and rail), urban infrastructure (sewage and water), environmental infrastructure (waste and protection), digital infrastructure (broadband networks) and energy infrastructure (renewable sources).

Finally, priority (C) refers to policies that will improve human resources including education, vocational training, higher education, research, skill development, access to market, reverse brain drain and support disable and socially excluded.

Table 7 shows the partition of funds across the three broad development priorities as suggested by regional stakeholders. The figures in the Table indicate the percentage of the total budget of the next programming period allocated to each priority, while the shade is associated with the ranking of priorities in each region. The majority of the regions consider as top development priority the policies and programs related to the productive system of the regions. In fact the productive system priority appears either in the first (9 regions) or in the second (3 regions) place of 12 regions and flags a very clear and robust strong preference. The other two priorities are resulting closer in the choice of the stakeholders, although 'infrastructure' appears more often in the first (3 regions) and the second place of the ranking (5 regions) than 'human capital', the latter more often in the third place (7 regions).

Different regions show different needs and corresponding different priorities. For example, most island regions reporting significant challenges related to missing or decaying infrastructure and the environment, give a higher priority to policies related to infrastructure. A number of other regions, including the two metropolitan and most mainland, follow a different pattern, ranking programs and policies for the productive system, human capital and infrastructure in the first, second and third place respectively.

Table 7. Development priorities and allocation of resources in the regions

	Share of resources allocated to broad development priorities		
	A	B	C
	Production system	Infrastructure	Human capital
Attica	40	28	32
Central Macedonia	50	22	28
Thessaly	38	31	31
Western Greece	41	31	28
Crete	32	37	27
East Macedonia - Thrace	41	32	27
Peloponnese	40	29	31
Continental Greece	43	25	32
South Aegean	32	41	27
Epirus	37	36	27
Western Macedonia	52	25	23
North Aegean	29	45	26
Ionian Islands	28	32	40

Note:

1st development priority
2nd development priority
3rd development priority

Source: Elaboration from OECD questionnaire survey

This general trend is a shift from the resources allocated in previous programming periods, where infrastructures of all types (and in all sources of funding) were the top priority. One explanation is that most major infrastructure projects have already been completed. In the regions where transport infrastructure is still missing in the form of road network (Crete, Western Greece, Epirus), ports or marines and environmental infrastructure (North and South Aegean), as the figures underscore. A second explanation relates to the understanding that infrastructure projects may improve the quality of life in the regions, but it is not always clear if they can have a lasting impact on unemployment, which is a top development challenge, beyond the construction period. As a result, 'infrastructure' still remains a significant policy domain in regions with well-defined needs, but it does not result to be overall the top policy priority.

On the other hand, policies and programs related to the productive system and the human resources of the regions address the most important development challenges they face: unemployment, lack off investment, low quality products and youth outmigration. They also take into consideration and respond to the top development opportunities of most regions, related to the development of industry, tourism, agriculture and their science base.

Overall, the regions, as from the survey results, are considering a new phase of development policy giving more emphasis and priority to the needs of their productive system, human resources and their emerging knowledge base. The regional stakeholders of the survey[14] and the participants to the four Regional Seminars tend to suggest an allocation of resources that prioritizes investment, employment creation, innovation, competitiveness, value chains, product diversification, economic restructuring, and start-ups. These policies account for about 40% of the total available resources (Table 8).

Table 8. Ranking of development priorities

		1st Priority in:	2nd priority in:	3rd priority in:	Average budget share
Production system	Improve the productive system of the region (enhance investment, employment, innovation, competitiveness, value chains, product diversification, economic restructuring, start-ups)	9 regions	3 regions	1 regions	40%
Infrastructure	Improve infrastructure (transport: roads and rail, urban: sewage and water, environmental: waste and protection, digital: 4G broadband networks , energy: renewable)	3 regions	5 regions	5 regions	32%
Human capital	Improve human resources (education, vocational training, higher education, research, skill development, access to market, reverse brain drain, support disable and socially excluded)	1 regions	5 regions	7 regions	28%

Source: Elaboration from OECD questionnaire survey

Second rank the policies and programs supporting transport, urban, environmental and digital infrastructure, which account for about 32% of the available resources. These policies and programs are also highly compatible with new investment and the competitiveness of the regional productive systems, to the extent that they solve critical problems of accessibility or environmental quality.

In the third place, but in a close tie of preferences, appear policies targeting the human resources, such as education, training, research, access to lab or market and support for the disabled and the socially excluded, about 28% of the available funds. These policy priorities are highly compatible to priorities related to the productive environment, as the quality of the human resources is perhaps the most significant contributor to innovation, competitiveness and new business creation.

The fact that different regions choose a different mix of these three broad development policy priorities indicates that local needs and the local knowledge should be a critical ingredient in the design of the next programming period. This requires a less cumbersome administrative setting and a place-based approach to designing and implementing policies and programs.

[14] Overall, 186 regional stakeholders from the local and regional administration, the productive sector, the science base and the civil society participated in the survey.

Concluding remarks

The Greek regions face significant development challenges and they need to embark into a growth and restructuring process aiming to a double convergence. On the one hand, the less advanced peripheral regions need to converge towards the frontrunner metropolitan region, and on the other, Greece as a whole (including its metropolitan region) needs to converge towards the EU average in terms of GDP per capita and other welfare and competitiveness indicators. During the last decade, all regions have experienced a average -25% dramatic drop in their GDP, while many have seen their population to decline and age, due to significant youth outmigration. The existing mix of development policy (largely implemented through the Structural Funds) has alleviated to some extent the impact of the crisis, but has not been able to deter its adverse effects on employment and growth. Most regions suffer from structural weaknesses related to a narrow productive base and lack of quality and scale effects, missing value chains and limited innovative activity that affect the competitiveness of their economy.

To deal with these problems, development policy has to focus closer to the challenges regions face and the opportunities they identify for restructuring and growth, by setting policy priorities and actions in a way that is sufficiently informed from the local experience and knowledge. In doing so, regional stakeholders point to three areas of institutional reforms of utmost importance. The first (i) is related to a simplification of policy design and implementation processes; (ii) the second is related to a decentralization of accountability and decision making power, allowing for a more place-based approach to policy;(iii) the third is related to building capacities in the local and regional administrations in order to enable them to respond to the challenges they face in a more effective way.

Nonetheless, decentralization in responsibilities and decision-making and the new system of territorial policy governance should be an integral part of a national strategic plan for regional development, which will detect and interpret correctly the type and intensity of spatial imbalances and define the goal of inclusive and sustainable growth in a spatial context and in a meaningful way. This strategic plan should provide an evidence-based allocation of total resources (not only the structural funds) and responsibilities and the required checks and balances among the three levels of administration that will ensure that top-down and bottom-up approaches, horizontal and place-based policies are well functioning and integrated in a new model of governance that promotes growth, sustainability and cohesion in a more timely, effective and accountable way.

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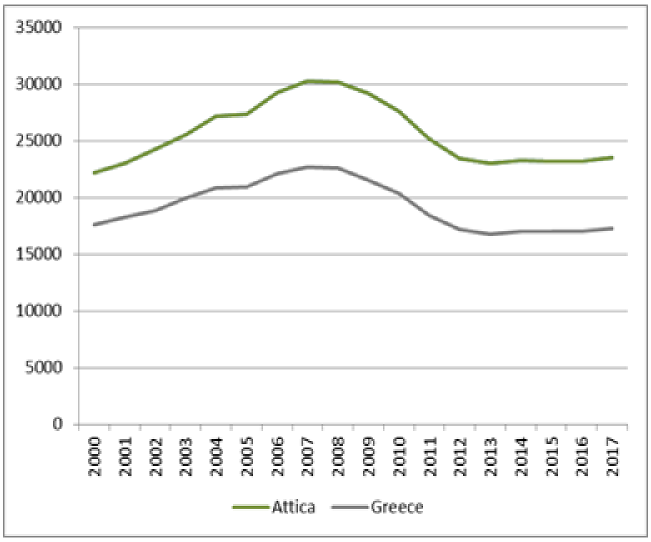
1 Attica

Figure 1.1. Location of the region of Attica

Figure 1.2. GDP per capita in Attica (€/inh, const. 2010 prices)



Source: Territorial Review of Greece, OECD 2020.

Local Government, Geography and Demography

The Region of Attica encompasses the Athens metropolitan area and borders the Region of Continental Greece to the north-west and the Region of Peloponnese to the south-east. Athens, with about 3,787,386 inhabitants, is the capital of the Regional Administration of Attica and the Decentralized Administration of Attica. The region is divided into 66 municipalities (Table 1.1).

Table 1.1. Information on the administrative structure of the region of Attica

Regional Self Government	A Governor and a Regional Council are elected directly in Attica for a 4-year term.
Decentralised administration	Attica belongs to the Decentralized Administration of Attica. The capital of the Decentralized Administration is the city of Athens.
Regional units (population)	Central Sector of Athens (1,022,853), North Sector of Athens (585,183), South Sector of Athens (522,798), West Sector of Athens (480,851), Pireaus (443,888), Islands (73,865), Eastern Attica (498,183), Western Attica (159,765)
Municipalities	The Region of Attica has 66 Municipalities (out of the 332 Municipalities in Greece) directly electing Mayor and City Council every 4 years.

Capital city	The city of Athens with a population of 3,787,386 inh. (year 2011). Athens is a Functional Urban Area (FUA, large metropolitan area) of 3,610,000 inh. (2015).
Other major cities (inhabitants)	-
Regional institutions in Attica	Athens Chamber of Commerce Technical Chamber of Greece Democritus Research Centre National and Kapodistrian University of Athens National Technical University of Athens Athens University of Economics and Business University of Piraeus Panteion University Harokopio University Agricultural University of Athens University of Western Attica Athens School of Fine Arts Regional Association of Attica Municipalities Attica Islands Network All major National Institutions have their seat in Athens

Source: ELSTAT (2019) OECD (2019b)

Attica is the most populated region of Greece with 3,756,453 inhabitants in 2018 and the most urbanized. The region has experienced one of the highest population declines in the post-2008 period. Ageing in Attica is an issue of relatively minor importance, as the share of population over 70 years old is lower than the Greek or EU levels, while the index had a modest increase (2.8%) during the crisis[15]. This is also confirmed by the elderly dependency ratio, which, in 2019, was 32.0%, below the national average. The share of population (25-64 years) with tertiary education is 38.4%, above the national and the EU average. Nearly the total population of the region lives in cities, as the urbanization rate is close to 100%. Finally, the index of crude rate of net migration for the region of Attica is negative, reflecting the emigration-generated population decrease in the area, while during the last decade it presented a moderate decrease (Table 1.2).

Table 1.2. Indicators for the population characteristics of the region of Attica

Indicator	Regional indicator		Comparisons		Change in indicator (2008-latest year)	
	Level	*National Rank*	National average = 100 (national share)	EU=100	Annual change (%)	*National Rank*
Population, 2018	3,756,453	*1*	35[a]		-0.60	*12*
Population share (%) in the country, 2017	35.0	*1*			-2.9	*13*
Population density (inh/km²), 2018	986.5	*1*	1212	840	-0.60	*12*
(%) Population >70, 2011	12.9	*12*	87	98	2.8	*7*
Youth Dependency Ratio[b], 2019	22.1	*8*	98		1.0	*2*
Elderly Dependency Ratio[b], 2019	32.0	*11*	92		2.9	*1*
(%) Population (25-64 years) with tertiary education[e]	38.4	*1*	124	122	3.5	*7*

15 Greece confronts acute problem of population ageing as 40% of the population is expected to be over 65 years by 2050 (OECD 2017).

Urbanization ratio, 2011	99.0	*1*	129		0.0	*12*
Crude rate of net migration[d], 2017	-2.2	*11*			-2.4[c]	*7*

Source: ELSTAT (2019) - OECD (2020). Regions and Cities database. Accessed on 5 April 2020. Notes: a: the value is the national share of the region, b: Youth & Elderly dependency ratios constructed with -15 & 65+ over 15-64 working age population data, c: difference of the values for the years 2008 and 2017, d: calculated as the difference between the total change and the natural change of the population (OECD 2019a).e: period 2001-2011.

Regional Economy

Structural characteristics and sectoral specialisations

The productive structure of the region includes a small primary sector with the lowest GDP share across the country. The relative productivity of the primary sector in Attica, although smaller than that of industry and services, in relative terms is higher than the national average (1.5) or the one of other EU regions (1.3). The primary sector is based on the agricultural and livestock sector (Table 1.3).

The region has a modest presence of the secondary sector, with a share in the regional GDP relatively small (10th in position) and lower than the national and the EU average. Notice, however, that a large part of industrial activity of Attica relocated outside the regional borders in the triangle Schimatari – Inofita – Chalkida in the north and Agii Theodori (in the south) during the 80s and 90s because of environmental restrictions and investment subsidies. On the other hand, the tertiary sector has a high share in regional GDP (ranking the third highest in the country) while its productivity level is close to the national and EU average (Table 1.3).

The Location Quotient (LQ) index (ISIC Rev4, branches grouped in 10 sectors), which measures the specialization in production, shows that Attica has developed a strong specialization (with LQ>1.25) in several branches of services and specifically in information and communication, in professional, scientific and technical activities, and in financial and insurance activities, with a lower but still remarkable specialization in administrative and support services (Table 1.4).

Table 1.3. Structural indicators of production in the region of Attica

Indicator	Regional indicator		Comparisons		Change in indicator (2008-latest year)	
	Level	*National Rank*	National average = 100 (national share)	EU=100	Annual change (%)	*National Rank*
(%) Primary in GDP, 2016	0.4	*13*	10	26	1.3	*12*
(%) Secondary in GDP, 2016	13.3	*10*	78	53	-1.0	*9*
(%) Tertiary in GDP, 2016	86.3	*3*	109	116	0.2	*1*
(%) Primary in Employment, 2015	0.8	*13*	7	17	-0.5	*7*
(%) Secondary in Employment, 2015	12.0	*10*	91	55	-5.6	*12*
(%) Tertiary in Employment, 2015	87.2	*1*	115	118	1.1	*9*
(%GDP)/(%Employment) $_{Primary}$, 2016	0.5	*4*	131	154	2.1	*9*
(%GDP)/(%Employment) $_{Secondary}$, 2016	1.1	*9*	85	97	5.5	*4*
(%GDP/(%Employment) $_{Tertiary}$, 2016	1.0	*11*	96	98	-1.0	*3*

Source: Sources: OECD (2019a), ELSTAT (2019).

The Revealed Comparative Advantage (RCA) index is a measure of export-related sectoral specialization. According to this, the productive structure of the region leads to an export oriented system with strong or significant specializations (RCA>1.25) in science-based sectors, specialized supplier sectors, and scale-intensive sectors (Table 1.4).

Attica shows a highly diversified production base, having developed some level of specialization in 26 (out of 38) NACE2 branches. Strong or high specialization in other transport equipment, pharmaceutical products, printing and publishing, manufacturing of radio, television and other communication equipment and apparatus, chemicals, financial institutions and insurance, coke and petroleum, and electronic equipment and optical instruments. Weak to modest specialization in other 24 sectors, most of them in services. Moreover the region displays overall specialization in 14 tradable branches.

The region takes advantage of its highly diverse production base in order to develop value chains through local forwards and backwards linkages, especially in the branches of specialization. These linkages are strong and the region's prospects for growth are supported by high regional multipliers[16]. 24 branches appear to have regional multipliers greater than one, 14 of them are in tradable branches and 15 in branches the region is specialized. This implies that in most branches, an increase in regional demand (for example due to higher touristic flows, public spending, or exports) leads to an equal or higher increase in regional production.

Table 1.4. Sectoral specialisation in the region of Attica

Indicator	Regional indicator		Change in indicator (2008-latest year)	
	Level	*National Rank*	Annual change (%)	*National Rank*
LQ[a] in agriculture, forestry and fishing, 2016	0.06	*13*		
LQ in mining, energy, electricity, water supply, 2016	0.36	*10*		
LQ in manufacturing, 2016	0.96	*6*		
LQ in construction, 2016	0.7	*13*		
LQ in distr. trade, transport, accom., food serv., 2016	0.99	*4*		
LQ in information and communication, 2016	3.17	*1*		
LQ in financial and insurance activities, 2016	2.38	*1*		
LQ in professional, scientific and technical act., 2016	2.53	*1*		
LQ in administrative and support services, 2016	1.0	*7*		
LQ in other services, 2016	1.01	*7*		
RCA[b] in agricultural sector, 2012	0.5	*12*	3.0	*6*
RCA in resource-intensive sector, 2012	1.0	*3*	-3.9	*7*
RCA in labour-intensive sector, 2012	0.7	*6*	2.2	*7*
RCA in scale-intensive sector, 2012	1.3	*3*	3.0	*5*
RCA in specialized supplier sector, 2012	1.5	*1*	2.9	*4*
RCA in science-based sector, 2012	1.8	*1*	3.9	*6*
Diversification of productive base [c], 2011	26 (2/*14*)	*1*		

[16] Regional multipliers measure the increase in production in a sector (i) in a region (r) that will result from an increase in demand in the same sector and region. High multipliers occur in regions with strong forward and backward linkages among local sectors enabling that most of the value-added from the production process is generated (and transformed to incomes) locally.

Sectors with regional multiplier effects >1[d], 2011	24(15/*14*)	*1*		

Note: a) LQ is the location quotient index, which evaluates the sectoral specialisation of regions and it is estimated as follows: 〖LQ〗_(i,r)=(A_(i,r)⁄A_r)/(A_(i,R)⁄A_R), where A the GVA, i the sector, r the region and R the country; b) RCA is the index of Revealed Comparative Advantage, which estimates the relative size of exports of a region in a sector as follows: 〖RCA〗_(i,r)=(X_(i,r)⁄X_r)/(X_(i,R)⁄X_R), where X the exports, i the sector, r the region and R the country; c) Number of NACE2 sectors with weak/modest or strong specialization in the region (total number of sectors is 38). Bold indicates strong specialization, italics indicates specialization in tradable sectors; d) Total number of Sectors. In bold sectors of specialization, in italics tradable sectors.
Source: Sources: OECD (2019a), ELSTAT (2019), University of Peloponnese (2013).

Regional performances and current trends

Being the largest regional economy in Greece Attica is generating 47.3% of the national GDP. Similarly, its development level, in GDP per capita terms, is the highest in the country (136%), but lower than the EU average (90%). Both GDP and GDP per capita have declined during the last decade by 3.7% and 3.1%, respectively, one of the highest drops in the absolute terms of GDP. The productivity level in Attica is the highest in the country (124%), but lower compared to the EU (81%). It has declined in the post-2008 period by 1.8%, which is a moderate drop in relation to the other regions.

The merchandise exports of the region are equal to 14.7% of GDP and have increased by 6.2% annually, placing Attica in the 3rd and 9th place in the respective figures. Despite the relatively good position of the region in the country, the share of exports in GDP terms is less than half of the EU average (45%). Attica has a significant record in the European Regional Innovation Scoreboard, ranking 1st among Greek regions, but this figure is below the EU average (75%). Its performance improved during the last decade, as the relative indicator has increased annually by 0.8%, the fifth higher figure in the country (Table 1.5).

Attica is experiencing a high unemployment rate (20.2%) that is slightly higher than the national average, but dramatically higher than the EU average. Unemployment on average increased by 11.5% annually during the last decade, holding the second higher position in the country, while the employment ratio declined by 1.9%.

Table 1.5. Indicators of development, competitiveness and welfare for the region of Attica

Indicator	Regional indicator		Comparisons			Change in indicator (2008-latest year)	
	Level	*National Rank*	National average = 100 (national share)	EU=100	OECD=100	Annual change (%)	*National Rank*
GDP, 2016 (constant 2010 prices, ml. €)	88,877	*1*	48[a]			-3.7	*10*
GDP per capita, 2016 (€/inh.)	23,529	*1*	136	90	87	-3.1	*5*
GDP share (%) in the country, 2017	47.3	*1*				-1.9	*10*
Employment share (%) in the country, 2017	36.7	*1*				-0.7	*13*
(%) Employment/Population, 2018	42.3	*6*	101	100		-1.9	*13*
(%) Unemployment, 2018	20.2	*6*	103	289	18[d]	11.5	*2*
Productivity	46.8	*1*	124	81[c]		-1.8	*9*

(GVA/worker, thousand €), 2017							
Merchandise exports to GDP ratio, 2016	14.7	*3*	104	45		6.2	*9*
Regional Innovation Scoreboard, 2017	76.9	*1*		75		0.8[b]	*5*

Note: a): the value is the national share of the region, b) period 2009-2017, c) for the year 2016, d) Ranking per high unemployment among 347 OECD regions (OECD, 2018).
Source: OECD (2019a, 2019c), ELSTAT (2019), Eurostat (2019a).

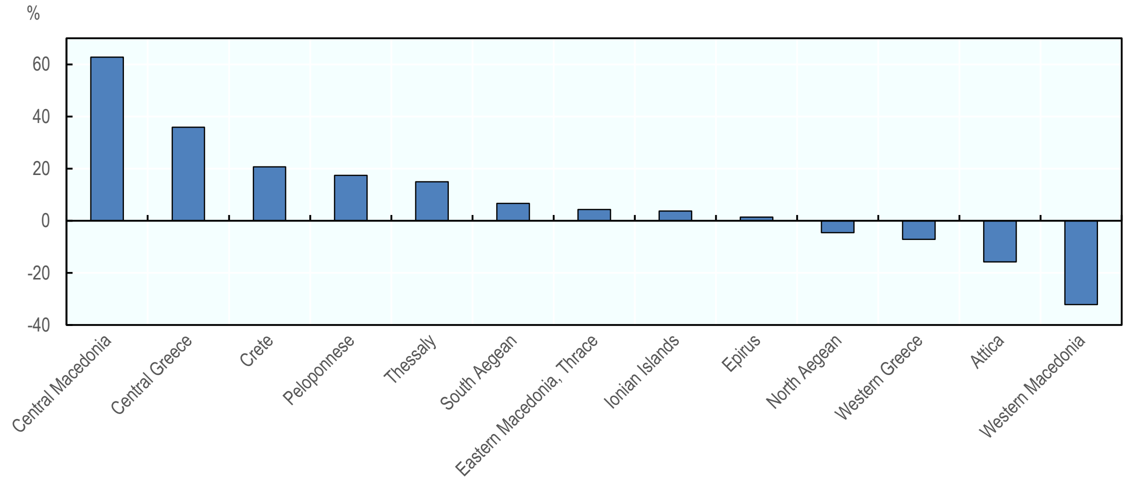
According to the OECD analysis and the Social Scoreboard indicators published by Eurostat (2019b), Attica is facing serious social issues related to the condition of its human resources (Figure 1.5). The figures show that 12% of the young people in the age group 15-24 are excluded from education or the labour market and that the share of population at risk of poverty and social exclusion is 28%. These figures are slightly lower than the national average. Likewise, the region is doing worse than the national average in terms of other indicators, as almost 10% of the population of Attica does not have access to health services, and 76% of jobless people are long-term unemployed (Table 1.6).

Table 1.6. Social indicators for the region of Attica, 2018

Social indicator	Greece	Attica
Share of population with lack of access to health services	8.8	9.8
Long-term unemployment	70.3	76.0
Youth aged 15-24 excluded from education or the labour market	14.1	12.4
Share of people in danger of poverty or social exclusion	31.8	28.3

Source: Eurostat (2019b).

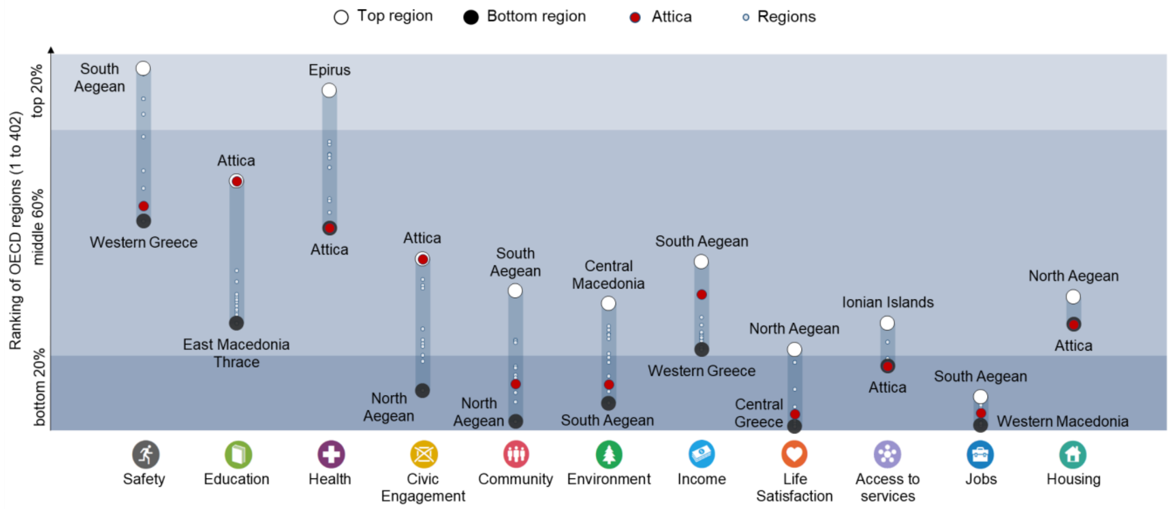
Figure 1.3. Regional contribution to national GDP growth in Greece, 2015-2017



Note: Regional contribution to national growth is calculated as an interaction of region's growth in GDP between 2015 and 2017 and 2017 share of regional in national GDP, and further normalised by overall Greek GDP growth in the given period to calculate the share. The figure portrays positive contribution if the growth rate in the region was positive, and negative if GDP fell in the region, rescaled by the size of the contribution.
Source: OECD (2020). Regions and Cities database. Accessed on 18 February 2020.

The performance of Attica is quite variable in the OECD well-being indicators (2019c, figure 1.4 and figure 1.5). Compared to 402 OECD regions, Attica belongs to the middle 60% group in the fields of safety, education, health, civic engagement, income, and housing. Compared to the other OECD regions, Attica is having a relatively high score in safety, health and education and very low scores in terms of community, environment, access to services, and jobs. When compared to the other Greek regions, Attica is above the national average in education, civic engagement, and income, close to the national average in health, community, jobs, housing, and life satisfaction, below the national average in safety, environment, and access to services.

Figure 1.4. Regional well-being indicators for Attica



Source: OECD Regional Well-Being Database, www.oecdregionalwellbeing.org.

Figure 1.5. Individual well-being indicators outcomes in Attica and Greece

	Country Average	OECD median region	Attica
Safety			
Homicide Rate (per 100 000 people), 2016	0.8	1.3	1.0
Education			
Labour force with at least upper secondary education (%), 2017	76.7	81.7	86.9
Health			
Life Expectancy at birth (years), 2016	81.5	80.4	81.0
Age adjusted mortality rate (per 1 000 people), 2016	7.5	8.1	7.8
Civic engagement			
Voters in last national election (%), 2017 or lastest year	63.6	70.9	69.5
Community			
Perceived social network support (%), 2013	81.1	91.4	79.7
Environment			
Level of air pollution in PM2.5 (µg/m³), 2015	18.4	12.4	21.6
Income			
Disposable income per capita (in USD PPP), 2016	12 958	17 695	..
Life Satisfaction			
Life satisfaction (scale from 0 to 10), 2013	5.6	6.8	5.2
Access to services			
Households with broadband access (%), 2017	65.0	78.0	59.0
Jobs			
Employment rate 15 to 64 years old (%), 2017	53.7	67.7	55.0
Unemployment rate 15 to 64 years old (%), 2017	21.8	5.5	21.8
Housing			
Rooms per person, 2016	1.5	1.8	1.5

Source: OECD Regional Well-Being Database www.oecdregionalwellbeing.org.

Blue economy

Blue economy encompasses economic activities related to oceans, seas and coastal areas and it includes four main sectors: aquaculture, fishing, maritime, coastal tourism. According to the European Commission's 2018 Annual Economic Report on EU Blue Economy, these sectors are growing steadily, showing a total turnover of € 566 billion. Greece ranks among Europe's top five blue economies, with related sectors greatly contributing to its GDP and employment rates. In Greece, blue economy employs over 333,500 people and generates around € 7.2 billion in GVA.

According to the 2019 Annual Report on Greek Aquaculture by the Federation of Greek Mari-cultures, which presents data for 2017-2018, in Attica there are 27 aquaculture units, representing the 7,22% of the national aquaculture production and 8% of the country's' units. It also, represents the 12.7% of the aquaculture sector's employment. Currently there are plans to strengthen aquaculture in Attica, creating Allocated Zones for Aquaculture (AZAs) in the islands of Poros and Salamina, the sea area in the bay of Megarwn and the Methana, which are classified in categories A and B of PAY.[17]

[17] PAYs are areas dedicated to the development of aquaculture activity – either with a relatively limited concentration of units in proportion to their characteristics or for fragmentary growth, resulting in a significant margin for further development. The PAY is organized in categories, (A), (B) (C), and (D) category. Category A of PAYs includes highly developed areas, with a significant concentration of sea farms that need to be modernized and

The professional fishing fleet of Attica represents about 10% of the national fleet and includes small coastal fishing vessels as well as medium and overseas fishing vessels. According to the 2014-2019 Strategic Planning of the Attica Region, there were 1,587 professional fishing vessels in Attica in 2015, with a capacity 15 000 GT (Gross Tonnage), counting for 3 130 jobs.

The region of Attica hosts the Hellenic Centre for Marine Research (HCMR), which is a governmental organization operating under the supervision of the General Secretariat for Research and Technology (GSRT) of the Ministry of Education, Research and Religious Affairs. HCMR is composed by three Research Institutes: The Institute of Marine Biology, Biotechnology and Aquaculture (IMBBC), the Institute of Marine Biological Resources and Inland Waters (IMBRIW) and the Institute of Oceanography (IO). The blue lab created by the Municipality of Piraeus (en.bluelab.gr) promotes and supports business innovation exclusively for Blue Growth in Greece. It is an initiative of the Municipality of Piraeus, aiming to provide a springboard for developing new ventures, ideas and products using advanced technology within the Blue Economy. Piraeus also hosts the Maritime Hellas Cluster (http://www.maritimehellas.org/) supported by the Hellenic Chamber of Shipping, the Union of Greek Shipowners and the Piraeus Chamber of Commerce & Industry.

The port of Piraeus is one of the biggest and most important ports in Europe.[18] Other important ports in Attica are in Rafina (passengers), Elefsina (cargo and passengers) and Lavrio (cargo and passengers).[19] Piraeus serves the city of Athens, which counts 40% of the population and 60% of the economic activity of the country. Its geographical location makes it a key gate for internal connections between islands and mainland Greece and also for international trade and tourism. The activity of the Port is extremely complex and combines cargo services (conventional and unified; import-export and in transit), the service of passengers (both coastal shipping and cruise ships) and shipbuilding and repair activities.

Enabling Factors

Transport, health digital infrastructure and environment

The transport infrastructure of Attica, according to the relevant indicators, is above the national average. In terms of road density and freight transport, the region holds the first and the tenth position respectively.

In terms of air and port transport, Attica hosts the largest airport and the largest port in the country both with a core position in the TEN-T network in Europe, while it has one more airport and three ports inserted in the TEN-T network. In terms of health infrastructure, the region holds the second position in the country with respect to the number of hospital beds per inhabitant, with a modest decrease of this indicator during the crisis period (Table 1.7).

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improved, to protect the environment. For those areas, the creation of an AZA (Allocated Zones of Aquaculture) is mandatory, to promote the organized development of aquaculture. On the contrary, areas with high-value nature environments that need protection, with no significant concentration of sea farms, are included in category D of PAY. In those areas, an AZA is required, with adaptation to the special spatial and physical characteristics of the area.

[18] The Port of Piraeus is: the first in size and traffic Port of the country; a strategic connection with the EU and the rest of the world; the most important port in the country for the supply of raw materials and finished products; the most important hub of the country for worldwide export; the most important hub of the country for the transport of the tourist wave, either abroad (cruise ships) or domestic (coastal shipping); the main supply hub of goods and people to Crete and the Aegean islands; the most important and largest shipbuilding base in Greece.

[19] In Attica, there are also 20 less important ports on the mainland (e.g. Megara, Oropos, Perama, Agia Marina, etc.) and islands' ports (e.g. Salamina, Souvala, Spetses, Diakofti, Potamos, etc.).

Finally, air pollution in Attica is in high levels compared to the other regions (3rd place), with one of the slowest rates of decline in the country (2.1%).

Table 1.7. Indicators of infrastructure for the region of Attica

Indicator	Regional indicator		Comparisons	Change in indicator (2008-latest year)	
	Level	*National Rank*	National average = 100 (national share)	Annual change (%)	*National Rank*
Road network per km² (km/100 km²), 2018	60.5	*1*	198		
Commercial airports	2(**1**/*1*)[c]	*5*	5[a]		
Passengers in air transport/1000 inh, 2016	5.3	*5*	126	3.2	*8*
Commercial ports	9(**1**/*3*)[c]	*6*	7[a]		
Passengers in maritime transport/1000 inh, 2016	4.7	*5*	162	-5.3	*10*
Road freight transport (thousand tons/inh), 2017	21.6	*10*	47	8.4[b]	*2*
Hospital beds/10,000inh., 2015	51.3	*2*	121.2	-1.8	*7*
Air Pollution in PM2.5 (μg/m³), 2017	17.4	*3*		-2.1	*5*

Note: a: the value is the national share of the region, b: period 2009-2017, c: the value in parenthesis is the number of airports/ports with significant role at the European level (bold: with core network, italics: with comprehensive network).
Source: Eurostat (2019a), ELSTAT (2019), OECD (2019a), EU (2013).

Innovation, human capital and skills

R&D expenditure at the regional level is an indicator of the capacity of the local science and productive base to innovate, but also a measure of the commitment of the public and private sectors to support innovation, structural adjustments and competitiveness. Arguably, in the case of Attica the figures show that R&D-related expenditure is higher compared to the national average, a performance that is similar in all sub-categories of expenditure (Table 1.8).

Table 1.8. Indicators of innovation and development policies for the region of Attica

Indicator	Regional indicator		Comparisons	Change in indicator (2008-latest year)	
	Level	*National Rank*	National average = 100 (national share)	Annual change (%)	*National Rank*
R&D Expenditure (€/inh), 2016	270.4	*1*	167	4.2[b]	*7*
R&D Expenditure in firms (€/inh), 2016	146.1	*1*	214	6.5[b]	*10*
R&D Expenditure in public sector (€/inh), 2016	61.1	*2*	151	4.4[b]	*12*
R&D Expenditure, tertiary education (€/inh), 2016	60.4	*4*	117	-0.03[b]	*9*

Patent applications per million inhabitants, 2015	19.6	1	206	2.8	2
Public Investment (€), 2017	859,321,366	2	28[a]	-5.7	11
Public Investment per head (€/inh), 2017	227.7	8	82	-5.6	11
% ESPA allocated in the region	21.3	2			
% National Rural Development Program allocated to the region	2.9	11			

Note: a: the value is the national share of the region, b: period of 2005-16. Data for ESPA and Rural Development Program were accessed on 5/3/2020

Source: National Documentation Centre (2019), Ministry of Development and Investments (2019 and 2020)

The private and public sector hold the first and second position, respectively, in the country in terms of R&D expenditures, while tertiary education the fourth. During the crisis period 2008-16, two out of three sub-categories (private and public sector) presented a modest increase in the indicator.

In terms of patent applications per million inhabitants, Attica has the best performance in the country, and the second higher increase of the index during the period 2008-05.

Public Investments and European Structural Funds in Attica

Public Investment Program

The Public Investment Program is one of the most powerful development policy tools available, supporting through its national and co-financed programs infrastructure, entrepreneurship and the development of human resources. At the same time, its regional allocation is an indication of the commitment of the State to regional cohesion and balanced growth. Attica receives 28% of the Public Investment national budget against a population share of 35% and a GDP share of 47%. As a result, the per capita figure is lower compared to the national average (Table 1.9).

European Structural Funds

The allocation of the 2014-20 European Structural Funds is aligned to the economic characteristics of the region, as Attica receives 19.6% of the amount of ESPA allocated to Regional Operational Programs in Greece and 21.3% of the total amount of ESPA. Attica also receives 2.9% of the Rural Development Program (Common Agricultural Policy), a figure that is one of the lowest among the Greek regions and corresponds to the size of the agricultural sector of the region (Table 1.9).

ESPA Regional Operational Program

The Regional Operational Program of the Region of Attica includes a Vision, 6 Strategic Objectives and 11 Thematic Objectives[20] that altogether define the development strategy of the Region. The

[20] The 11 Thematic Objectives of the ROP are in fact the Thematic Objectives of the ESIF 2014-20 and are common for all regions: (1) strengthening research, technological development and innovation; (2) enhancing access to, and use and quality of, ICT; (3) enhancing the competitiveness of SMEs, of the agricultural sector (for the EAFRD) and of the fishery and aquaculture sector (for the EMFF); (4) supporting the shift towards a low-carbon economy in all sectors; (5) promoting climate change adaptation, risk prevention and management; (6) preserving and protecting the environment and promoting resource efficiency; (7) promoting sustainable transport and removing bottlenecks in key network infrastructures; (8) promoting sustainable and quality employment and supporting labour mobility; (9) promoting social inclusion, combating poverty and any discrimination;

development strategy, after a period of open consultation with regional stakeholders, is decided by the Regional Council of Attica, included in the programming documents of the ROP and finally approved by the European Commission. The Vision of the region of Attica is ‘the social, economic and environmental reconstruction of Attica, as a region of Europe, with its cultural identity, local productive forces, technology and innovation to be the levers of development and with the activation of civil society and the encouragement of the participation of citizens in the integrated and balanced development to be the central point of reference’.

The strategic Objectives of the ROP are stemming from the 11 Thematic Objectives for the programming period 2014-20. They are tailored to the specific conditions of Attica so as to ensure that the ROP will be consistent and focused on existing regional development problems. They are:

Exploitation and improvement of research infrastructure and human resources

Development of entrepreneurship, including the social economy

Completion of basic infrastructure (particularly, the environmental protection infrastructure)

Reduction of intra-regional disparities

Tackling of poverty and social marginalization of population groups

The Regional Operational Program (ROP) of Attica is about 1.1 billion euro (Table 1.10). More than 40% of these funds address environmental (28.2%) and transport (14.3%) projects or actions, while a high share of resources is devoted to human resources development and protection (38.5%). A relatively smaller amount is available for actions in support of entrepreneurship (11.2%) and for research and technology (5.9%) (Table 1.10).

Compared to the share of total resources of the 13 ROPs in different policy priorities, the ROP of Attica assigns more resources to research and technology (135%), human capital and social care (121%) and entrepreneurship (120%), and less in environment (92%) and transport (66%).

The progress in the implementation of the ROP is slow, since about 78.7% of the budget of ROP (by the beginning of March 2020) has been contracted for projects and actions, and just 31% actually disbursed. This is a rather poor performance, which, however, is better than the national average. The worst performance in the implementation process in terms of expenditure is observed in the entrepreneurship (11.4%) priority, whereas the best is in R&D (43.8%) (Table 1.9).

Table 1.9. Indicators for the Regional Operational Programs of the region of Attica

Indicator	Regional indicator						
	Level	*National Rank*	National average = 100	Share of ROP contracted	*NA='100' (rank)*	Share of ROP implemented	*NA='100' (rank)*
ROP budget total (€), 2014-2020	1,174,407,027	*1*	19.6[a]	78.7	*126 (1)*	31.0	*105 (4)*
% ROP in research and technology	5.9	*2*	135	58.4	*158 (3)*	43.8	*290 (1)*
% ROP in entrepreneurship	11.2	*1*	120	55.5	*87 (10)*	11.4	*153 (3)*

(10) investing in education, training and vocational training for skills and lifelong learning; (11) enhancing institutional capacity of public authorities and stakeholders and efficient public administration.

% ROP in human capital and social care	38.5	*3*	121	67.7	*83 (12)*	34.5	*80 (11)*
% ROP in environment	28.2	*9*	92	76.4	*174 (1)*	33.2	*149 (1)*
% ROP in transport	14.3	*12*	66	147.4	*223 (1)*	30.0	*95 (6*
% ROP in technical support	1.8	*8*	99	15.2	*43 (13)*	11.6	*50 (13)*

Note: a: the value is the national share of the region.
Source: Ministry of Development and Investments (2020).

ESPA Sectoral Operational Programs

The resources of the ROP are matched by the funds (about 3.9 billion euros) allocated to Attica by the ESPA Sectoral Operational Programs (SOPs). The SOPs are managed in the 2014-20 programming period by the Ministry of Development and Investment (former Ministry of Economy and Development)[21]. Table 1.11 shows that the SOPs of ESPA devote to Attica a relatively higher share to environment, lower shares to human capital and social care, and entrepreneurship and even lower (below of 10%) in research and technology and in transport. These programs also warrant some resources for the restructuring and modernization of public administration in Attica (0.9%) (Table 1.10).

Table 1.10. Indicators for the Sectoral Operational Programs (SOP) allocated in the region of Attica

Indicator	Regional indicator						
	Allocated budget	*National Rank*	National average = 100	Share of SOP contracted	*NA='100' (rank)*	Share of SOP implemented	*NA='100' (rank)*
ESPA budget total (€), 2014-2020	3,928,890,608 €	*2*	22.1[a]	56.5	83 (13)	25.7	83 (12)
% ESPA in research and technology	7.4	*11*	90	58.9	*98 (8)*	17.3	*82 (12)*
% ESPA in entrepreneurship	11.8	*9*	103	90.5	*104 (2)*	23.3	*102 (6)*
% ESPA in human capital and social care	18.4	*12*	74	90.3	*105 (2)*	50.5	*121 (1)*
% ESPA in environment	54.9	*1*	144	37.1	*67 (12)*	18.2	*67 (12)*
% ESPA in transport	3.8	*12*	30	31.3	*58 (12)*	16.5	*60 (12)*
% ESPA in administration	0.9	*12*	61	80.4	*102 (5)*	31.0	*88 (9)*
% ESPA in technical support	2.8	*9*	88	92.8	*101 (9)*	51.8	*103 (1)*

Note: a: the value is the national share of the region.
Source: Ministry of Development and Investments (2020) data accessed on 5/3/2020

[21] In previous programming periods, Sectoral Operational Programs were managed by line Ministries.

Making the most of the EU Structural Funds: enhancing human capital, innovation and Smart Specialization

The policy mix in the area of skills and social protection results by the combined allocation of funds in both the ROP of Attica and the SOPs (considering the funds for Attica therein). Table 1.11 shows that relevant resources are available in the ROP for human capital and social inclusion (452.5 million euros). Most of these funds are addressing social inclusion actions (364 million euros), a smaller share is for education and lifelong learning (66 million euros) and actions supporting employment (21.7 million euros). However, as it is shown in Table 1.13, education and employment actions are more strongly supported by the SOPs. The option to focus on social inclusion in the ROP is largely imposed by the crisis and the severity of problems faced by significant social groups. The expected impact of these actions is to improve access to services for the deprived and reduce social exclusion and poverty. The implementation of the social inclusion sub-program is relatively good, as the contracted share reaches 74% and payments 39% of the budget.

The ROP budget also reserves 132 million euros to smart specialization, an amount that mainly supports investments by SMEs in the fields identified by RIS3 as the most relevant for the development of the region. This action has been contracted at 89.7% but has been paid only 18.4%. In addition to the funds allocated in the ROP, Attica receives a significantly larger amount from the Sectoral Programs in these fields.

Table 1.11. The funds of the ROP of Attica for Skills, Innovation and Smart Specialization

	Committed Public Funds, €	Allocated Budget, €	Contracted, €	Contracted share of budget, %	Payments, €	Payments as a share of Budget, %
Skills	452,518,759	452,579,851	306,460,316	67.7	156,119,880	34.5
Employment	21,797,054	3,642,000	1,302,000	35.7	1,302,000	35.7
Education and Lifelong Learning	66,544,108	82,777,888	33,470,919	40.4	11,130,681	13.4
Social Inclusion	364,177,597	366,159,963	271,687,397	74.2	143,687,199	39.2
Innovation	69,832,550	43,637,274	40,753,521	93.4	30,578,175	70.1
Research Technology Innovation	29,832,550	9,725,200	7,992,245	82.2	4,324,494	44.5
Information and Communication Technologies	40,000,000	33,912,074	32,761,276	96.6	26,253,681	77.4
Smart Specialization	132,049,165	81,783,444	73,347,428	89.7	15,065,303	18.4
SME's Competitiveness	132,049,165	81,783,444	73,347,428	89.7	15,065,303	18.4

Source: Ministry of Development and Investments (2020) data accessed on 5/3/2020

Table 1.12 shows that Attica receives from the respective SOPs additional 723 million euros for human capital and social inclusion, 463.9 million euros for Smart Specialization and 289 million euros for Innovation. This means that the regional strategy, as defined in the ROP, gets strong support from the sectoral programs. The policy mix in the SOPs is focused more on employment and lifelong learning and very little on social protection, as the latter has been implemented at the regional and local level in a more place-based approach. Implementation of the skills sectoral programs is relatively satisfactory, as 67.7% of the allocated budget has been contracted and 34.5% spent.

In addition, the analysis of the programming and implementation figures shows that the SOPs devote significant funds on innovation and ICT that have a satisfactory degree of contracting (58.9%), but a lower expenditure (17.3%).

The gap between contracting and spending is explained by a number of factors. Most common factors are (i) the late start of the programs (most of them launched in 2017), (ii) cumbersome administrative procedures, (iii) but also the actual time that an R&D or innovation project needs in order to be completed. The total amount of funding indicates that innovation policies are mainly supported by the SOPs where the budget is much higher. However, it is worth to consider that most part of the budget in these programs is directed to ICT infrastructure.

Finally, the funds allocated to Smart Specialization are business development funds concentrated in the sectors identified in the RIS3 as the most important for the region. They have a significant budget that is by 90.5% contracted, whereas again payments and absorption are still low. One of the reasons for the slow implementation of the investment projects is the weak banking sector. Most investors face difficulties to get a loan or a guarantee from their banks, therefore they have to complete their investments with their own financial means.

A critical issue relates to the level of funding in the ROP. The most important development opportunities in the region are the production of high-quality products, the development of a strong science base and the development of new start-ups in ICT, bio-food and agro-tech, as well the development of clusters and value chains of local export oriented firms. To seize these opportunities, investments in R&D and innovation policies are required and a significant part of these policies has to be place-based. According to the findings of the survey, the structural funds would have had a greater impact on the regional economy if more emphasis were placed on cooperation between the region's productive and scientific base on innovative actions promoting smart specialization.

Table 1.12. The funds of the SOP for Skills, Innovation and Smart Specialization allocated to Attica

	Committed Public Funds*	Allocated Budget, €	Contracted, €	Contracted as a share of allocated Budget, %	Payments, €	Payments as a share of allocated Budget, %
Skills		723,024,764	652,854,915	90.3	365,196,255	50.5
Employment		432,138,041	385,252,747	89.2	253,916,090	58.8
Education and Lifelong Learning		290,759,723	267,475,168	92.0	111,280,165	38.3
Social Inclusion		127,000	127,000	100.0	-	0.0
Innovation		289,161,750	170,442,096	58.9	49,913,474	17.3
Research Technology Innovation		163,985,981	110,812,057	67.6	29,709,028	18.1
Information and Communication Technologies		125,175,769	59,630,039	47.6	20,204,446	16.1
Smart Specialization		463,914,018	420,025,217	90.5	108,197,936	23.3
SME's Competitiveness		463,914,018	420,025,217	90.5	108,197,936	23.3

Note: *There is no predefined commitment for each region.
Source: Ministry of Development and Investments (2020) data accessed on 5/3/2020.

Policy challenges to improve smart specialisation fostering skills and innovation

As described in previous sections, Attica is the largest and most developed regional economy in Greece, although still below the EU average and with a high rate of unemployment. The economy of Attica includes a small primary sector, a noteworthy secondary sector, and a large tertiary sector. The primary sector is, mainly, based on agriculture and livestock and exhibits low levels of relative productivity. The secondary sector is, mainly, based on labour-intensive industries (such as printing and publishing, on capital-intensive industries (such as transport equipment), on resource-intensive industries (such as coke and petroleum) and on knowledge-intensive industries (such as pharmaceutical products, chemicals, electronic equipment and optical instruments) and exhibits satisfactory levels of relative productivity. The tertiary sector is, mainly, based on information and communication technologies, on professional, scientific and technical activities, on financial and insurance activities, and on administrative and support services, and exhibits modest levels of relative productivity. Attica has, apparently, the opportunity to further stimulate the competitiveness and extroversion of its economy. This study identifies opportunities in three main areas for Attica to seize its development path and foster employment:

1. Strengthening and diversifying the productive base of the regional economy.
2. Pursuing an innovation-oriented and knowledge-intensive regional society.
3. Enhancing the performance and impact of EU Structural Funds.

Strengthening and diversifying the productive base of the regional economy

Attica specializes in information and communication technologies, in professional, scientific and technical activities, in financial and insurance activities, and in administrative and support services, and it has highly diversified economic base. Attica has a relatively more innovative economy, has significant value chains, and is characterized by high export and high regional multipliers.

Accordingly, targeted policy interventions should support actions to:

1. Develop start-ups in the fields of ICTs, bio-food, bio-health, agro-technology, social economy, circular economy or other cutting-edge industries with the support and cooperation of Research Laboratories, Incubators and Entrepreneurship and Innovation Centres.
2. Develop a strong scientific base (Universities, Research Centres) that is going to support key economic sectors in order to become innovate and competitive and to attract high-quality human resources to the region.
3. Protect the environment and cultural, architectural, and historical heritage, improving local quality features and services and highlighting quality of life in a strong advantage that is going to attract new residents to the region.
4. Support the development of new industrial sectors in which the region can develop a comparative advantage based on a development plan that seeks to diversify the production base through targeted and coordinated policies at the local and regional level.
5. Transform the region into an academic destination by developing strong Universities, but also University infrastructure and services, to attract students and scientists from other regions and other countries to study, research and work, highlighting Higher Education in an important industry for the region.

Pursuing an innovation-oriented and knowledge-intensive regional society

Overall, Attica is faced with significant challenges in terms of improving the innovative capacity of its productive sectors. Despite the fact that the performance of Attica in terms of innovation indicators improved during the last decade, the region has, still, significant room for improvement in many aspects, e.g. the need to be more business-driven. The current ROP of Attica allocates a satisfying amount of funds for R&D and innovation actions (approximately 70 million euros), whose implementation, however, is in a serious delay.

The fact that the National and Kapodistrian University and the National Technical University of Athens appear in the Times Higher Education (Times Higher Education, 2019) global ranking in the 501-600 and the 601-800 ranking category, respectively indicates that there are significant possibilities for the production of relatively high-quality research in the region, which can be the base for science-business cooperation and the development of local innovative products and services. This is a highly sensible strategy, as Attica accounts for more R&D expenditure than all the other Greek regions put together (EC, 2019).

Attica needs to embark on a recovery and growth process that will be more knowledge-intensive than in the past. Although there are some encouraging signals, such as the increasing number of business that cooperate with the Universities in research projects, this remains a critical challenge for the near future. The analysis has shown that significant obstacles still exist that need to be addressed in an effective way. On the positive side, in the current programming period RIS3 is, to some extent, a well-funded and well-targeted strategy. This is a major improvement that has already resulted in an increase in the relevant scoreboard indicators. However, RIS3, which in Greece is mostly operated at the national level, with 87% of the funds (EC, 2019), needs to re-innovate the role of the regions.

Targeted policy intervention should support actions to:

1. Foster cooperation and collaboration between the key actors of the regional innovation ecosystem. Attica needs to build further on the existing experience of the administration, the Universities, the Regional Research Council, the public and especially the private stakeholders, in order to develop a more effective policy framework in the next programming period.
2. Address the issue of ‘ownership’ of the RIS3 and at the same time handle the implementation of the R&D programs in a way that enables the accumulation of innovation-specific knowledge and policy capabilities within the regional R&D community. Attica needs to better tune the regional Smart Specialization Strategy, so to make projects and actions more relevant to the real needs and opportunities of the region.
3. Enhance the science-business collaboration in Attica, making a better use of the available funds for industrial research and innovation. Attica (including its satellites) hosts the richest production, but also research, ecosystem in the country and can build on the experience of these actors in successfully applying to the calls of the SOPs and engaging in a joint implementation of a large number of applied research and R&D projects.

Enhancing the performance and impact of EU Structural Funds

The region receives significant financial support from Structural Funds, which potential is not fully exploited because of the average modest progress in the implementation of the Regional Development Program (ROP) and to some extent also of the Sectoral Operational Programs (SOPs). The coexistence of the SOPs and the ROP to serve the development needs of the region raises the twofold issue of ensuring complementarity of programs, measures and actions, and of defining the most appropriate level of administration for each type of intervention. In general, the centrally-implemented SOPs projects are complementary to the corresponding ROP projects, in the sense that they do not cover the same type of actions, in Thematic Objective 5 (promoting climate change adaptation, risk prevention and management), Thematic Objective 6 (preserving and protecting the environment and promoting resource efficiency), Thematic Objective 7 (promoting sustainable transport and removing bottlenecks in key network infrastructures) and Thematic Objective 9 (promoting social inclusion, combating poverty and any discrimination). In contrast, the centrally-implemented SOPs projects tend to compete with the ROP projects, either because of time overlapping calls or because they support similar actions, in Thematic Objective 1 (strengthening research, technological development and innovation), Thematic Objective 2 (enhancing access to, and use and quality of, ICT), Thematic Objective 3 (enhancing the competitiveness of SMEs), Thematic Objective 4 (supporting the shift towards a low-carbon economy in all sectors) and Thematic Objective 10 (investing in education, training and vocational training for skills and lifelong learning by developing education and training infrastructure).

To enhance the overall performance and impact of the Structural Funds in Attica, policy intervention should support actions to:

1. Strengthen the regional and local management system for the implementation of the ROP in order to speed up and exploit in full the ROP sub-program for Research and Technology that is not being activated yet. Noteworthy that some regional stakeholders consider the design of the RIS3 quite satisfactory, but not timely implemented according to the plan and the business needs.
2. Better focus the ROP financial intervention targeting support on the production of high-quality products, the development of a strong science base and the development of new start-ups in ICT, bio-food and agri-tech, and the development of clusters and value chains of local export-oriented firms.
3. Pursue a rebalance in the responsibility over the implementation of the projects funded in the region from the central bodies to the Regional Authority in order to improve their impact. For example, by incorporating in the ROP all the place-specific projects and actions implemented in the region, while horizontal projects or actions or inter-regional programs could be better implemented through centrally-run SOPs.
4. Ensure a greater impact of the ROP on the regional economy by aligning it with the regional and spatial plan.

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